

# Building report

Quarterly analysis of building activity

First quarter 2019

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# Executive summary

The **FNB/BER Building Confidence Index** fell to an almost eight-year low of 25 in 2019Q1.

Of the sub-sectors surveyed the biggest decline in sentiment was among **building material manufacturers** (-24) and **hardware retailers** (-23).

In contrast, **architect** confidence gained 10 points on the back of higher activity. This does not mean that the building pipeline necessarily improved as the activity of **quantity surveyors** remained weak.

After slipping to 41 in 2018Q4, **residential builder** confidence shed a further 14 points to register a level of 27 in 2019Q1. This was underpinned by building activity growth at its worst in almost a decade.

**Non-residential builder** confidence fell to 16, from 28 in 2018Q4. Like the rest of the sector, non-residential contractors saw lower activity growth this quarter.

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# Introduction

This report outlines some of the key findings of the BER's 2019Q1 Building Survey, including the **FNB/BER Building Confidence Index** and related data.

## Summary of the 2019Q1<sup>1</sup> building survey results

### Further fall in building confidence in Q1

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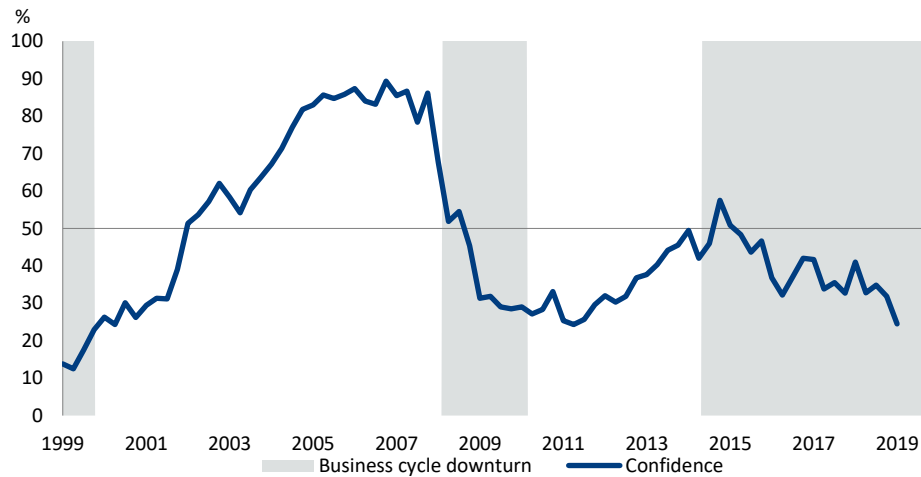
**FNB/BER Building Confidence Index** at 25 in 2019Q1

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The **FNB/BER Building Confidence Index** lost 7 points to reach an almost eight-year low of 25 in 2019Q1 (Figure 1).

During the quarter, two of the six sub-sectors registered higher confidence (namely architects and quantity surveyors). Of the four that registered lower confidence, manufacturers (-24) and hardware retailers (-23) saw the biggest decline.

Figure 1: FNB/BER Building Confidence Index



Source: BER

In general, the lower confidence can be attributed to still weak demand in most sub-sectors, barring architects. This suggests that the poor performance in the building sector in terms of activity will continue over the near term, if not intensify (off already weak levels).

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<sup>1</sup> The survey was conducted between 28 January and 4 March 2019.

## Pipeline of building work remains weak

Building plans passed down across the board in 2018Q4

According to Statistics South Africa (Stats SA), growth in the real value of building plans passed fell by 14.9% year-on-year (y-o-y) in 2018Q4, in addition to a 5.2% contraction in 2018Q3. Leading the decline in overall building plans passed was the non-residential sector which registered a 33.2% y-o-y drop. Residential plans passed and that of additions and alterations recorded more modest annual declines of 9.3% and 5.5% respectively. The official data moved in line with the BER's survey data for 2018Q4.

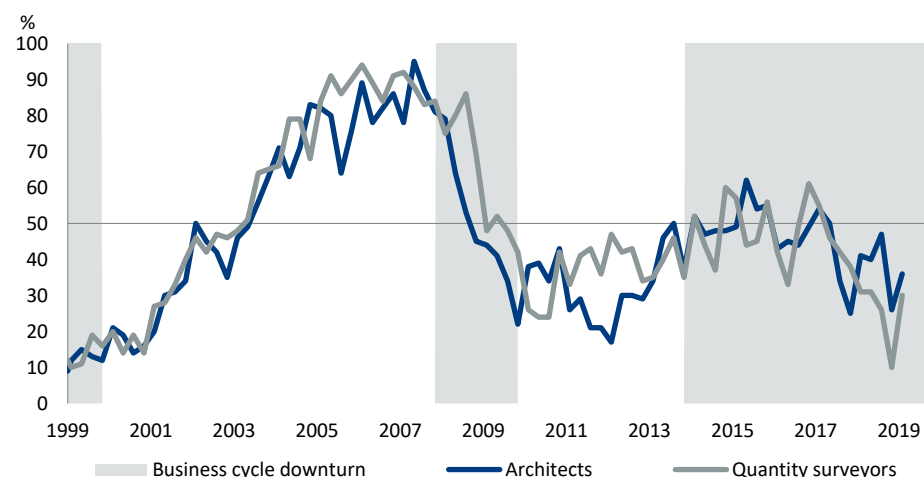
Based on this quarter's survey results, growth in the value of building plans passed likely moved sideways – but off a low level.

Activity among architects improves, but remains weak for Qs

The business confidence of **architects** gained 10 points to reach a level of 36 in 2019Q1 (Figure 2). Despite the improvement, confidence remains lower than during much of 2018. Underpinning the gain in sentiment was an uptick in activity. The average activity indicator<sup>2</sup> improved to -30, from -50 in 2018Q4.

In contrast, after falling to -54 in 2018Q4 from -41 in 2018Q3, the average activity indicator<sup>3</sup> for quantity surveyors was largely unchanged at -51 in 2019Q1. While activity moved sideways, **quantity surveyor's** confidence rose to 30, from 10 in 2018Q4. This returns the index to the level recorded in 2018Q3 and suggests that the confidence reading of 10 in 2018Q4 was an outlier. As such, not much should be made of the 20-index point improvement.

Figure 2: Architect and quantity surveyor confidence



Source: BER

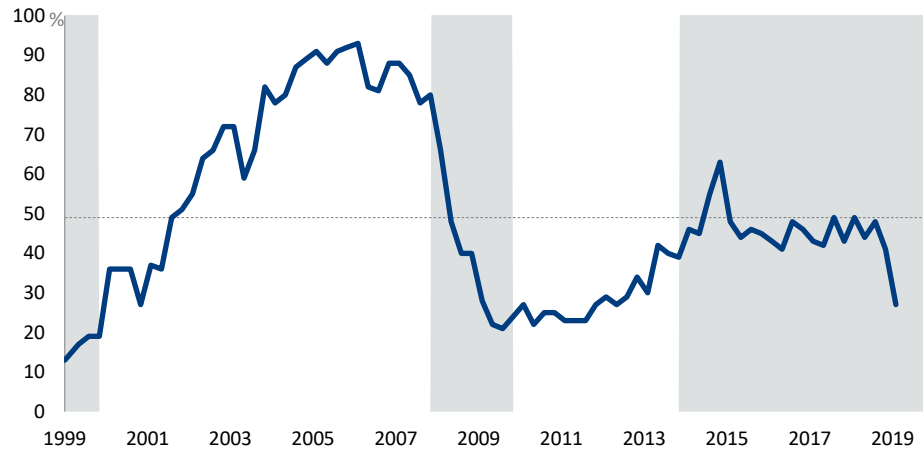
<sup>2</sup> This is the average for the indices measuring the growth in projects at sketch plan stage, working drawing stage and number of contracts awarded.

<sup>3</sup> This is the average for the indices measuring the growth in projects at sketch plan stage, bill of quantities stage and the number of contracts awarded.

## Residential builder confidence sheds 14 points

At 27 in 2019Q1, **residential builder** confidence fell to its joint lowest level since 2011Q3, a 14-point drop (Figure 3).

Figure 3: Residential builder confidence

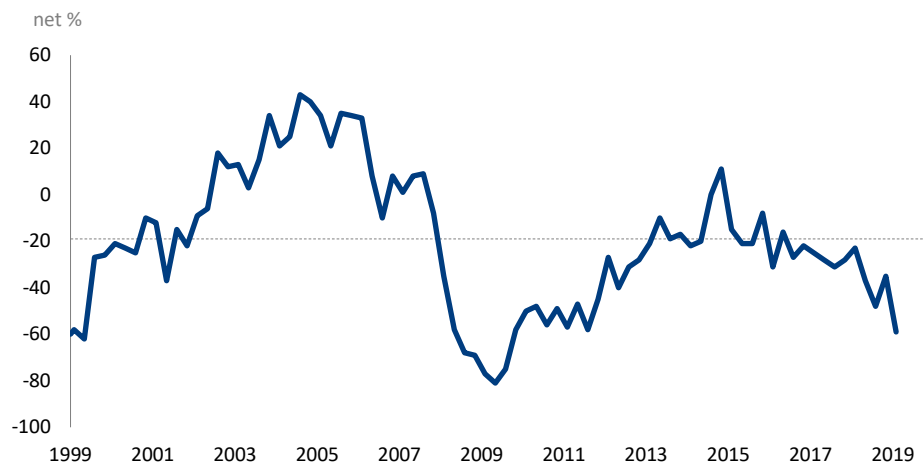


Source: BER

Residential  
builder activity  
continues to  
decrease in  
2019Q1

The lower confidence was consistent with a further decline in residential building activity growth. Whereas 35% of respondents indicated that activity growth was lower in 2018Q4 compared to a year earlier, 59% indicated as such in 2019Q1 (Figure 4). To compare with official statistics, it is likely that the real growth in residential building investment is as bad (if not worse) in 2019Q1 as the 6.8% annual contraction recorded in 2018Q4.

