Renaissance Capital

Nigeria: Dangote refinery Game-changer?

The completion of the Dangote refinery in late 2019/2020 will be a game-changer, in our view, as it implies Nigeria will become self-sufficient in fuel. Our analysis suggests that operations at the refinery will have a significant, positive impact on the Nigerian economy. The refinery's operations will improve the (energy-related) trade balance by $8.8bn, by our estimate. It will boost GDP by $13bn or 2.3% of the total, in 2021E, by our estimate, mainly via net exports and government revenue.

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Trade balance should improve by $8.8bn (1.5% of GDP)

Nigeria's energy-related trade balance will improve by $8.8bn (1.5% of GDP) when operations begin, on our estimates (Figure 1); the trade surplus was 3.8% of GDP in 2017. Our analysis suggests the positive impact of exports of refined oil products and the falling away of fuel imports will offset the negative effect of lower net crude exports. We estimate the volume of net crude exports will fall by 35%, to 1.3mnb/d, as the crude allocation to local refineries of 445kb/d is retained for processing, instead of being swapped (via exports) for (imported) fuel. We also expect Nigeria will begin to see crude imports (of $5.8bn in 2021E) to supplement the refinery's input requirements – assuming the government's crude allocation to local refineries remains fixed and the new refinery does not source crude from other local suppliers. Exports of refined products will commence and amount to $12.3bn in 2021E, we estimate. Fuel imports (of $11bn) will fall away, as Nigeria becomes self-sufficient in fuel once the refinery begins operations. We believe the subsequent improvement in the current account balance will result in a firmer naira, which should give scope for the central bank to lower interest rates.

Figure 1: Impact of Dangote refinery on (energy-related) trade balance, $bn (2021E)

	Scenario with no Dangote refinery	Post-Dangote refinery
Crude oil exports	43.5	34.7
Refined oil product exports		12.3
Fuel imports	-11	0.0
Crude oil imports procured by Dangote refinery	na	-5.8
Energy-related trade balance	**32.5**	**41.3**

Source: Renaissance Capital estimates

Operations will generate $13bn in GDP (2.3% of GDP)

Operations at the Dangote refinery will boost GDP by $13bn (2.3% of the total) in 2021, by our estimate (Figure 2). This will mainly stem from net exports, which we calculate will increase by $8.8bn (1.5% of GDP); exports of refined products and the savings from the falling away of fuel imports will exceed crude imports, by our estimate. We calculate that government revenue will improve by $3.3bn or 0.6% of GDP, via income tax and the proceeds from crude oil sales. Household consumption should improve by $0.7bn (0.1% of GDP), via the boost to the disposable income of Nigerian households from the availability of cheaper fuel, and consumption by employees of the refinery and those of its suppliers. The refinery's operations should provide a more modest lift to investment than its construction will, of $305mn (0.05% of GDP).

Figure 2: Impact of Dangote refinery on 2021E GDP

Type of impact	Total	
	$mn	% of GDP
Consumption	674	0.1
Investment	305	0.05
Government	3,258	0.6
Net exports	8,755	1.5
Total	**12,992**	**2.3**

Source: Renaissance Capital estimates

Fiscal impact – stronger via crude sales than via taxes

Tax revenue will improve by at least $756mn (0.1% of GDP), by our estimates, when the refinery is up and running in 2021. The federal government will also make NGN1trn from the crude sold by the national oil company to the Dangote refinery, by our estimate. We believe that to optimise the positive impact the refinery could have on the economy, petrol prices must be deregulated. **This would save NGN386bn or 0.2% of GDP in subsidy costs in 2021, by our conservative estimates.** However, if the subsidy is retained, we think the government could sell crude to the refinery at below market prices – at a low enough price for the refinery to make attractive margins on fuel. This way the government would 'subsidise' retail fuel prices by under-recovering its revenue from crude sales, while enabling the refinery to still make decent margins. For those arguing that deregulation would hurt the consumer, our counter-argument is that petrol would be more readily available; when crude oil prices rise, shortages build up and petrol is often only available at a premium.

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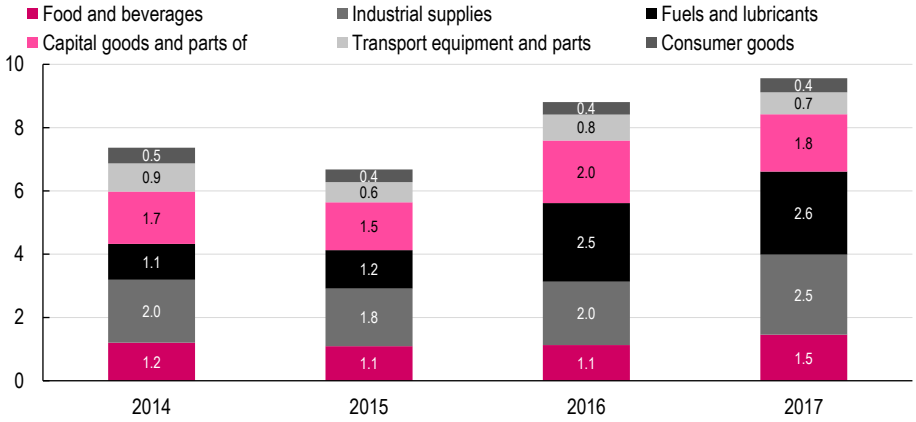
- The completion of the Dangote refinery in late 2019 is highly anticipated by the authorities in Nigeria, as it implies Nigeria will become self-sufficient in fuel. Fuel and lubricants accounted for 27% of imports in 2017 (see Figure 3), of which c. 80% was due to petrol, according to the National Bureau of Statistics (NBS). The coming on stream of 650kb/d of fuel from the Dangote refinery implies that Nigeria's total imports may fall as much as 20%. However, we also expect crude exports to fall when the refinery starts operating, as the 445kb/d of crude that the authorities currently allocate to local refineries should be retained for processing into fuel at the Dangote refinery (and assuming the Dangote refinery does not source crude from local suppliers such as Total).

