21 February 2020

Economics Weekly.

Load-shedding – quantifying the impact on economic growth

Table 1: Load-shedding model

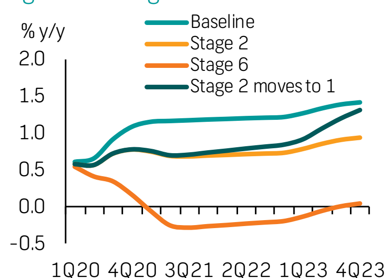
$$\Delta Sector_GVA_t = \alpha + \beta \cdot LS_Intensity_t$$

Economic sector	Coefficient (ß)
Total GDP	-0.0578***
Agriculture	-0.2684*
Mining	-0.1851**
Manufacturing	-0.0934**
Utilities	-0.1776***
Construction	-0.0433
Retail	-0.0268
Transport	-0.0460**
FREBS	-0.0023
Government	-0.0292
Personal services	-0.0078

* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

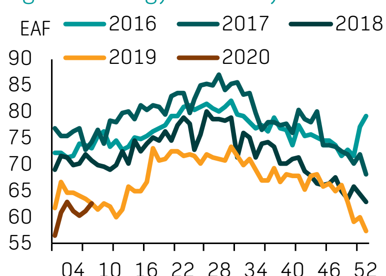
Source: FNB Economics, SARB

Figure 1: GDP growth



Source: FNB Economics, SARB

Figure 2: Energy availability factor



Note: x-axis represents weeks. Source: Eskom

The adverse impact of load-shedding has been quite a hot topic lately, with its increased implementation in recent weeks. Accordingly, the FNB Economics team has carried out an exercise to quantify the impact of load-shedding on business using a modified version of an econometric model originally developed by the South African Reserve Bank (SARB).

In the *Quarterly Bulletin* of September last year the SARB published an econometric model identifying how the intensity of load-shedding, at various stages, would impact growth across all sectors. It is worth clarifying what the various stages of load-shedding mean and their importance in terms of detracting growth across sectors: stage 1 refers to 1 000 megawatts (MWs) being taken off the national electricity grid, stage 2 load-shedding would mean that 2 000 MWs have been shed from the national grid, and so on up to stage 8. The intensity of load-shedding, per quarter, was calculated as the sum of the number of days of load-shedding multiplied by the stage number. This was done to make sure that the frequency was in line with quarterly GDP data and is identified as the *intensity variable*.

Accordingly, a regression was run for each ***sectoral growth rate*** against the ***intensity variable*** to identify the quantum of growth that would be detracted from each sector. As expected, the regression results showed that the most energy-intensive sectors – such as mining, manufacturing and utilities – would be more severely affected by the power outages. It is interesting to note that the transport sector would also be adversely affected during load-shedding. This is likely due to the sector's inextricable link to the mining and manufacturing sectors via crucial supply chain networks, particularly freight transport. For the purpose of interpretation and using the mining sector as an example (Table 1), the model quantifies that for every 1 000 MWs taken off the grid (stage 1), mining gross value added will detract by 0.19% on a quarter-on-quarter seasonally adjusted and annualised basis, holding all other external effects constant.

This has had a material impact on our growth forecasts (Figure 1). We have assumed that stage 2 load-shedding will occur intermittently for the foreseeable future, using recent instances thereof as an indicator of the frequency of occurrences. Moreover, we have assumed that load-shedding will diminish over the forecast horizon using Eskom's maintenance and repair schedule as a guide for the dampening factor. Accordingly, intermittent power outages are likely to persist for at least the next 18 months, given the unprecedently low energy available factor (EAF) – i.e. the maximum energy generation capacity of the national grid (Figure 2).

While the outlook for economic growth remains dim, we are cautiously optimistic about some of the potential developments in the utilities sector, such as lifting some of the caps imposed on the independent power producers (IPPs), allowing miners to generate their own electricity, as well as municipalities being allowed to purchase from IPPs.

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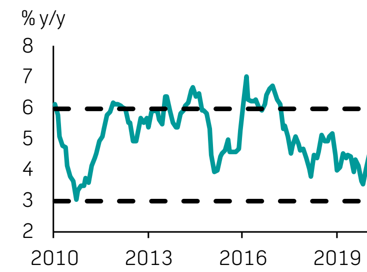
Weekly highlights

Consumer inflation starts 2020 on a higher note thanks to further rises in domestic fuel prices

Figure 3: Inflation



Source: EconoStat, Stats SA

According to Stats SA consumer prices jumped to 4.5% y/y in January 2020, from a modest 4% in December 2019. The outcome was marginally lower than our and the market's expectation of a 4.6% y/y increase. On a monthly basis, inflation increased by 0.3%.