Figure 4: Residential builders, growth in building activity

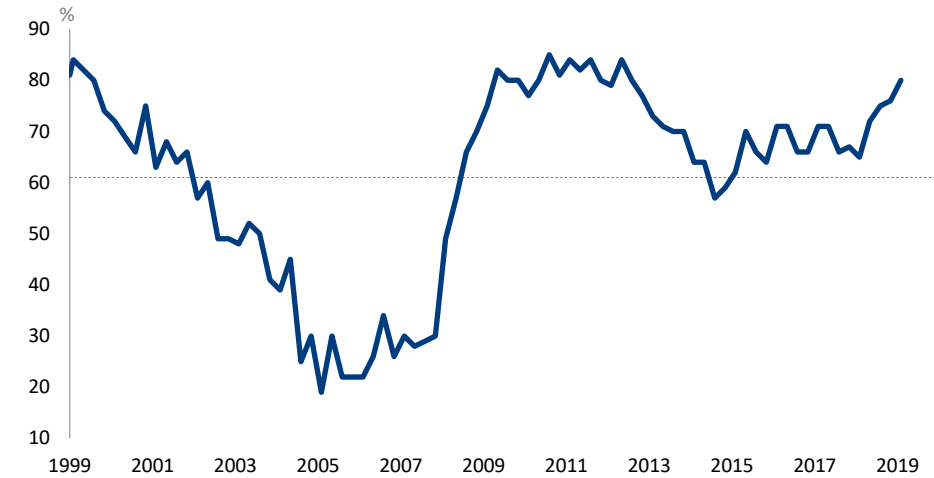


Source: BER

Adding to the woes of residential builders is the rating of insufficient demand for new work as a business constraint. This increased to 80, from 76 in 2018Q4 (Figure 5), the highest reading since 2012Q3. In essence, this suggests that,

while building activity growth is already poor (in fact, declining), demand could worsen further over the short to medium term.

Figure 5: Residential builders, lack of new demand as a business constraint



Source: BER

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Demand for skilled labour also under pressure amid poor activity growth

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Interestingly, the rating of the shortage of skilled labour as a business constraint eased to an almost 18-year low of 28, from 42 in 2018Q4. Often the lack of skilled labour in the industry is problematic which keeps the index reasonably elevated compared to the other constraints. However, this time it is likely the case that the skilled labour shortage is not a concern because there is much less need for skilled labour in a business environment where activity is weak – and weakening.

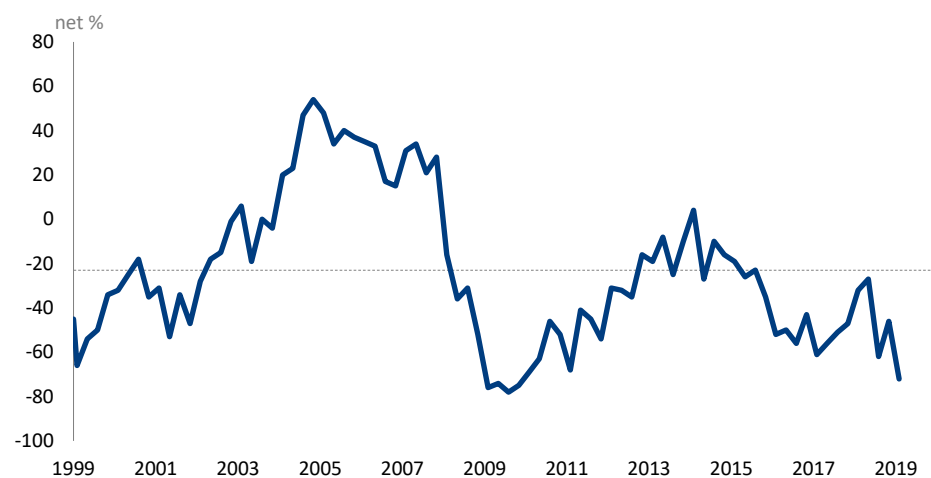


## Continued weakness in activity knocks sentiment of non-residential builders

Prolonged fall in non-residential activity extends into 2019Q1

According to Stats SA, the real value of non-residential investment contracted by 2.9% y-o-y in 2018Q4, from a fall of 5.3% y-o-y in 2018Q3. Moreover, the revised figures from Stats SA show that non-residential investment has in fact been contracting on an annual basis since 2016Q4. In value terms, the sector was 11% smaller in 2018 than its recent peak in 2014. On top of this prolonged weakness, the 2019Q1 survey results point to continued downward pressure on growth. A net 72% of respondents (most since 2009Q4) stated that activity growth was lower compared to a year ago, from 46% in 2018Q4 (Figure 6).

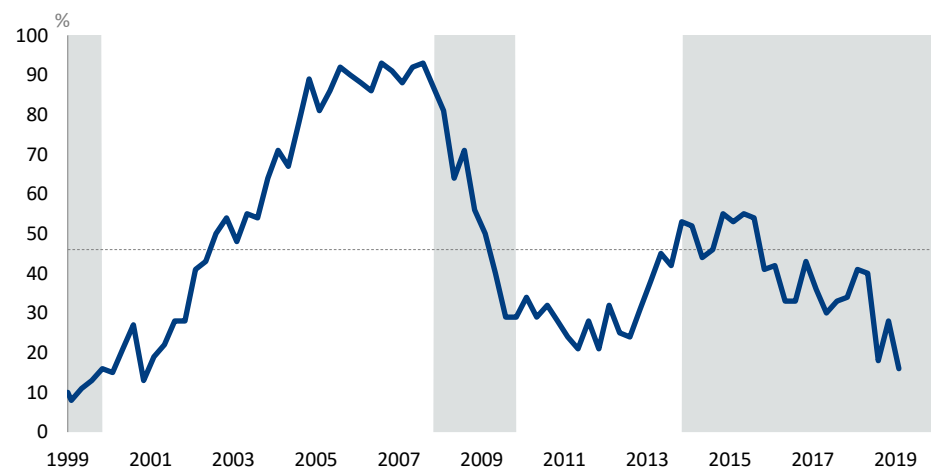
Figure 6: Non-residential builders, growth in activity



Source: BER

As a result of the continued fall in activity, **non-residential builder** confidence moved to 16, from 28 in 2018Q4 (Figure 7).

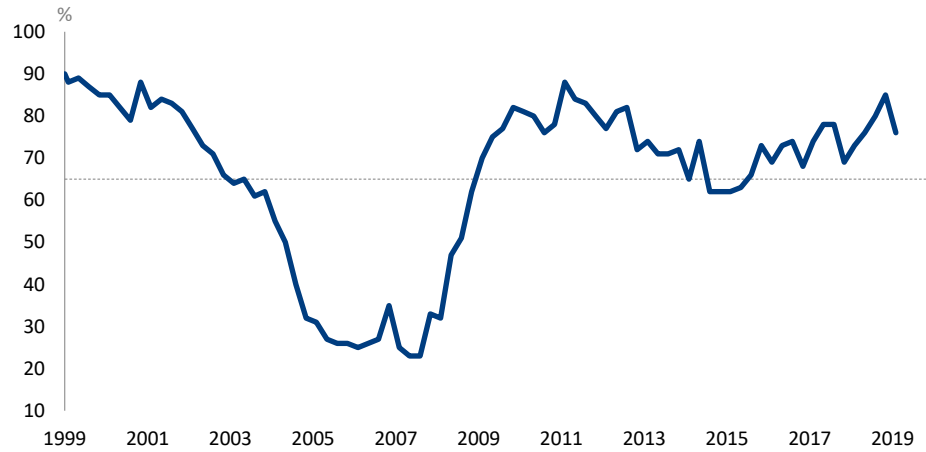
Figure 7: Non-residential builders confidence



Source: BER

Demand is set to remain constrained in coming quarters. The rating of insufficient demand for new building work as a constraint (a proxy for order books) remained elevated at 76%, from an 18-year high of 85% in 2018Q4 (Figure 8).

Figure 8: Non-residential builder, insufficient demand as business constraint



Source: BER

## In conclusion<sup>4</sup>

The seven-point fall in the **FNB/BER Building Confidence Index** to 25 is easily explained by the continued, and broad-based, fall in activity. The persistently weak activity in the non-residential sector is of particular concern especially because it is also reflected in the lower demand for skilled labour.

Looking ahead, the high number of respondents that consider the lack of new building demand as constraining to business operations, along with still weak activity among quantity surveyors, suggests that there is no or little reprieve from the poor demand over the short to medium term.

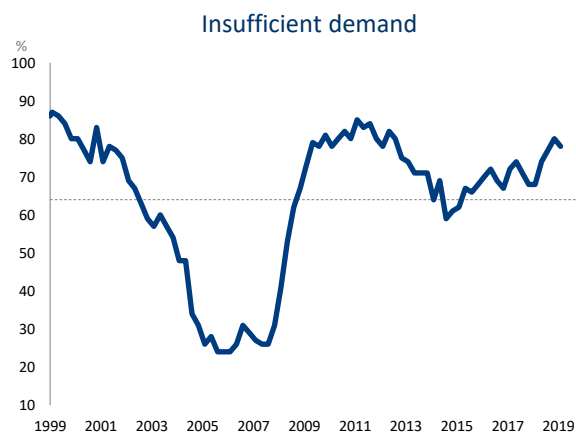
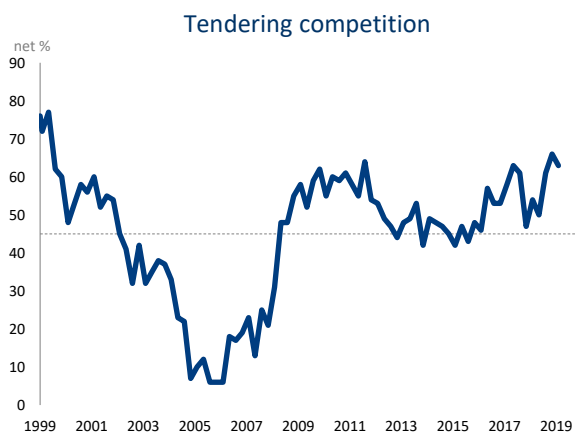
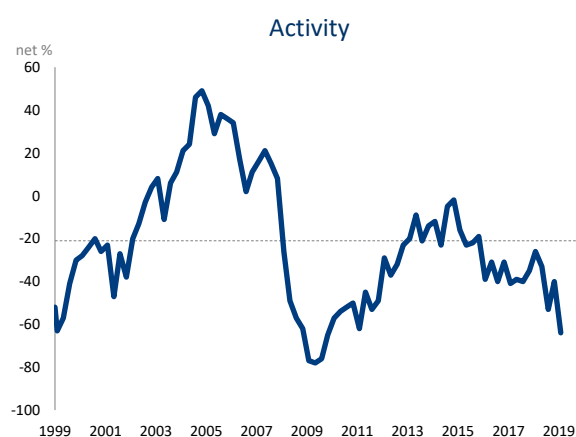
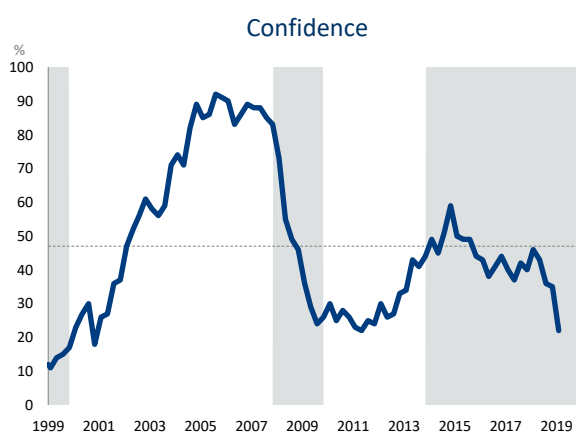
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<sup>4</sup>As of 2018Q3, the BER Building Cost Index will not be available in this publication. Please consult the BER's webpage for details on how to access this research.