Figure 3: Nigeria – value of total imports by category, NGNtrn



Source: Nigerian National Bureau of Statistics

- It is to some bewildering that Nigeria, one of the world's biggest producers of crude oil, imports nearly all its domestic fuel requirements. This is not for lack of refineries. Nigeria has refineries, but they operate at low rates of capacity utilisation because they are aged and poorly maintained.
- Nigeria has four local refineries: Warri, with a refining capacity of 125kb/d; two in Port Harcourt, with a combined capacity of 210kb/d; and Kaduna, with 110kb/d. Altogether, Nigeria's current local refinery capacity is 445kb/d. The authorities therefore allocate 445kb/d of the crude oil that Nigeria produces to local refineries. However, as the local refineries only operate at a fraction of their full capacity, the bulk of this allocation goes towards swapping crude for refined fuel. Figure 4 shows that the average utilisation rate at the local refineries in 2015-2017 was 12%. This implies that on average they refined only 53kb/d of their crude oil allocation, with the remaining 392kb/d being swapped for refined fuel, supplied by fuel marketers.
- In 2017, the local refineries' utilisation rate was 18%, albeit up from 5% and 14% in 2015 and 2016, respectively. Only 2.1bn litres of refined product was produced in 2017, of which c. 80% (c. 1.7bn litres) was petrol (see Figure 4).

Figure 4: Production of refined fuel and local refinery utilisation rate

	2015	2016	2017
Locally refined product, mn litres, pa	1,057	2,022	2,141
Local refinery utilisation rate	5%	14%	18%

Source: Nigerian National Petroleum Corporation (NNPC)

- Nigeria consumed 50mn litres of petrol/day in 2017, according to Nigeria's National Bureau of Statistics (NBS; see Figure 5), which translates into 18bn litres pa. **This implies c. 16bn litres of petrol had to be imported in 2017 to meet demand.** It is important to note that this includes demand from neighbouring countries for subsidised Nigerian petrol that is smuggled across the

border (where the price of a litre in neighbouring Benin, for instance, is $0.94, which is more than double that of Nigeria's, at $0.41)[1]. Actual Nigerian demand for petrol is therefore likely lower.

Figure 5: Refined products consumed, mn litres per day

	2014	2015	2016	2017
PMS (petrol)	47.7	48.7	47.6	50.2
AGO (diesel)	9.1	8.9	10.6	13
DPK (kerosene)	8.1	4.7	2.6	2.6
Total	65.4	62.3	60.7	65.8

Source: NBS

- At an oil price of $50/bl and above, the Nigerian National Petroleum Corporation (NNPC) – and by implication, the federal government – pays a 'petrol subsidy' by under-recovering its costs from selling petrol to the fuel marketers, because the landing cost of petrol exceeds the regulated pump price (see Figure 6).

Figure 6: Estimate of NNPC petrol subsidy, NGN/litre (unless otherwise stated)

Oil price, $/bl	45	50	55	60	61	65	70	80
NNPC landing cost	125	138	152	166	169	180	194	221
Subsidy	-	4	18	32	35	46	60	87
Selling price to marketers	**134**	**134**	**134**	**134**	**134**	**134**	**134**	**134**
Selling price to marketers	134	134	134	134	134	134	134	134
Markets margin	6	6	6	6	6	6	6	6
Freight cost	5	5	5	5	5	5	5	5
Pump price	**145**	**145**	**145**	**145**	**145**	**145**	**145**	**145**

Source: NNPC

- In 2015, the federal government of Nigeria (FGN) spent NGN306bn ($1.6bn) on the fuel subsidy, which was equivalent to 6.4% of the budget. In 2016, the FGN spent nothing on the subsidy because the oil price was low, $45/bl, vs $53/bl in 2015. In 2017, NGN145bn ($440mn) was under-recovered from petrol sales, which is equivalent to 1.9% of the FY17E budget.