The acceleration in headline CPI was largely a reflection of domestic fuel price annual base effects. Although the monthly movements in domestic fuel prices were somewhat measured in January, i.e. the price of 95 octane unleaded petrol declined by 14 cents per litre (c/l) and the diesel price increased by 9 c/l, the year-on-year increases were significant. The price of 95 octane unleaded petrol rose by more than 15% y/y, while that of diesel increased by over 11%.

The impact of higher domestic fuel prices was evident in the CPI for petrol, which surged to 13.7% y/y, from the 2.4% increase recorded in December. This contributed to the rise in transport CPI to 6.4% y/y from 3.3% previously and led to a greater contribution to headline CPI.

Other major contributors to headline CPI were housing and utilities (adding 1.2 percentage points [ppt]), as well as miscellaneous goods and services (adding 0.9ppt). It is worth noting that January was a survey month for funeral policies, as well as insurance premiums for buildings and household contents, among other CPI basket items. During the survey month, CPI for insurance registered 7.1% y/y from 6.8% previously. In addition to this, CPI for financial services jumped to 6.2% y/y from 3.6% in December. These jumps were supportive of the 0.4ppt uptick in the inflation reading for miscellaneous goods and services CPI, which recorded 5.8% y/y (5.4% previously).

On the other hand, inflation for food and non-alcoholic beverages started the year on a softer note (down to 3.7% y/y from 3.9% previously). Food inflation edged slightly lower to 3.7% y/y from 3.8% previously, aided by softer grains prices amid sufficient rains and planting schedules that remain on track. Meat CPI, on the other hand, perked up slightly to reflect the supply imbalance that was caused by the ban on live animal auctions as a result of foot-and-mouth disease.

Core inflation moderated further to 3.7% y/y, from 3.8% previously, against the backdrop of persistently weak consumer demand as well as low rental inflation. Services inflation helped anchor core CPI as it continued to soften amid deteriorating consumer finances.

Looking ahead, we expect headline CPI to average 4.1% in 2020 – unchanged from 2019. The inability of businesses to pass on material price increases to consumers due to constrained consumer income growth will likely continue. Furthermore, international oil prices are poised to remain contained, on average, amid excess supplies and a mild global growth recovery.

Week ahead

All eyes on the budget

Next week's data releases commence with the December SARB leading indicator on Tuesday. Much of next week's attention will be fixated on the 2020 National Budget Review on Wednesday (click here to see our in-depth expectations). The January release of the producer price index (PPI) is due out on Thursday. The week then closes with January releases of private sector credit and the trade balance on Friday.

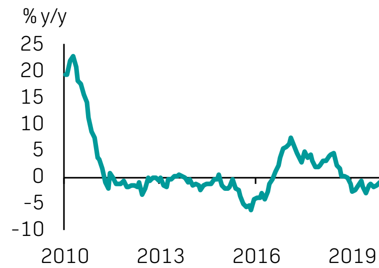
In line with weak economic fundamentals, the **SARB leading indicator** has contracted on a year-on-year basis for 13 consecutive months, most recently falling by 0.9% y/y in November. We expect another negative print in the December release, which will likely be indicative of the load-shedding quandary.

PPI for final manufactured goods displayed a marked deceleration in 2H19 amid ailing domestic demand and well-contained fuel prices. However, we expect a much more meaningful acceleration in the January 2020 release, from the 3.4% y/y uptick we saw in December, largely due to base effects from January 2019 when the petrol (-3.9% y/y) and diesel (2% y/y) subcomponents were subdued. Moreover, the normalisation of meat and meat product prices combined with the upward trajectory of fruit and vegetable prices should add some impetus to the headline reading.

Private sector credit extension growth has been moderating since November last year to just 6.1% y/y in December – the lowest increase since March 2019. We expect credit extension to slow further in January 2020 as the deterioration in consumer finances adversely impacts the ability to take on further credit.