# Survey results

## Building: total<sup>5</sup>

Indicator	Unit	$\mu-\sigma$	$\mu$	$\mu+\sigma$	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	$\Delta$	$\sigma_{\Delta}$
Confidence	%	25	48	70	37	42	40	46	43	36	35	<b>22</b>	-13	6
Activity	Net %	-52	-21	9	-39	-40	-35	-26	-33	-53	-40	<b>-64</b>	-24	12
Tendering competition	Net %	28	45	61	63	61	47	54	50	61	66	<b>63</b>	-3	7
Insufficient demand	%	45	64	82	74	71	68	68	74	77	80	<b>78</b>	-2	4

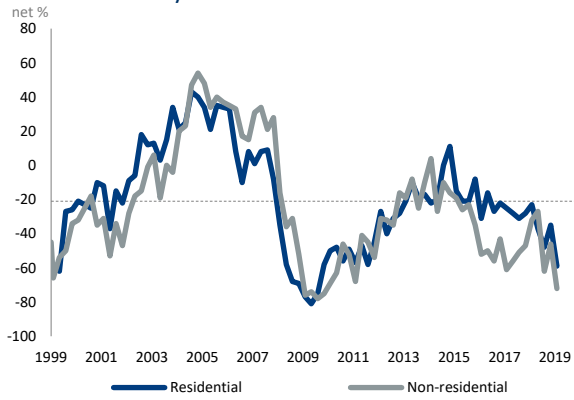


<sup>5</sup> Combined residential and non-residential building activity of contractors and sub-contractors.

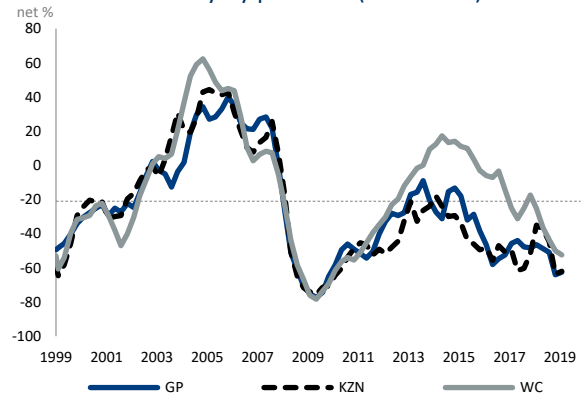
$\mu$  – average  
 $\sigma$  – standard deviation  
 $\Delta$  – change from previous period  
 $\sigma_{\Delta}$  – volatility (standard deviation of the changes)  
 All of the above calculated over the last 20 years  
 See technical note for further details

# Building: Total

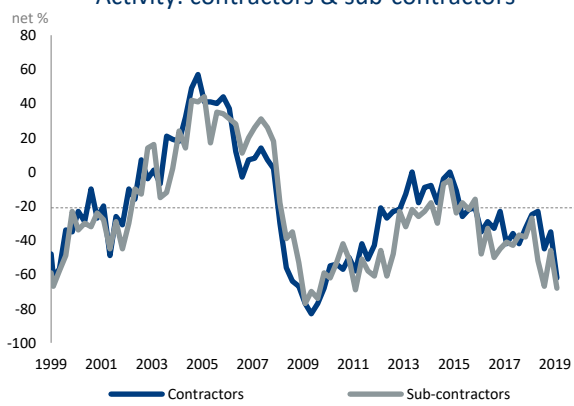
Activity: residential & non-residential



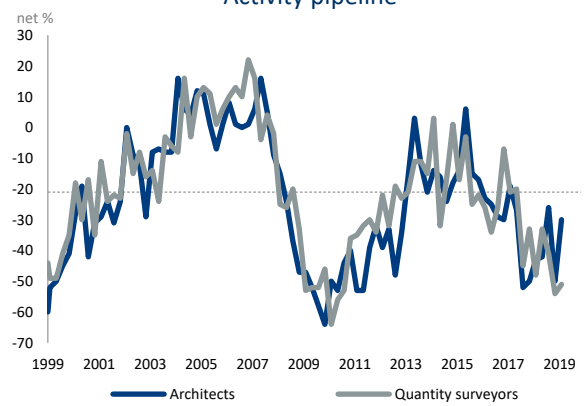
Activity by province (smoothed)



Activity: contractors & sub-contractors



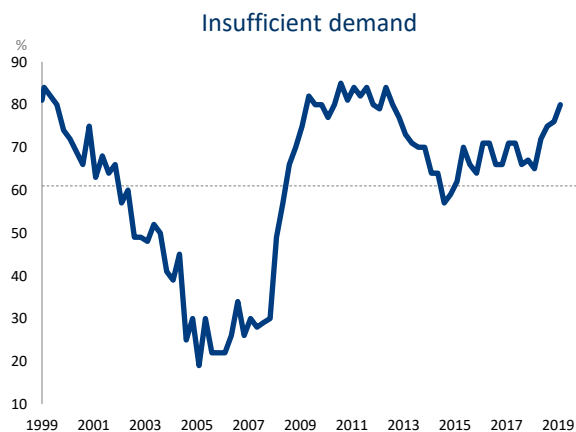
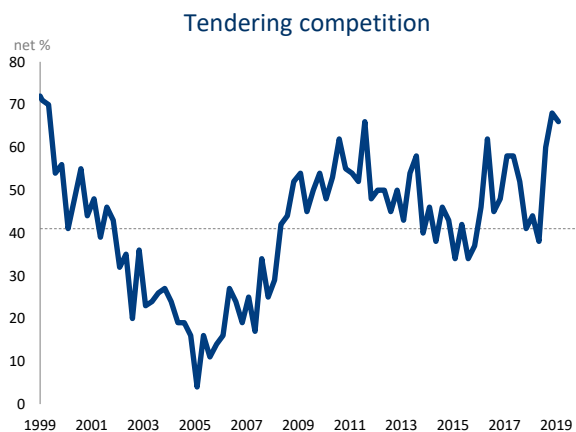
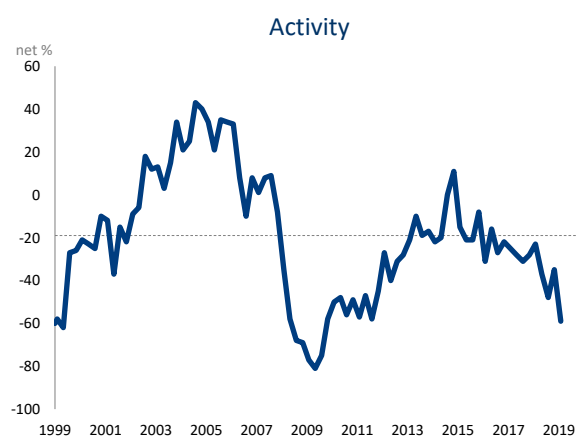
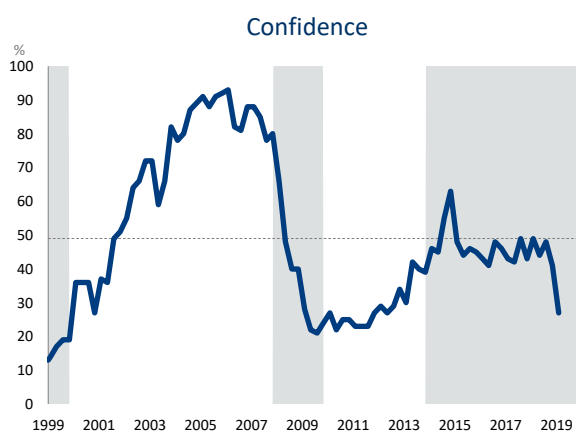
Activity pipeline



$\mu$  – average  
 $\sigma$  – standard deviation  
 $\Delta$  – change from previous period  
 $\sigma_{\Delta}$  – volatility (standard deviation of the changes)  
 All of the above calculated over the last 20 years  
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## Building: Residential<sup>6</sup>

Indicator	Unit	$\mu-\sigma$	$\mu$	$\mu+\sigma$	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	$\Delta$	$\sigma_{\Delta}$
Confidence	%	27	50	72	42	49	43	49	44	48	41	<b>27</b>	-14	7
Activity	Net %	-49	-19	11	-28	-31	-28	-23	-37	-48	-35	<b>-59</b>	-24	13
Seasonally adjusted	Net %	-49	-19	11	-28	-31	-28	-23	-37	-48	-35	<b>-59</b>	-24	13
Tendering competition	Net %	26	41	56	58	52	41	44	38	60	68	<b>66</b>	-2	9
Insufficient demand	%	42	61	80	71	66	67	65	72	75	76	<b>80</b>	4	6