Figure 7: Fuel subsidy, under recovery, NGNbn (unless otherwise stated)

	Fuel subsidy	Under-recovery	Oil price, $/bl avg	Total FGN budget expenditure	Petrol subsidy/ under-recovery, % of total budget
2015	306		53.1	4,767	6.4
2016	0		45.1	5,142	0
2017	-	145	55.7	7,441	1.9

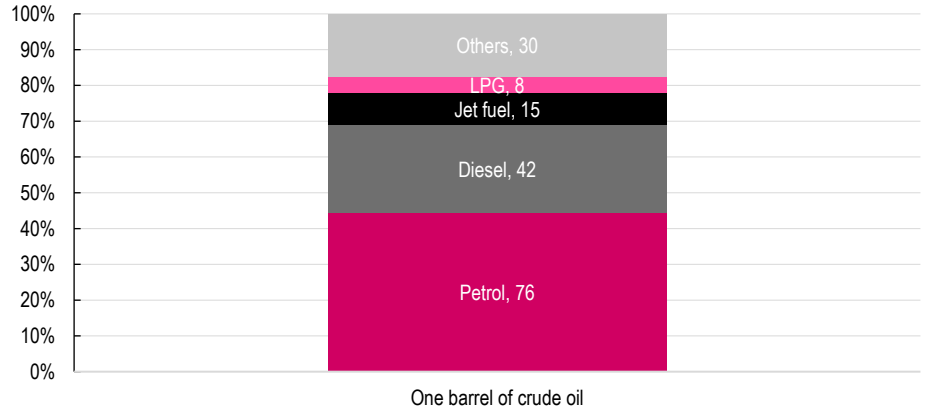
Source: NNPC

[1] www.globalpetrolprices.com.

Post-refinery impact (2021)

- On completion in late 2019, the Dangote refinery will have the capacity to process 650kb/day of crude oil. One barrel of crude can produce up to 171 litres of fuel/day, according to the Energy Information Administration (EIA), which states that US refineries produce c. 76 litres and 42 litres of petrol and diesel, respectively, from a barrel of crude oil (see Figure 8). This implies that the Dangote refinery will be able to produce 111.2mn litres of fuel/day, if it operates at full capacity. Nigeria's sweet crude, which is lighter than the US's crude oil, should be able to produce more litres of fuel per barrel, according to the EIA. However, in our analysis we will be conservative and use the US refineries' definition.

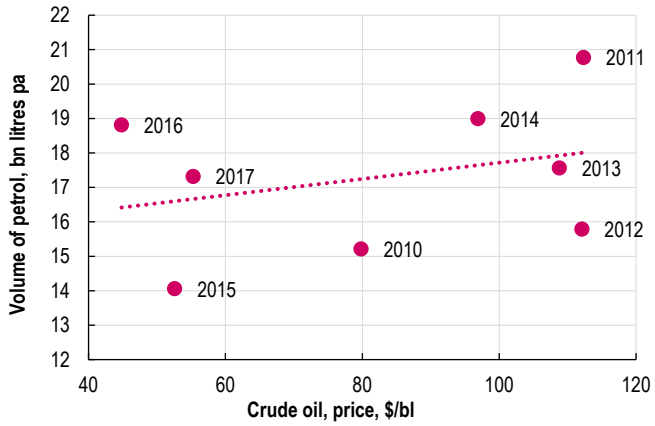
Figure 8: Products from a barrel of crude oil, litres



Source: EIA

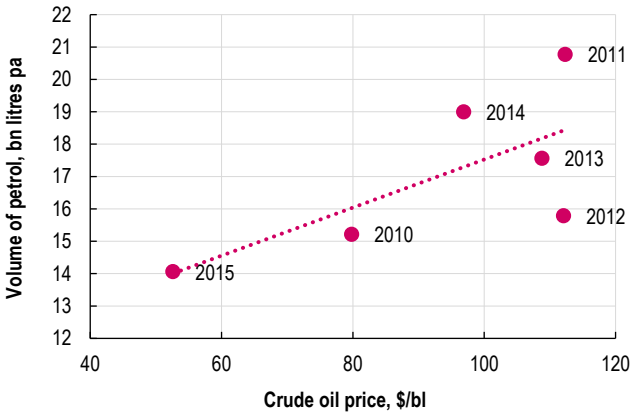
- The Dangote refinery is expected to be near full capacity by mid-2020, which implies that 2021 may be the first full year that the facility operates at full capacity.
- In order to assess the impact of the Dangote refinery on Nigeria's economy, we needed a credible estimate of actual domestic petrol consumption. Nigeria's official petrol consumption numbers are widely considered to be inflated, because a sizeable share is smuggled to neighbouring countries, particularly when the crude oil price is high, because it is subsidised.
- This is affirmed by Nigeria's upwardly sloping demand curve, i.e. when the crude oil price rises, the volume of fuel imports increases. Indeed, when we shorten the time period, to focus on the years when the fuel subsidy scandal heightened, 2011-2015 (the scandal emerged in 2012), then one sees that petrol imports increased as the oil price increased (Figure 10). However, when we include data from 2016 and 2017, when the scandal had passed, this positive relationship weakens (Figure 9).

Figure 9: Volume of petrol imports vs crude oil price (2010-2017)



Source: National Bureau of Statistics, Bloomberg

Figure 10: Volume of petrol imports vs crude oil price (2010-2015)



Source: National Bureau of Statistics, Bloomberg

- Regional petrol consumption data from the EIA affirm that Nigeria's petrol consumption per capita was higher, at 0.17 litres/day, on average, in 2008-2014, than that of countries with similar income per capita. We believe this is largely because the data capture petrol smuggled to neighbouring countries. We also acknowledge that petrol consumption is high because of Nigeria's severe electricity deficit, which implies Nigerian households use more fuel to generate electricity than their peers in other SSA countries. To get a more realistic estimate of Nigeria's actual petrol demand we looked at countries with similar per-capita income (2008-2014), in purchasing power parity (PPP) international dollars, which turned out to be fellow oil exporters Angola and the Republic of Congo (Figure 11). We then assumed Nigeria's average per-capita petrol consumption to be between that of Angola and the Republic of Congo, which was 0.14 litres/day per capita, on average, in 2008-2014.