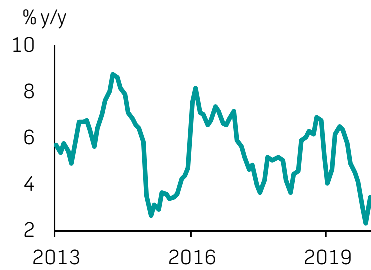
After registering five consecutive monthly trade surpluses, we anticipate that the **trade balance** will register a deficit in the January 2020 release. This can largely be ascribed to replenished inventories from local producers following Black Friday sales and shopping related to the festive season. While we anticipate this trade deficit to be sizeable, as has been the case in recent years, relatively buoyant gold and platinum group metal prices supporting nominal export sales will likely cushion the magnitude of the decline.

Figure 4: SARB leading indicator



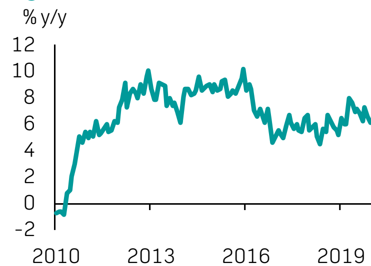
Source: EconoStat, SARB

Figure 5: PPI for final manufactured goods



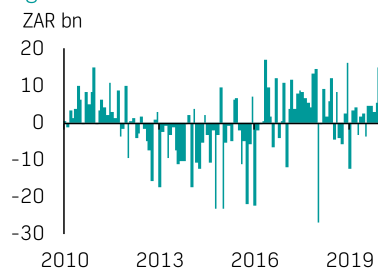
Source: EconoStat, Stats SA

Figure 6: Private sector credit



Source: EconoStat, SARB

Figure 7: Trade balance



Source: EconoStat, SARS

Tables

The key data in review

Date	Country	Release/Event	Period	Act	Prev
14 Feb	US	Industrial output (% m/m)	Jan	-0.3	-0.4
19 Feb	SA	CPI (% y/y)	Jan	4.5	4.0
	UK	CPI (% y/y)	Jan	1.8	1.3
20 Feb	Japan	CPI (% y/y)	Jan	0.7	0.8

Data to watch out for this week

Date	Country	Release/Event	Period	Survey	Prior
21 Feb	Eurozone	CPI (% y/y)	Jan	1.4	1.4
	US	Existing home sales (% m/m)	Jan	-1.8	3.6
25 Feb	SA	SARB leading indicator	Dec	104.0	104.4
26 Feb	SA	National Budget Review	Feb	-	-
	US	New home sales (% m/m)	Jan	2.3	-0.4
27 Feb	SA	PPI (% y/y)	Jan	4.4	3.4
28 Feb	SA	Private sector credit (% y/y)	Jan	5.9	6.1
	SA	Trade balance	Jan	-13.8	14.8

Source: Bloomberg ("Survey" is the consensus forecast)

Financial market indicators

Indicator	Close	1 W	1 M	1 Y
All Share	57 793.03	-0.1%	-1.8%	3.8%
USD/ZAR	15.13	1.2%	4.3%	8.0%
EUR/ZAR	16.32	0.6%	1.4%	2.7%
GBP/ZAR	19.49	-0.1%	3.3%	6.6%
Platinum US$/oz	980.07	1.0%	-3.9%	18.4%
Gold US$/oz	1 619.56	2.8%	3.8%	21.0%
Brent US$/oz	59.31	5.3%	-9.0%	-11.6%
SA 10-year bond yield	7.94	-0.6%	-2.5%	-9.9%

FNB SA Economic Forecast

Economic Indicator	2016	2017	2018	2019f	2020f	2021f
Household consumption expenditure %y/y	0.6	2.1	1.8	1.1	1.0	1.3
Government consumption expenditure %y/y	2.2	0.2	1.9	1.4	0.7	0.9
Gross fixed capital formation %y/y	-3.5	1.0	-1.4	-0.9	-0.1	0.8
Real GDP %y/y	0.4	1.4	0.7	0.3	0.6	0.8
Total exports %y/y	0.4	-0.7	2.6	-1.2	-0.4	0.9
Total imports %y/y	-3.9	1.0	3.3	1.8	2.1	1.4
Current account (% of GDP)	-2.8	-2.5	-3.5	-3.3	-3.6	-3.7
CPI (average) %y/y	6.3	5.3	4.6	4.1	4.2	4.2
CPI (year end) %y/y	6.7	4.7	4.5	4.1	4.0	4.2
Repo rate (year end) %p.a.	7.00	6.75	6.75	6.50	6.00	5.75
Prime (year end) %p.a.	10.50	10.25	10.25	10.00	9.50	9.25
USD/ZAR (average)	14.70	13.30	13.25	14.50	14.90	15.50

Source: FNB

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