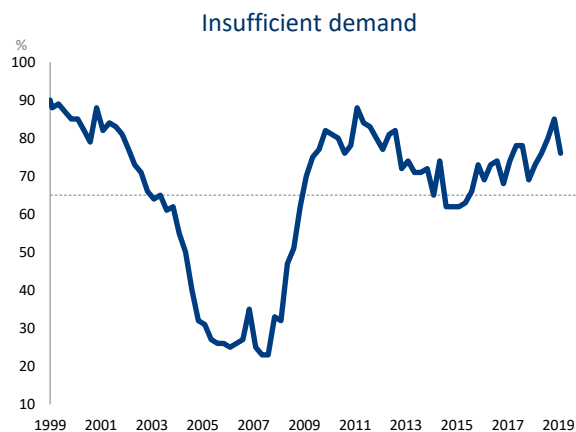
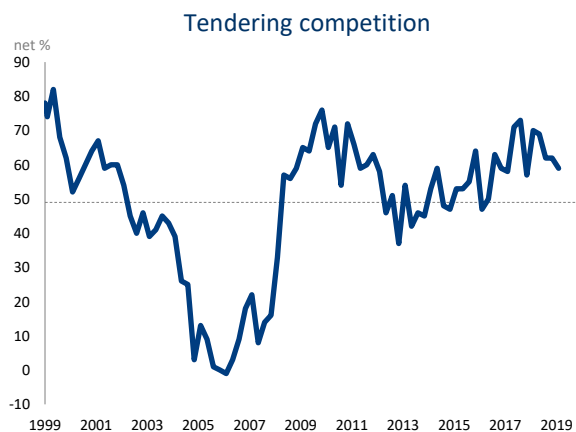
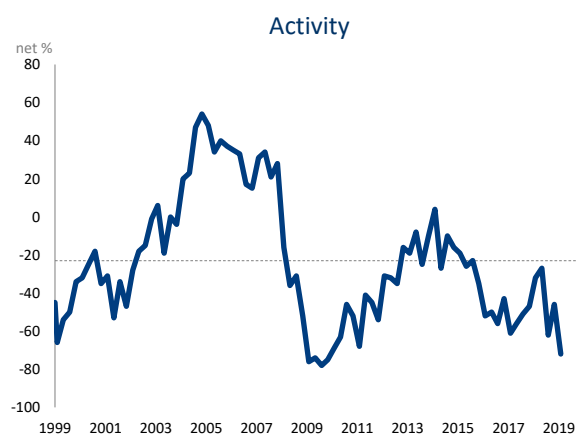
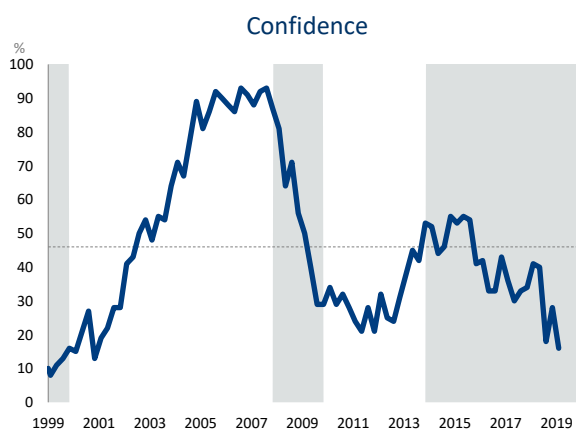


<sup>6</sup> The residential sector covers the construction of and additions to houses, town houses and flats for which building plans were submitted to a local authority. Other sporadic residential structures, such as tourist accommodation and casinos, and informal structures are not covered. The section on the building material retail trade provides additional information on activity related to additions and the informal sector.

$\mu$  – average  
 $\sigma$  – standard deviation  
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## Building: Non-residential<sup>7</sup>

Indicator	Unit	$\mu-\sigma$	$\mu$	$\mu+\sigma$	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	$\Delta$	$\sigma_{\Delta}$
Confidence	%	23	47	71	30	33	34	41	40	18	28	<b>16</b>	-12	7
Activity	Net %	-57	-23	11	-56	-51	-47	-32	-27	-62	-46	<b>-72</b>	-26	15
Tendering competition	Net %	28	48	69	71	73	57	70	69	62	62	<b>59</b>	-3	9
Insufficient demand	%	45	65	85	78	78	69	73	76	80	85	<b>76</b>	-9	5

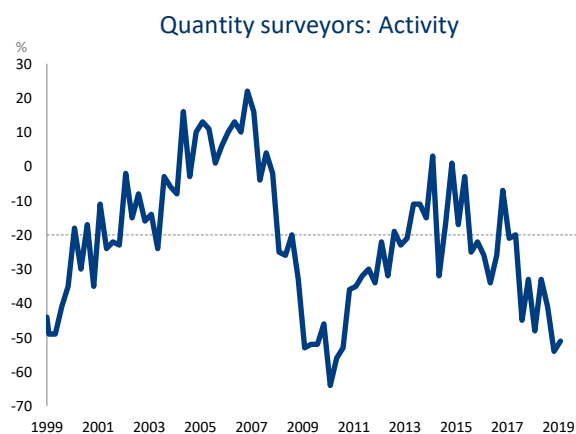
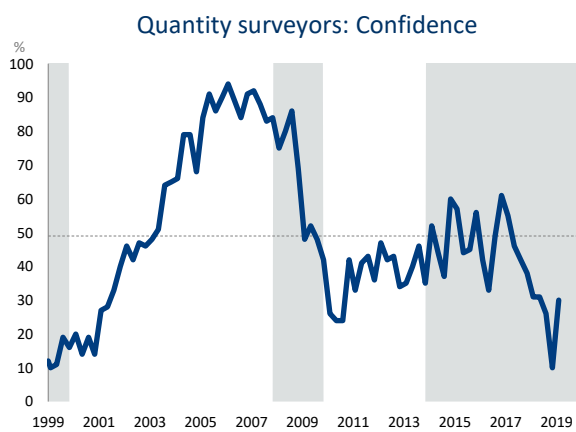
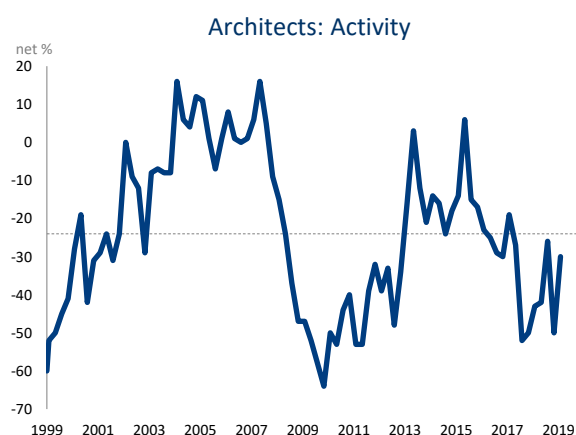
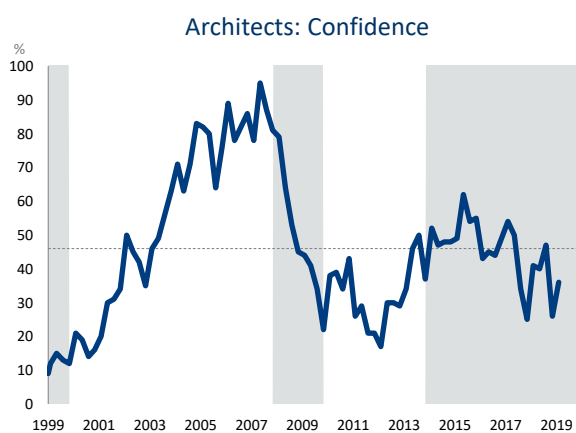


<sup>7</sup> The non-residential sector covers offices, banks, shops (retail), industrial (factories), warehouses and other structures (such as churches, sport clubs, schools and hospitals).

$\mu$  – average  
 $\sigma$  – standard deviation  
 $\Delta$  – change from previous period  
 $\sigma_{\Delta}$  – volatility (standard deviation of the changes)  
 All of the above calculated over the last 20 years  
 See technical note for further details

## Architects and quantity surveyors<sup>8</sup>

Indicator	Unit	$\mu-\sigma$	$\mu$	$\mu+\sigma$	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	$\Delta$	$\sigma_{\Delta}$
<b>Architects</b>														
Confidence	%	26	47	68	50	34	25	41	40	47	26	<b>36</b>	10	9
Activity	Net %	-43	-23	-3	-27	-52	-50	-43	-42	-26	-50	<b>-30</b>	20	11
<b>Quantity surveyors</b>														
Confidence	%	27	50	73	46	42	38	31	31	26	10	<b>30</b>	20	9
Activity	Net %	-40	-20	0	-20	-45	-33	-48	-33	-41	-54	<b>-51</b>	3	13