Figure 11: Income and petrol consumption, per capita (2008-2014 average)

	Petrol consumption per capita, litres/day	GDP per capita, PPP $
Nigeria	0.17	5,270
Angola	0.15	6,197
Republic of Congo	0.13	6,381
Ghana	0.13	3,490
Cape Verde	0.06	6,063

Source: EIA, IMF

- When we assume that Nigeria's daily per-capita consumption is 0.14 litres and that consumption grows by the long-term average growth rate of 2.4% YoY, we estimate petrol demand of 30.2mn litres for Nigeria in 2021, which is well within the Dangote refinery's capacity for petrol production of 50mn litres/day. This implies that Nigeria will not need to import petrol when the refinery is up and running.

- Our Sub-Saharan African oil & gas analyst, Temilade Aduroja, is of the view that Dangote's aim is not just to produce for local consumption. In media interviews, company owner Aliko Dangote has spoken of exporting some of the refinery's production. In our analysis on the implications of the Dangote refinery for the trade balance, we therefore look at various scenarios including exporting the refinery's entire output. We also look at the import implications of procuring crude oil from offshore markets.

- For our base case, we make the following assumptions:

  1) An oil price of $61.2/bl in 2021 (this is our senior oil & gas analyst Alex Burgansky's forecast).

2) The Dangote refinery will operate at 100% utilisation in 2021, implying that it will process 650kb/d of crude per day and produce 111.2mn litres/day (40.6bn litres/pa) of fuel.

3) The public refineries are only reported as producing petrol and kerosene, implying that they only produce 91mn of the potential 171mn litres of fuel from each barrel of crude. This explains why the public refineries' full capacity estimate of 14.1bn litres of fuel pa is less than the full utilisation estimate of 27.8bn litres pa, when based on the refineries' 445kb/d capacity and the EIA's estimate that one barrel of crude produces 171mn litres of fuel/day. So, if we assume that the public refineries' utilisation capacity remains flat at 12% in 2021, that implies 4.8mn litres/day of fuel will be produced. Taken together with the Dangote refinery's output, this implies that Nigeria will produce **116mn litres/day (42.3bn litres/pa) of fuel in 2021.**

4) The 2015-2017 average of 392kb/d of crude that was swapped for refined products will be sold to the Dangote refinery once it is up and running.

5) The remaining 258kb/d that the Dangote refinery will require to meet its 650kb/d crude requirement will be imported.

6) Petrol consumption increases to 30.2mn litres/day (or 11bn pa) in 2021, from our estimate of 27.1mn in 2017, which is well within our projection of local production by the Dangote refinery (50mn litres/day) and the public refineries (3.4mn litres/day at the current utilisation rate of 12%); 53.4mn in total. This implies Nigeria will be self-sufficient in petrol.

Figure 12: Consumption of refined products (adapted to include RenCap' s petrol estimates), mn litres per day

	2014	2015	2016	2017
PMS (petrol)	26.1	25.7	26.4	27.1
AGO (diesel)	9.1	8.9	10.6	13
DPK (kerosene)	8.1	4.7	2.6	2.6
Total	**43.3**	**39.3**	**39.6**	**42.7**

Source: NNPC, Renaissance Capital

7) As our petrol consumption estimates accounts for two-thirds of total consumption (see Figure 12), we estimate that fuel consumption will increase to 55.6mn litres/day (20.3bn litres pa) in 2021, from our estimate of 43mn in 2017.

8) The demand for other fuels (including diesel) is met by the local refineries (including the Dangote refinery).

9) As the 42.3bn litres of fuel produced domestically in 2021 (116mn litres/day) will exceed demand of 20.3bn litres (55.6mn litres/day), on our calculations, we assume the **difference of 22bn litres (60.3mn litres/day) will be exported**.

Impact on the current account

- **We estimate that Nigeria's trade balance will improve by $8.8bn (1.5% of GDP) in the Dangote refinery's first full year of operations, in 2021.**
- **Net crude oil exports will fall by 35%, but this will be offset by...** Nigeria currently produces 2.0mnb/d of crude oil. Of this, 445kb/d is allocated to the public local refineries for processing into fuel, of which only 53kb/d is utilised. The remaining 392kb/d that is currently being exported, and its proceeds used to procure refined fuel, will no longer be available for export. We expect the refinery to import the crude oil difference, of 258kb/d, to supplement the 392kb/d procured from the Nigerian authorities, assuming it operates at full capacity of 650kb/d. We therefore expect that Nigeria's crude oil exports will drop from the current 2.0mnb/d to 1.3mnb/d, implying a 35% decline in export volumes and earnings, by our estimates (see Figures 12 and 14).