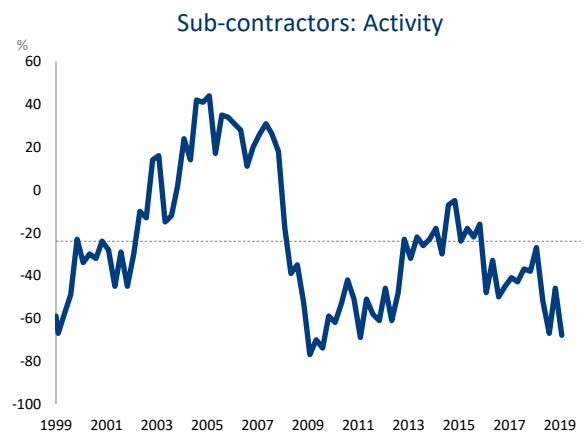
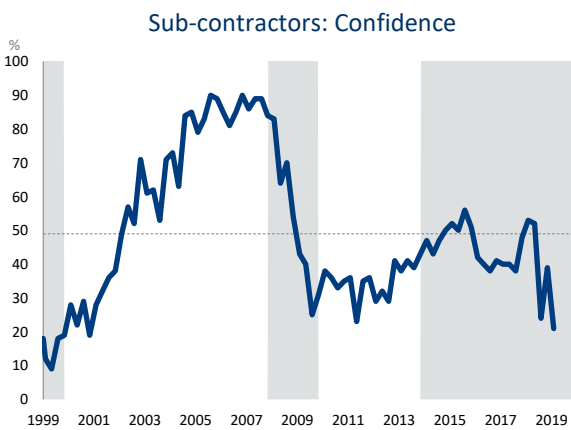
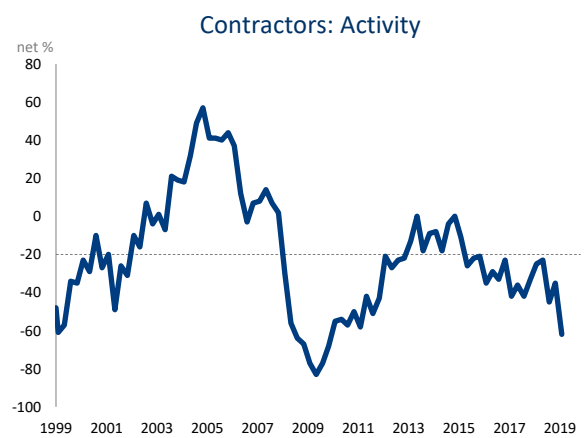
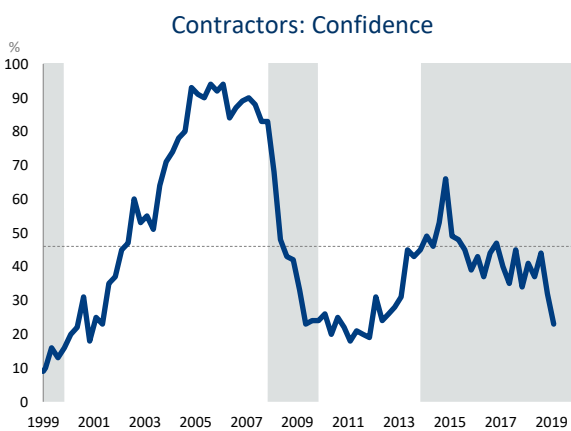
<sup>8</sup> According to the Standard Industrial Classification of all Economic Activities (SIC), architects and quantity surveyors are not part of the building and construction sector; they are classified as "business services". However, the BER includes them here, as they provide additional information on developments in the building sector.

$\mu$  – average  
 $\sigma$  – standard deviation  
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 All of the above calculated over the last 20 years  
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## Building: Contractors and sub-contractors<sup>9</sup>

Indicator	Unit	$\mu-\sigma$	$\mu$	$\mu+\sigma$	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	$\Delta$	$\sigma_{\Delta}$
<b>Contractors</b>														
Confidence	%	23	47	71	35	45	34	41	37	44	32	<b>23</b>	-9	7
Activity	Net %	-51	-20	12	-36	-42	-33	-25	-23	-45	-35	<b>-62</b>	-27	13
<b>Sub-contractors</b>														
Confidence	%	28	50	71	40	38	48	53	52	24	39	<b>21</b>	-18	8
Activity	Net %	-56	-24	8	-43	-37	-38	-27	-52	-67	-46	<b>-68</b>	-22	15

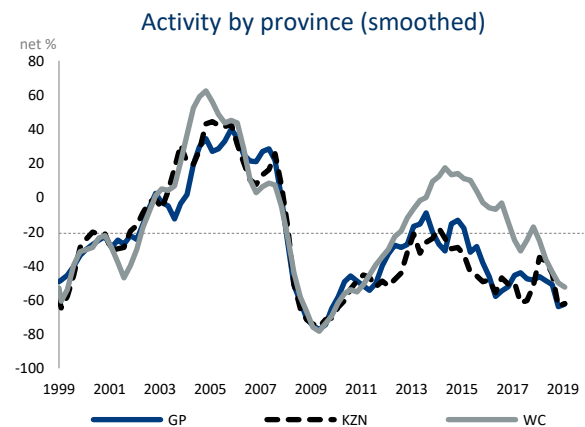
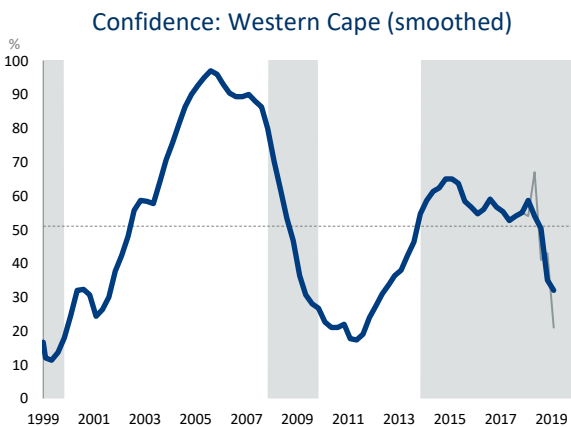
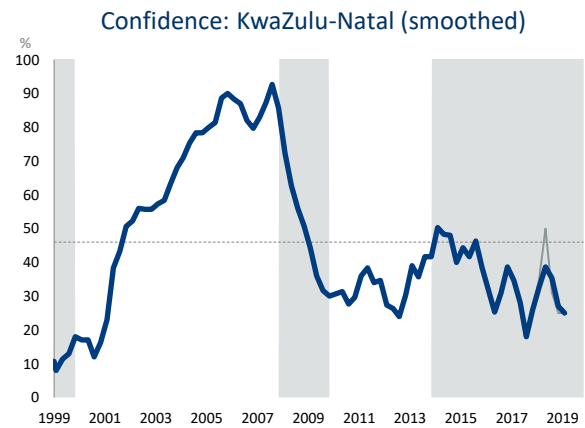
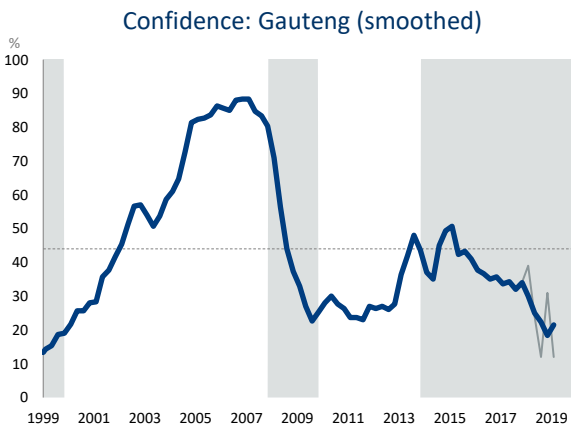


<sup>9</sup> Sub-contractors cover the building trades, such as electricians, plumbers, painters and shop fitters.

$\mu$  – average  
 $\sigma$  – standard deviation  
 $\Delta$  – change from previous period  
 $\sigma_{\Delta}$  – volatility (standard deviation of the changes)  
 All of the above calculated over the last 20 years  
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# Building: Provinces

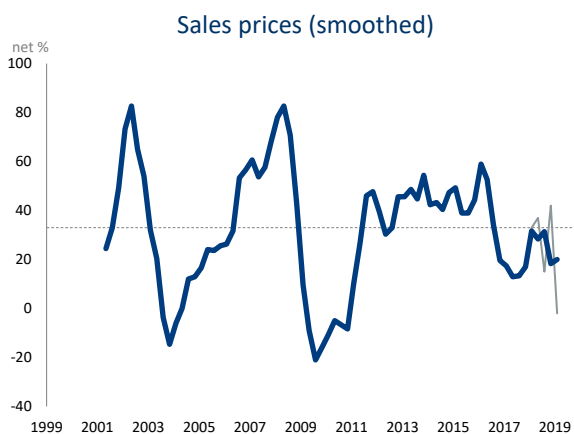
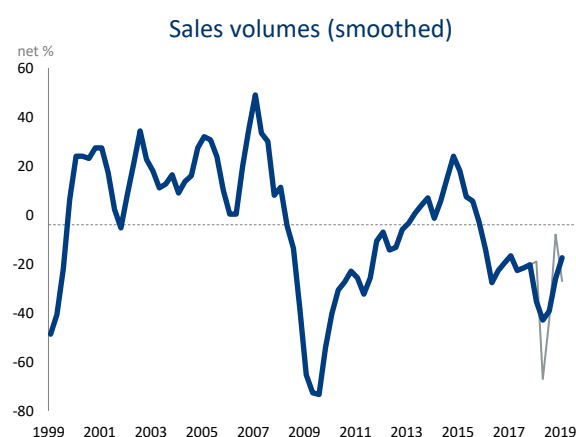
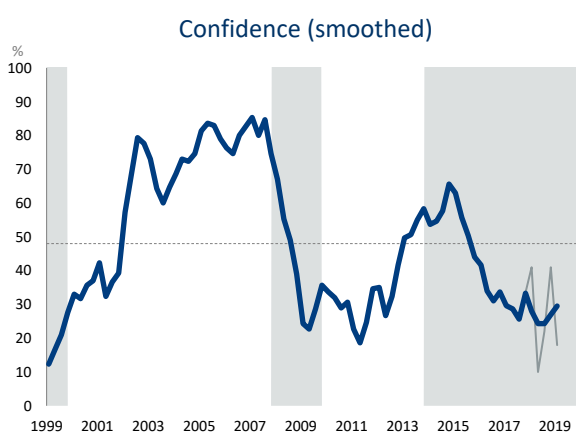
Indicator	Unit	$\mu - \sigma$	$\mu$	$\mu + \sigma$	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	$\Delta$	$\sigma_{\Delta}$
<b>Gauteng</b>														
Confidence	%	22	45	67	33	36	27	39	24	12	31	<b>12</b>	-19	9
Smoothed	%	23	45	66	34	32	34	30	25	22	18	<b>22</b>	4	4
Activity	Net %	-57	-25	8	-41	-42	-60	-43	-36	-67	-50	<b>-75</b>	-25	17
Smoothed	Net %	-55	-25	6	-44	-48	-48	-46	-49	-51	-64	<b>-63</b>	1	8
<b>KwaZulu-Natal</b>														
Confidence	%	23	46	70	11	30	13	35	50	31	25	<b>25</b>	0	13
Smoothed	%	24	46	69	28	18	26	33	39	35	27	<b>25</b>	-2	5
Activity	Net %	-61	-26	10	-61	-60	-60	-35	-10	-67	-57	<b>-67</b>	-10	20
Smoothed	Net %	-59	-26	8	-62	-60	-52	-35	-37	-45	-64	<b>-62</b>	2	9
<b>Western Cape</b>														
Confidence	%	27	52	76	51	56	55	54	67	41	43	<b>21</b>	-22	8
Smoothed	%	28	52	76	53	54	55	59	54	50	35	<b>32</b>	-3	5
Activity	Net %	-50	-14	21	-39	-24	-12	-16	-48	-45	-38	<b>-67</b>	-29	14
Smoothed	Net %	-48	-14	20	-31	-25	-17	-25	-36	-44	-50	<b>-53</b>	-3	8