Figure 13: Volume of crude oil exports, pre- and post-refinery

	Pre-Dangote refinery	Post-Dangote refinery
Crude oil production, kb/d	2,000	2,000
Crude allocated for refined fuel, kb/d	445	445
of which: local refineries' allocation	53	445
swapped for refined fuel, supplied by marketers	392	0
Crude oil imports procured by Dangote refinery, kb/d	-	258
Crude oil exports, kb/d	**1,947**	**1,297**

Source: NNPC, Renaissance Capital estimates

- **…the commencement of exports of refined oil products...** As the coming on stream of the Dangote refinery's refined products in 2021 implies that domestic supply (42.3bn litres) will exceed consumption (20.3bn litres), we expect the excess supply of 22bn litres to be exported. We estimate that these exports of refined products will bring in $12.3bn in earnings.
- **…and the falling away of imports.** Once the Dangote refinery is operating, we expect fuel imports to fall away, as Nigeria will become self-sufficient in fuel, as a result of the new refinery. In the absence of the Dangote refinery, Nigeria would have had to import the difference between fuel demand, which we estimate to be 55.6mn litres/day (20.3bn litres pa), in 2021, and the volume produced by the local public refineries of 4.8mn litres/day (1.7bn litres pa), assuming 12% utilisation, by our estimate. So, the amount of fuel imports saved with the Dangote refinery running at 100% utilisation in 2021 would be 18.6bn litres, which at a price of $0.59/litre amounts to $11bn, by our estimate.
- **Nigeria's trade account will improve by $8.8bn when the Dangote refinery begins operations.** In our analysis below, we only look at energy-related items in the trade balance. To arrive at these estimates, we need an estimate for the cost of a litre of fuel. At a crude oil price of $61.2/bl, our SSA oil & gas analyst Temilade Aduroja estimates the price of a locally produced litre of petrol to be $0.56 (see Figure 14).

Figure 14: Estimated price of a locally produced litre of petrol

Crude oil price $/bl	61	65	70	75	80	100
Litres/bl	158	158	158	158	158	158
Crude oil price, $/litre	0.39	0.41	0.44	0.47	0.51	0.63
Crude oil portion of operating cost	70%	70%	70%	70%	70%	70%
Price of petrol, $/litre	0.56	0.59	0.64	0.68	0.73	0.91
Price of petrol, NGN/litre (FX rate, NGN305/$1)	**169**	**180**	**194**	**208**	**222**	**277**
% above regulated price	*17%*	*24%*	*34%*	*43%*	*53%*	*91%*

Source: Renaissance Capital estimates

- Figure 15 shows that the positive impact of new exports of refined petroleum products and lower petrol imports on the trade balance will offset the negative impact of lower crude export volumes and the commencement of crude oil

imports. We use the current dollar landing price of a litre of petrol to estimate the cost of importing fuel in 2021. The Dangote refinery will improve Nigeria's trade balance by $8.8bn in 2021 (1.5% of GDP; assuming GDP of $572bn in 2021, as per IMF estimates), by our estimate, in our base-case scenario.

Figure 15: Impact of Dangote refinery on (energy-related) trade balance, $bn (2021E)

	Scenario with no Dangote refinery	Post-Dangote refinery	Price	Assumptions
Crude oil exports, $bn/pa	43.5	34.7	$61.2/bl	Assuming crude that was swapped for fuel, is now sold to Dangote refinery
Refined oil product exports, $bn/pa		12.3	$0.56/l	Assuming excess production of 22bn (42.3bn-20.3bn) litres of fuel will be exported
Refined fuel imports, $bn/pa	-11	0.0	$0.59/l	Assuming fuel consumption of 18.6bn (20.3bn-1.7bn) litres/day
Crude oil imports procured by Dang refinery, $bn/pa	na	-5.8	$61.2/bl	Assuming Dang refinery 650kb/d – 392kb/d = 258kb/d will have to be imported, to meet full capacity requirement
(Energy-related) trade balance, $bn/pa	**32.5**	**41.3**		

Source: NNPC, Renaissance Capital estimates

- That said, there are various moving parts to the Dangote refinery. We now look at the implications of variations in some of our assumptions:

1. **What if the Dangote refinery exports more than the excess production of 60.3mn litres/day (or 22bn litres pa) of fuel?** In our base-case scenario (Figure 15), we assume that only the production that exceeds demand – 60.3mn litres/day – would be exported. Here we look at the implications of exporting more than 60.3mn litres/day on Nigeria's trade balance.

   In Figure 16 we show the impact on Nigeria's energy-related trade balance of the Dangote refinery exporting various quantities of the refined petroleum products that it plans to produce. If the Dangote refinery opts to export more than 60.3mn litres/day, then Nigeria will need to import fuel to meet domestic consumption needs. We find that the trade balance peaks at $41.3bn when the Dangote refinery exports only the supply of refined products that exceeds domestic demand (excess supply of 60.3mn litres/day). **If the Dangote refinery exports all the refined products it produces (111mn litres/day), Nigeria's energy-related trade surplus would decline by $4.7bn, compared with a scenario where it only exports the excess supply.**