$\mu$  – average  
 $\sigma$  – standard deviation  
 $\Delta$  – change from previous period  
 $\sigma_{\Delta}$  – volatility (standard deviation of the changes)  
 All of the above calculated over the last 20 years  
 See technical note for further details

## Building materials retail trade<sup>10</sup>

Indicator	Unit	$\mu-\sigma$	$\mu$	$\mu+\sigma$	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	$\Delta$	$\sigma_{\Delta}$
Confidence	%	26	48	71	18	26	33	41	10	22	41	<b>18</b>	-23	15
Smoothed	%	28	49	69	29	26	33	28	24	24	27	<b>30</b>	3	6
Sales volumes	Net %	-34	-3	27	-23	-22	-20	-19	-67	-43	-8	<b>-27</b>	-19	24
Smoothed	Net %	-29	-3	23	-23	-22	-20	-35	-43	-39	-26	<b>-18</b>	8	11
Sales prices	Net %	3	32	61	22	-7	25	33	37	15	42	<b>-2</b>	-44	24
Smoothed	Net %	7	32	57	13	13	17	32	28	31	18	<b>20</b>	2	12



<sup>10</sup> Hardware, paint, glass and other building material retailers. Developments in the building material retail trade provides additional information on activity related to additions and the informal sector.

$\mu$  – average

$\sigma$  – standard deviation

$\Delta$  – change from previous period

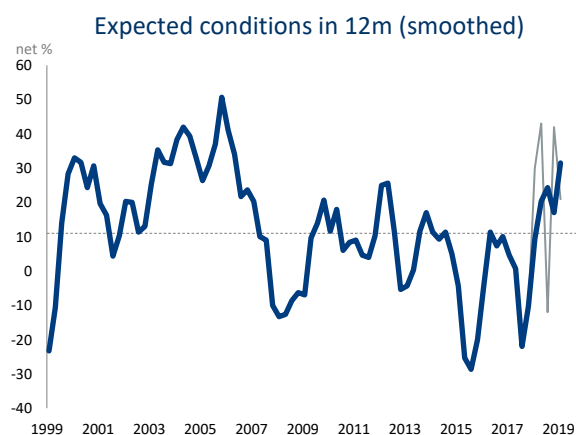
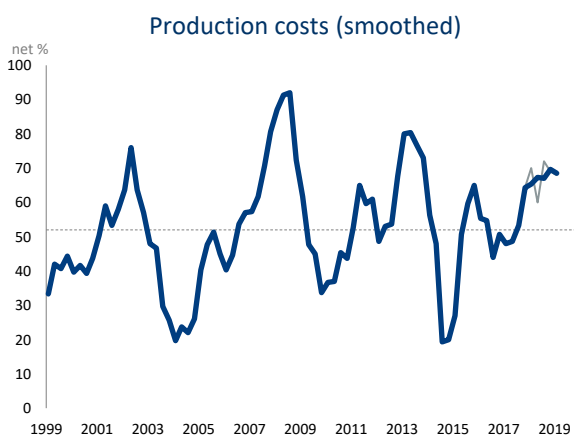
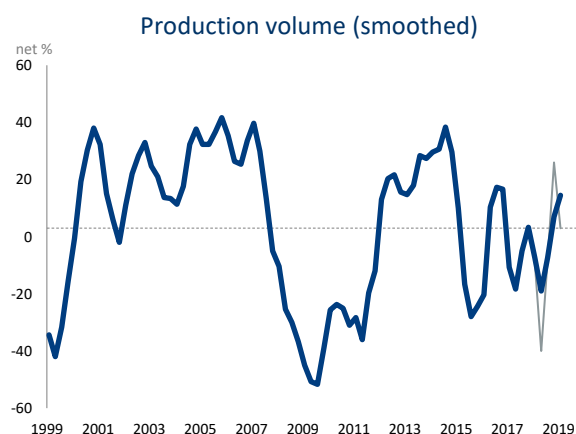
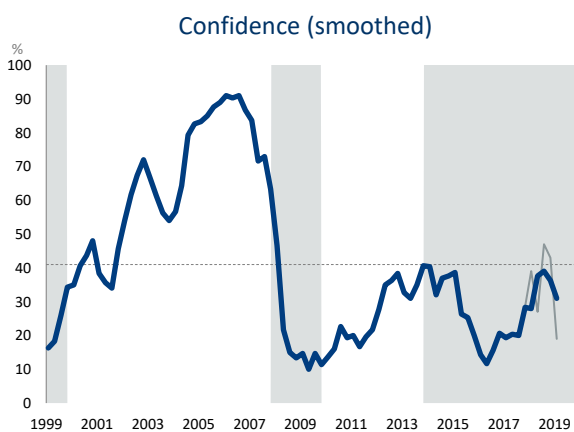
$\sigma_{\Delta}$  – volatility (standard deviation of the changes)

All of the above calculated over the last 20 years

See technical note for further details

# Building materials manufacturing<sup>11</sup>

Indicator	Unit	$\mu-\sigma$	$\mu$	$\mu+\sigma$	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	$\Delta$	$\sigma_{\Delta}$
Confidence	%	16	41	67	14	28	18	39	27	47	43	<b>19</b>	-24	15
Smoothed	%	18	42	66	20	20	28	28	38	39	36	<b>31</b>	-5	6
Production volume	Net %	-26	5	35	-34	-8	27	-9	-40	-8	26	<b>3</b>	-23	25
Smoothed	Net %	-21	5	30	-18	-5	3	-7	-19	-7	7	<b>15</b>	8	11
Production costs	Net %	32	53	74	37	57	66	70	60	72	69	<b>68</b>	-1	22
Smoothed	Net %	36	53	69	49	53	64	65	67	67	70	<b>69</b>	-1	9
Expected conditions in 12m	Net %	-10	13	36	-5	-16	-45	30	43	-12	42	<b>21</b>	-21	26
Smoothed	Net %	-4	13	30	1	-22	-10	9	20	24	17	<b>32</b>	15	10

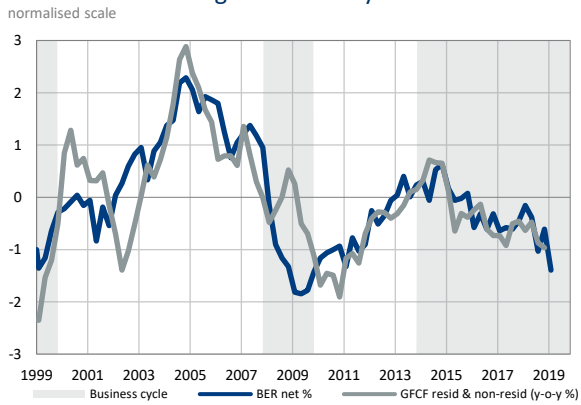


<sup>11</sup> Covering glass and non-metallic mineral (i.e. bricks, tiles, cement, prefab concrete, asphalt and mica products) manufacturing.

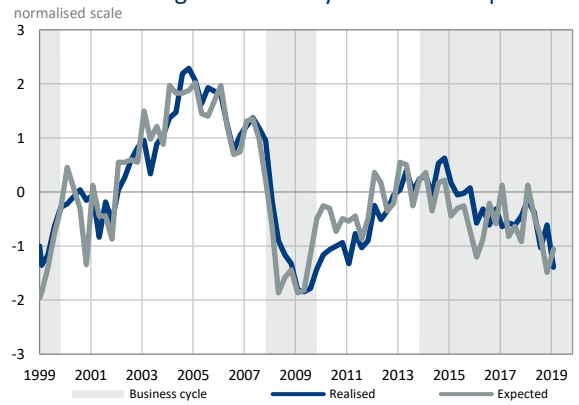
$\mu$  – average  
 $\sigma$  – standard deviation  
 $\Delta$  – change from previous period  
 $\sigma_{\Delta}$  – volatility (standard deviation of the changes)  
 All of the above calculated over the last 20 years  
 See technical note for further details

# Summary

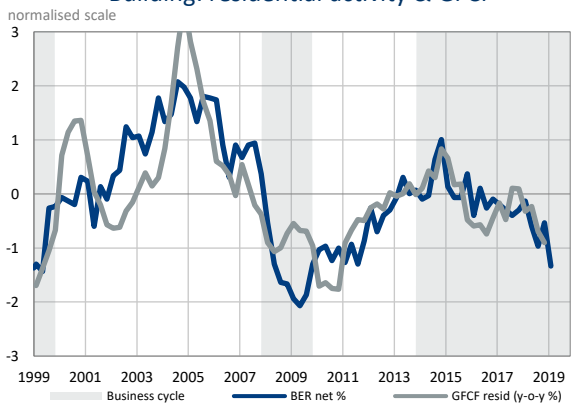
Building: total activity & GFCF



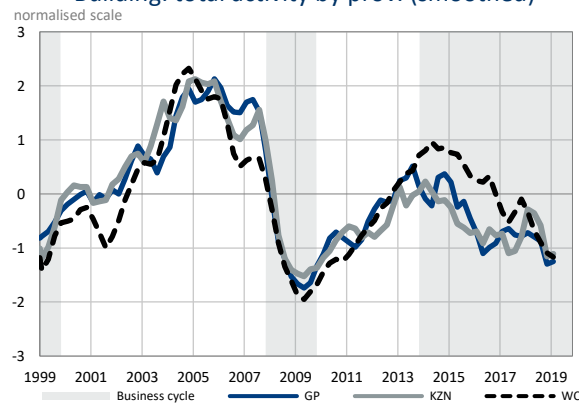
Building: total activity: realised & exp.



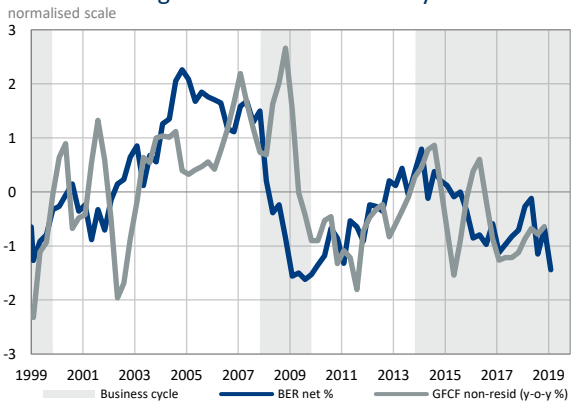
Building: residential activity & GFCF



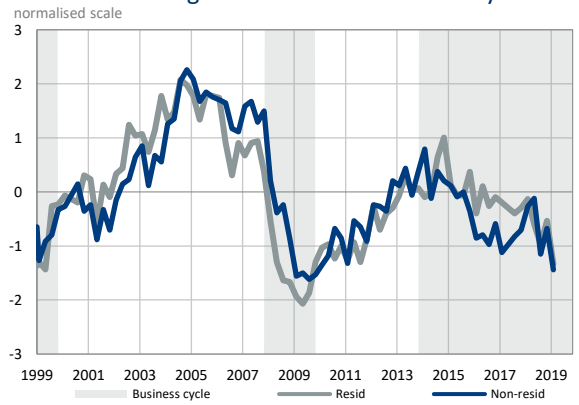
Building: total activity by prov. (smoothed)



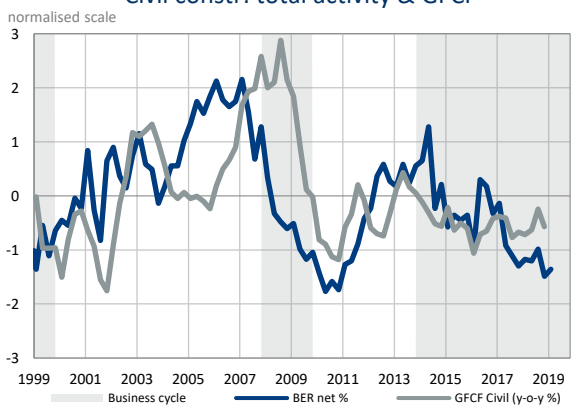
Building: non-residential activity & GFCF



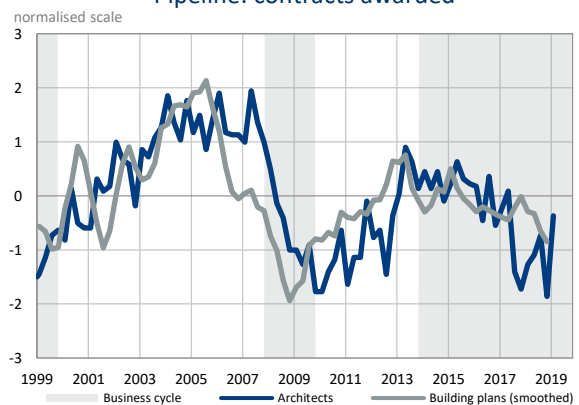
Building: resid. & non-resid. activity



Civil constr: total activity & GFCF



Pipeline: contracts awarded



## Building plans passed and completed

Indicator (thousand sqm)	South Africa	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo
<b>Recorded building plans passed</b>	<b>18Q4</b>									
Dwelling-houses < 80 square metres	237.3	56.7	3.9	0.3	1.7	1.3	2.2	162.5	5.7	3.0
Dwelling-houses >= 80 square metres	914.0	298.9	34.4	6.5	16.0	77.7	55.6	376.1	29.5	19.2
Flats and townhouses	521.9	233.8	10.5	0.0	5.6	54.9	2.7	204.2	8.4	1.8
Other residential buildings	17.4	1.6	2.7	0.0	1.0	8.0	0.0	4.1	0.0	0.0
Office and banking space	238.6	14.4	4.2	1.9	0.0	0.0	0.0	217.2	0.4	0.6
Shopping space	199.6	113.4	0.0	0.0	0.1	31.5	3.1	45.5	0.3	5.8
Industrial and warehouse space	320.7	114.0	7.6	3.5	0.4	63.2	6.1	97.7	24.2	4.1
Other non-residential buildings	95.3	57.3	3.8	0.0	5.9	7.6	0.0	15.2	0.0	5.5
Additions and alterations: Dwelling-houses	377.6	138.0	30.0	5.8	14.1	46.0	14.3	114.2	11.0	4.2
Additions and alterations: Other buildings	129.4	46.1	10.3	0.7	1.5	20.2	14.8	32.4	2.6	0.8
<b>Total</b>	<b>3052</b>	<b>1074</b>	<b>107</b>	<b>19</b>	<b>46</b>	<b>310</b>	<b>99</b>	<b>1269</b>	<b>82</b>	<b>45</b>
<b>y-o-y % change</b>	<b>-17.6</b>	<b>4.6</b>	<b>-40.4</b>	<b>-7.8</b>	<b>-65.0</b>	<b>-61.8</b>	<b>-11.8</b>	<b>3.7</b>	<b>-25.5</b>	<b>-46.9</b>
<b>Buildings reported as completed</b>	<b>18Q4</b>									
Dwelling-houses < 80 square metres	159.4	36.2	13.0	0.3	5.2	1.2	1.4	83.1	16.7	2.4
Dwelling-houses >= 80 square metres	746.4	251.8	45.3	4.9	16.8	60.3	31.8	271.4	32.7	31.4
Flats and townhouses	848.8	235.1	30.3	0.2	18.9	137.3	35.5	374.4	15.8	1.3
Other residential buildings	38.5	24.6	0.0	0.0	1.4	9.7	0.0	0.0	2.2	0.6
Office and banking space	78.2	15.0	1.9	1.0	0.0	24.0	0.0	33.0	0.0	3.3
Shopping space	79.4	8.1	0.0	0.0	0.0	18.0	0.5	29.7	7.2	15.9
Industrial and warehouse space	210.2	54.7	20.1	0.0	0.0	51.2	0.0	76.1	6.5	1.7
Other non-residential buildings	82.6	39.8	3.2	0.0	10.8	6.8	1.5	10.1	10.4	0.0
Additions and alterations: Dwelling-houses	330.3	120.5	28.6	7.2	13.0	47.4	12.7	79.0	18.4	3.6
Additions and alterations: Other buildings	126.6	49.0	22.6	1.9	5.9	17.6	6.3	21.3	1.9	0.2
<b>Total</b>	<b>2701</b>	<b>835</b>	<b>165</b>	<b>16</b>	<b>72</b>	<b>373</b>	<b>90</b>	<b>978</b>	<b>112</b>	<b>60</b>
<b>y-o-y % change</b>	<b>-23.8</b>	<b>-25.6</b>	<b>-2.3</b>	<b>-45.4</b>	<b>-43.3</b>	<b>-34.6</b>	<b>-32.0</b>	<b>-14.8</b>	<b>-34.5</b>	<b>-22.3</b>

Source: Statistics South Africa

# Technical note

Short-term planning is hampered as official (quantitative or numeric) data is released with a time lag. Business tendency survey (BTS) results reveal what happened between the release of the last official figures and the current state of affairs. The survey results not only reveal earlier developments in activity, employment etc. (for which official figures are published), but also provide unique information, such as business confidence, tendering prices, business conditions, constraint indicators and respondents' expectations (or forecast) for the next quarter for which no official figures exist. It is now widely recognised that such subjective individual expectations play a key role in economic developments. Furthermore, the survey results of successive quarters provide a means of tracking cyclical movements, pinpointing trend changes and establishing forecasts.

## The survey method

The survey results are obtained from questionnaires completed by senior executives in the trade, manufacturing and building sector during the middle month of every calendar quarter.

The business survey questionnaire contains a small number of questions. These questions are qualitative in nature, e.g. "Compared to the same quarter a year ago, is the volume of building activity up, the same or down?". No figures are requested.

The sample of executives remains the same from one survey to the next. A panel is in effect established. The sample provides for the main sectors. The list of participants is reviewed every few years to replace those firms that went out of business or stopped responding during the previous two years with new ones.

To provide for widely differing sizes, each firm in the manufacturing and trade sectors is allocated a weight based on its turnover. Firms in the building sector are not weighted. Participants have to complete a "participant details form" at the time of recruitment and every few years to ensure that their sector classification and turnover (optional) are correct.

The BER conducted its first survey of the manufacturing and trade (i.e. retail, wholesale and motor trade) sectors in 1954. The sector coverage was expanded to the building sector (i.e. main contractors and sub-contractors) in 1969. The BER also took responsibility for a quantitative building cost survey in that year. The breadth of the building survey was expanded on two occasions: 1) architects and quantity surveyors were added in 1986 in order to track developments along the whole building pipeline (i.e. from the initiation to the completion of projects) and 2) civil engineering contractors were added in 1997.

Consult the BER web page ([www.ber.ac.za](http://www.ber.ac.za)) for more information about the business tendency and building cost survey methods.

### Third quarter of 2018 changes in the "Building & Construction" report

#### Sector classification and geographical results

The BER used to only publish the results for main contractors and sub-contractors, each divided into a residential and a non-residential components. No totals for the residential, non-residential and overall building sector were produced. From the third quarter of 2018 onwards, the BER calculates such totals. For the first time, this sector classification makes direct comparisons between the survey and the official data possible. Previously it was not possible, because no equivalent quantitative time series of main and sub-contractors' activities exist.