Figure 16: Trade balance for various volumes of energy-related exports, 2021E

Fuel exports, mn litres/day	0	20	40	60.3	70	85	100	111
Revenue from refined products' exports, $bn/pa	0.0	4.1	8.2	12.3	14.3	17.4	20.4	22.7
Revenue from crude oil exports, $bn/pa	34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.7
Cost of crude oil imports, $bn/pa	-5.8	-5.8	-5.8	-5.8	-5.8	-5.8	-5.8	-5.8
Cost of fuel imports to counter increase in exports, $bn/pa	0.0	0.0	0.0	0.0	-2.0	-5.0	-8.1	-10.4
Trade balance, $bn/pa	**28.9**	**33.0**	**37.1**	**41.3**	**40.4**	**39.0**	**37.6**	**36.6**

Source: Renaissance Capital estimates

2. **What if the domestic refineries' utilisation rate improves?** In our base case, we assume that the Dangote refinery will operate at full capacity and the public refineries' production capacity utilisation remains flat at 12%, which was the 2013-2017 average. However, the authorities have indicated that they intend investing in the repair and maintenance of the refineries, suggesting that their utilisation may increase.

   Notably, the public refineries are only reported as producing petrol and kerosene. This implies they only produce 91 litres of the potential 171 litres of fuel per barrel of crude. This explains why the public refineries' full capacity estimate of 14.1mn litres of fuel/pa (based on litres of actual locally refined products and the refineries' utilisation rate) is less than the full utilisation estimate of 27.8mn litres based on the refineries' 445kb/d capacity

and the EIA's estimate that one barrel of crude barrel produces 171mn litres of fuel/day (fuel being defined as all the by-products that can be produced from crude).

We assume that the Dangote refinery will produce 171mn litres of fuel from a barrel of crude, as outlined in Figure 8. This implies petrol will account for 44% of the Dangote refinery's fuel production.

Our analysis (see Figure 17) shows that there is significant upside to Nigeria's volume of exports of refined products if the public refineries increase their operating capacity beyond 12% (assuming the Dangote refinery operates at full capacity). However, an increase in Nigeria's refining capacity also implies a decline in net crude oil exports, as more crude is retained for processing. Our analysis shows that the higher the utilisation at the local public refineries, the smaller the energy-related trade balance. That said, the decrease in the trade surplus when the local refineries operate at full capacity vs zero capacity is only $2.1bn, by our estimate.

- **Ultimately, Nigeria's trade surplus improves when the Dangote refinery starts producing** (vs the scenario of no Dangote refinery, when the trade surplus comes in at $31.9bn; see Figure 15)**, regardless of the level of utilisation at the local refineries, according to our estimates.**

Figure 17: Excess fuel supply, at different levels of utilisation at public refineries (2021E)

Public refineries, % utilisation capacity	0	10	20	30	40	50	60	70	80	90	100
Fuel produced by public refineries, bn litres/pa	-	1.4	2.8	4.2	5.6	7.1	8.5	9.9	11.3	12.7	14.1
Fuel produced by Dangote refinery, bn litres/pa (assuming full capacity)	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6
Fuel consumption, bn litres pa	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
Excess supply of refined oil products available for export, bn litres pa	20.3	21.7	23.1	24.5	25.9	27.3	28.8	30.2	31.6	33.0	34.4
Export earnings from refined oil products, $bn pa	11.4	12.2	12.9	13.7	14.5	15.3	16.1	16.9	17.7	18.5	19.3
Net crude oil exports, $bn pa	29.0	28.0	27.0	26.0	25.0	24.0	23.0	22.0	21.0	20.0	19.0
(Energy-related) trade balance, $bn pa	**40.3**	**40.1**	**39.9**	**39.7**	**39.5**	**39.3**	**39.1**	**38.9**	**38.7**	**38.5**	**38.3**

Source: Renaissance Capital estimates

It is noteworthy that the government has approved 25 licences for the establishment of refineries by private investors, implying upside for fuel production and the trade balance, in our view.

Impact on GDP of operating the Dangote refinery

- **The Dangote refinery's operations will boost Nigeria's GDP by $13bn or 2.3% of GDP in 2021, by our estimates, mainly by boosting net exports and government revenue.**
- We expect the Dangote refinery to have the following impacts on Nigeria's real economy: 1) **direct impacts;** these refer to the effects of the operational phase of the refinery, which we believe will include employment, tax payments to the government, exports of refined oil products, and the provision of cheaper fuel to Nigerian consumers; 2) **indirect impacts**; the effects of the refinery on all other industries that supply inputs during the operational phase; 3) **induced impacts**; the effects of paying out salaries and wages to people who are employed in the sector.
- Our impact analysis does not fully capture the impact of the Dangote refinery on the Nigerian economy. However, we do attempt to estimate some of the more tangible effects by drawing on data from Turkey's publicly listed Tupras oil refinery, which we believe is comparable, as it is an EM/FM refinery that has a capacity of 548kb/d, vs 650kb/d at the Dangote refinery (see Figure 18). We also draw on data, where available, from Nigeria's public refineries, which have a collective capacity of 445kb/d.