Residential building combines the residential main contractors and the residential sub-contractors. Non-residential building combines the non-residential main contractors and the non-residential sub-contractors. The overall total combines the residential and non-residential components. The results for main contractors and sub-contractors are

still included in the report for legacy reasons, but the split between residential and non-residential was discontinued.

From the third quarter of 2018 onwards, the provincial data is calculated at the total building level of aggregation instead of the main and sub-contractor ones. The Eastern Cape was dropped due to its diminishing share.

The original individual responses (the so-called micro data) were used to recalculate historical time series for all the new sectors and the three provinces (Western Cape, KwaZulu-Natal and Gauteng) going back to 1992. To estimate the residential, non-residential and overall building sectors between 1985 and 1991, the residential and non-residential main and sub-contractor time series were weighted. The data prior to 1985 is not available in electronic format.

#### **The selection of time series covered in the tables**

From the third quarter of 2018 onwards the BER includes only a selection of variables (time series) and added descriptive statistics in the tables of survey results to assist users with the interpretation.

A factor analysis has confirmed our experience that most of the time series move closely together over time. For instance, business confidence, activity, employment, profitability and constraints exhibit a high positive correlation (co-movement) with one another. There is also a negative correlation with some other variables, such as tendering competition and certain constraints. We have, therefore, limited the number of series covered in the report to those that have historically and according to the functional analysis proved to provide the most unique information and are necessary to obtain a full, balanced view of developments. All the variables are still covered as in the past and the information is available on request, but from the third quarter of 2018 onwards we only focus on the core findings.

This may prevent one from getting side-tracked by too much information and trying to explain results that are not statistically meaningful, such as rationalising differences between two series/variables or only focussing on the last two quarters.

#### **Descriptive statistics provided in the tables**

Some of the survey results are quite volatile. This volatility results in a situation where the user does not know how much value to attach to a specific result (i.e. the signalling impact of the results are hampered) because -10, for instance, is a significant result in one case and merely an average in another.

The volatility could be attributed to many factors, such as sector disaggregation, sector heterogeneity, respondent behaviour, survey design or it could merely correctly reflect actual developments or uncertainty. Generally the results at the aggregate (total) level are less volatile than at the disaggregated level (i.e. total building compared to residential sector). The results of heterogeneous sectors, such as those in which only a few firms operate, a few large firms dominate many small firms or widely divergent kinds of activity are covered, tend to be more volatile than homogeneous sectors. Survey design, such as the representativeness of the sample, the number of completed questionnaires (usually below 30) and weighting, could also play a role.

Thanks to many years of experience the BER knows when a particular result is noteworthy. However, to formalise this and correctly identify signals, we have added some descriptive statistics to the tables. The purpose of these statistics is to indicate the significance of the level or change in each indicator, relative to its own historical pattern.

## **The unique units of measurement of qualitative surveys**

### **Net percentage (net %)**

The responses related to the change in activity, prices, employment, business conditions etc. are presented as a "net percentage" (also called a "net balance" or a "net majority"). If, for example, the percentages of respondents rating building activity as "higher", the "same" or "lower" compared to a year ago are 70%, 10% and 20% respectively, then one can conclude that the majority of participants experienced higher activity. The net percentage is calculated as the percentage of respondents rating "activity" as higher less the percentage rating it as "lower". The percentage rating it as the "same" is ignored. The net percentage in this example is therefore 50%, being the difference between the 70% "higher" and the 20% "lower". A net percentage of -10%, for instance, would indicate a decline in activity compared to a year ago. Take note that this does not mean a year-on-year contraction of 10%. It only means that the activity of a majority of 10% of the respondents was lower compared to a year ago.

The net percentage, or net balance statistic, can theoretically vary between a minimum of -100 (when all participants replied "lower") and a maximum of +100 (when all respondents replied "higher"). Theoretically a value of zero, therefore, indicates no change, between 0 and 100 reflects a rise (or improvement) and between 0 and -

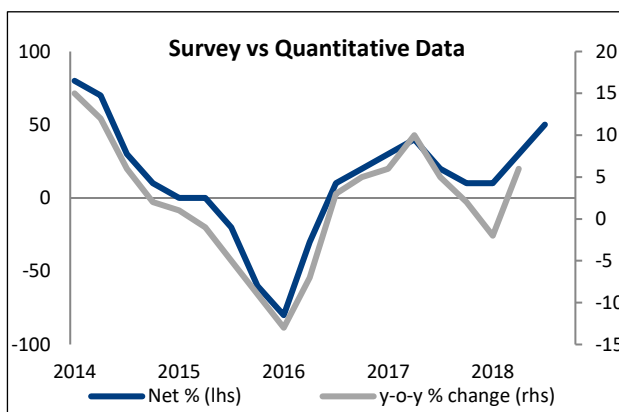


100 a decline (or deterioration) compared to the same quarter a year ago. The net balance statistic is a diffusion index, i.e. it indicates the degree to which the indicated change is “diffused” (spread) throughout the sample population. It indicates both the direction and size of the change.

Given that it reflects respondents’ estimation of the change in the phenomenon/variable in the current quarter relative to the same quarter a year ago, the net percentage corresponds to a year-on-year percentage change/growth rate in the corresponding/equivalent official data series (see the figure on the right).

## Percentage (%)

The responses relating to business confidence and constraints are presented as percentages.



In the case of business confidence, respondents have to rate prevailing business conditions as either “satisfactory” or “unsatisfactory”. The percentage of respondents rating prevailing business conditions as satisfactory is taken as an indicator (proxy) for business confidence. A reading of 10 for business confidence, for instance, means that only 10% of the respondents indicated that they were satisfied. In this example, 90% were, therefore, unsatisfied.

In the case of the constraints, respondents have to rate if a particular issue – for instance, a shortage of skilled labour – “seriously”, “slightly” or “not at all” hampers their activity. Composite constraint indices are calculated by weighting the responses as follows: The answers of respondents rating a particular constraint as “serious” are weighted by 0.67%; “slightly” by 0.33% and “not a constraint at all” are discarded. The results are then multiplied by  $100/67 = 1.49$  to convert it to an index that can vary between zero and 100.

Care must be taken when making inferences from the constraints indices given that the list of constraints (issues) remains unchanged over time. Each constraint ought to be analysed relative to its own historical performance rather than comparing the ratings of the different constraints at a specific point in time. The latter inference would be more appropriate if respondents had to list all issues hampering their activity at a particular point in time and rank them in order of their impact.

Theoretically, the confidence and constraints series can vary between a minimum of zero and a maximum of 100. A value of zero would reflect an extreme lack of confidence/no limitation at all and 100 extreme confidence/complete limitation. These results reflect respondents’ evaluation of the phenomenon/the survey variable in respect to that specific survey quarter, i.e. not relative to some period in the past or future.

## Descriptive statistics in the tables

### Three-quarter centred moving average (smoothed)

Some series show erratic/volatile movements, i.e. data jumps around quite a bit between consecutive quarters. In such cases, it is necessary to smooth these movements over a longer period to obtain a general trend. Another case where we added moving averages is when the correlation between the survey results and the corresponding reference series is low or non-existent.

Three-quarter centred moving averages (3qdma) were selected in order to not disturb turning points too much, e.g. the moving average of 17Q4 is calculated as the average of 17Q3, 17Q4 and 18Q1, that of 18Q1 is calculated as

the average of 17Q4, 18Q1 and 18Q2 etc. In order for the smoothed series to run up to the last unsmoothed data point, the last smoothed data point is only the average of two quarters, namely the previous and current quarter.

When a smoothed series is added, it is prudent not to attach too much value to the unsmoothed results of a particular quarter, but rather to evaluate it in its historical context.

## Seasonal adjustment (SA)

In theory, the time series ought to display no seasonal patterns because respondents are instructed to compare the current quarter with the same one of a year ago (e.g. they have to compare the current Festive Season or wet/dry winter period with the same time a year ago). However, in practice, some series nevertheless reveal seasonal patterns, probably because some respondents incorrectly compare the survey quarter with the one directly preceding it. In such cases, a seasonally adjusted series (i.e. where such seasonal variation is eliminated with X12 ARIMA) is added.

## Average ( $\mu$ )

The neutral level of the time series for the two measurement types, net percentage and percentage, is 50 or zero respectively. The long-term average (mean) is often not equivalent to this neutral level. In such cases, it is more useful to evaluate the current results relative to such a long-term average than the neutral level.

## One standard deviation below ( $\mu-\sigma$ ) and above ( $\mu+\sigma$ ) the average

The standard deviation indicates the common variation in or dispersion of the values. Data points falling between one standard deviation below and above the average could be regarded as common. Any data point falling outside these ranges, therefore, displays statistically significant variation.

## Change (Delta: $\Delta$ )

This statistic indicates the change in the results of the latest quarter relative to the preceding quarter.

## Volatility (standard deviation of the deltas: $\sigma_{\Delta}$ )

This statistic indicates the volatility of the quarter-on-quarter change. If the size (regardless if it is an increase or decline) of the change is greater than the standard deviation of the deltas, then it displays a statistically significant variation.

## Conventions and aids provided in the charts

### Shaded areas

Indicates cyclical downturns as demarcated by the South African Reserve Bank. Users need to take note that the business cycle could have already reversed course towards the end of the period covered in the chart, but usually we wait until the bank determines a turning point before changing the shaded areas.

### Solid vs. dotted horizontal (X) axes:

A solid line indicates the theoretical mid-points of 50 or zero respectively, while a dotted line indicates the long-term average (mean). Also see the section on the "average" above.

## Normalised scale

Time series data is normalised (standardised) when one wishes to observe the co-movement among indicators with different units of measurement, say for instance, between a diffusion index (confidence) and the growth rate in a volume index (GDP growth). Normalisation converts both series to the same scale (unit) by subtracting the long-term average from each series and dividing it by its standard deviation. This ensures that one compares “apples” with “apples” when making a visual inspection and not mistakenly identify co-movements or deviations that different scales could produce.