Figure 18: Salient data on comparable refineries, 2017

	Tupras	Nigeria's public refineries
Capacity, kb/d	548	445
Personnel cost, $mn	116	
Number of employees	4,787	
Average annual salary per staff, $ '000	24.28	
Gross margin	11.5%	12%
Opex cost, $mn	357	335
Operating margin	9%	na

Source: Renaissance Capital estimates, Tupras

- **One of the biggest impacts of the refinery will be the jobs created.** The Dangote refinery will employ 30,000 people when it is operational, according to management. To get an estimate of what this will mean in terms of personnel costs, we looked at Tupras, which has a capacity of 548kb/d and employed 4,787 people in FY17, at a personnel cost of TRY441.7mn (or $116mn at the FX rate on 29 December 2017), according to the company's 2017 financial statement. This implies that the average annual salary per Tupras employee is $24,280. We were unable to get equivalent statistics for Nigeria's public refineries.
- The Dangote refinery plans to employ a workforce that is six times bigger than that of Tupras, which has an equivalent capacity. One can infer from this that the Dangote refinery's employees will be six times less productive. To affirm this, we also compared the average wage of a worker at Dangote Cement's Nigerian operations (with capacity of 29.3mn tpa) and that at a Turkish cement factory, Akcansa (8mn tpa of clinker and 7.6mn tpa of cement; see Figure 19). We found that the average worker at the Turkish cement plant earned six times more (at $25,600 pa, which is similar to the Turkish refinery's [Tupras] average wage) than that of the Dangote cement factory ($3,800). Given the equivalence of the Turkish refinery and cement factory average wages (see Figures 17 and 18), and the wage ratio at the cement factories that is equivalent to their workforce ratio (a factor of six), **we assume that the wage of the average worker at the Dangote refinery will be one-sixth of that of the Tupras refinery, or $4,050**.

Figure 19: Salient data on comparable cement plants (Dangote and Akcansa)

	Dangote Cement	Akcansas
Capacity (cement), mn tpa	29.3	7.6
Personnel cost, $mn	58	27.0
Number of employees	15,326	1,055
Average annual salary per staff, $k	3.8	25.6

Source: Dangote cement, Akcansas

- So, given the size of the Dangote refinery workforce (30,000), as guided by management, and our estimate for the average wage ($4,050), our personnel costs estimate for the refinery comes to $122mn (see Figure 20).
- We estimated the personnel costs for the suppliers of Dangote refinery by taking the ratio of the personnel costs of the Tupras refinery ($116mn) to that of its suppliers (which we derived by taking Tupras' personnel costs under its cost of sales, $162mn), which is 1.4x. Using this factor, we come to an estimate of $171mn for the personnel costs of the Dangote refinery's suppliers. We also assume that the suppliers' workers will mostly be semi-skilled and that their annual average wage is likely to be 75% of that of the refinery workers, which gives us $3,040. That implies the refinery's suppliers may employ up to 56,250 workers in total (see Figure 20).

Figure 20: Economic impact of refinery

Type of impact	Jobs	Wages ($mn)	Sales ($mn)
Direct	30,000	122	22,736
Indirect	56,250	171	20,008
Total	**86,250**	**293**	**42,744**

Source: Renaissance Capital estimates

- **The other significant impact of the refinery is the sales it will make from the fuel it produces.** The refinery will produce 40.6mn litres of fuel pa, by our estimate, assuming it operates at full capacity. This implies fuel sales of $22.7bn pa, assuming that the price of a locally produced litre of fuel is $0.56/litre (if we use petrol as a proxy; see Figure 14).
- **To get an estimate of the indirect effects of the refinery** – which is the impact of the refinery on suppliers – **we used the cost of goods sold by the refinery as a proxy.** This because the cost of goods sold represents the income generated by suppliers from supplying the refinery with crude oil, transportation and energy, among other goods and services. In the case of both Tupras and Nigeria's public refineries, the cost of goods amounted to 88% of sales in 2017. So, given our sales estimate of $22.7bn for the refinery, we estimate that suppliers will make $20.0bn. We take this figure as an estimate of the indirect effects of the refinery.
- **What does the Dangote refinery mean for Nigeria's GDP?** We attempt to estimate the impact of the Dangote refinery on the Nigerian economy by using a simple GDP by expenditure framework (consumption + investment + government expenditure + net exports), which shows the final demand for goods and services.
- **The Dangote refinery's operations will boost Nigeria's GDP by $13bn or 2.3% of GDP** in 2021, by our estimates (see Figures 20 and 22). This will mainly stem from net exports that we estimate will increase by $8.8bn (1.5% of GDP); this is due to new exports of refined oil products and the decline in energy-related imports (due to the falling away of fuel imports), by our estimate. Government revenue will improve by $3.2bn or 0.6% of GDP, via income tax and the proceeds from crude oil sales, by our estimates. Household consumption expenditure will improve by $674bn or 0.2% of GDP, via the boost to the disposable income of Nigerian households from the availability of cheaper fuel, and consumption by employees of the refinery and those of its suppliers. The refinery's operations will provide a more modest lift to investment (than the construction phase of the facility), of $305mn (0.05% of GDP).

Figure 21: Impact of Dangote refinery on GDP, 2021E

Consumption	Government	Investment	Net exports	GDP
• $425mn - boost in Nigerian households' disposable income from cheaper fuel. • $104mn - disposable income of refinery employees • $145bn - disposable income of employees of suppliers.	• $2.5bn - proceeds from the crude sales made by the government via NNPC • $712mn - corporate tax paid by refinery • $18mn - income taxes paid by refinery workers • $26mn - income tax paid by employees of the suppliers	• $305mn - cost of additional property, plant and equipment	• $8.8bn - accounts for new exports of refined oil products, decline in energy-related imports due to the falling away of fuel imports.	• **$13bn (2.3% of GDP)**

Source: Renaissance Capital estimates

- **Nigerian households will save $425mn in disposable income, by our estimate, when the Dangote refinery's locally produced fuel comes on stream** (see Figure 22). We believe one of the biggest boosts to household consumption expenditure will come via the increase in disposable income on the back of the availability of cheaper fuel. Our SSA oil & gas analyst Temilade Aduroja estimates the price of fuel by using the petrol price as a proxy. She calculates the imported petrol price by adding the landing cost of petrol (NGN169/litre) to the marketers' margin and freight cost of NGN11/litre, which comes to NGN180/litre (see Figure 6). She arrives at a local petrol price by taking the EIA definition of crude oil representing 70% of the operating cost of a litre of refined petrol, with refining and distribution costs representing 17% and 13%, respectively. That gives her a petrol price of NGN169/litre, implying that **Nigerians will save NGN11/litre or 6% of the amount they currently spend on fuel once the Dangote refinery is operational**. (We are assuming that the consumer is paying the market price, which is the case when the oil price rises or during seasons of high demand, such as Christmas.) We assume an FX rate of NGN480/$1 in 2021, assuming the naira depreciates at the inflation rate of 10% pa.

Figure 22: Expenditure on fuel, $mn

	Without Dangote refinery			With refinery			Difference
	Imported	Locally produced	Total	Imported	Locally produced	Total	
Price of fuel, NGN//	180	169		180	169		
Fuel imported, mn litres, 2021	18,554	1,740		0	20,294		
Expenditure on fuel, NGNmn	3,339,720	294,060	**3,633,780**	0	3,429,686	**3,429,686**	**204,094**
Expenditure on fuel, $mn	6,958	613	**7,570**	0	7,145	**7,145**	**425**

Source: Renaissance Capital estimates

- Consumption will also be boosted by purchases of goods and services by the employees of the refinery, which we take to be equivalent to our estimate of the disposable income of the refinery's workers. This will include spending on food, rent, energy, transportation and clothing.
- We estimate the disposable income of the refinery's employees by calculating the income left after tax. **The average tax rate in Nigeria is 15%. Given our estimate of the Dangote refinery's personnel costs, of $122mn, this implies that the disposable income of the refinery's employees will be $104mn.** This we take to be a proxy for the value of the purchases of goods and services by employees of the Dangote refinery.

- Spending by the employees of suppliers, hired to service the refinery, will also add to consumption. We take Tupras' 2017 personnel costs under its cost of sales, $171mn, as an estimate for the total income of the employees of the suppliers. Of this we estimate disposable income to be $145mn. This we take to be the refinery's induced impact on consumption.

Figure 23: Summary of impact of Dangote refinery on 2021E GDP

Type of impact	Direct		Indirect		Induced		Total, $mn	
	$mn	% of GDP	$mn	% of GDP	$mn	% of GDP	$mn	% of GDP
Consumption	425	0.1	104	0.02	145	0.02	**674**	**0.1**
Investment	305	0.05	-	-	-	-	**305**	**0.05**
Government	3,232	0.6	26	0.0	-	-	**3,258**	**0.6**
Exports	3,564	0.6	-	-	-	-	**3,564**	**0.6**
Imports	5,191*	0.9	-	-	-	-	**5,191**	**0.9**
Total	**12,717**	**2.2**	**130**	**0.02**	**145**	**0.02**	**12,992**	**2.3**

*Positive import balance reflects imports saved

Source: Renaissance Capital estimates

- **Investment** (gross fixed capital formation) will get a lift from spending on building/land maintenance and spare parts. **To get an estimate of this, we take the Tupras refinery's FY17 cost of additions to property, plant and equipment, of TRY1.16bn or $305mn, as a proxy for investment** that may result from the Dangote refinery's operations.
- **Government spending** on wages and goods and services will also improve on the back of taxes paid by the refinery. The Dangote refinery's operating profit in 2021 will be $2.37bn, according to our SSA oil & gas analyst Temilade Aduroja's estimate. She derives this by taking the Nigerian local refineries' gross profit margin of 12% (Tupras: 11.5%) as a proxy (see Figure 18), to estimate gross profit (see Figure 24). She then estimates opex by assuming it will be equivalent to that of the local refineries if they operated at the same capacity. The local refineries, with a capacity of 445kb/d, have opex of $335mn. If we assume that the Dangote refinery will operate at 650kb/d, then its opex would amount to c. $500mn (see Figure 24). We think the Dangote refinery's opex will be more comparable to that of a local refinery than to Tupras, but we do note that the new refinery's operations are likely to be more efficient than the local refineries. The difference between our estimated gross profit and opex gives us an operating profit estimate of $2.37bn for the Dangote refinery.

Figure 24: Dangote refinery operating profit estimate

	Volume, litres	40,569,750,000
	Price, $	0.59
	Revenue, $	23,936,152,500
12% margin	Gross profit, $	2,872,338,300
	Opex, $	500,000,000
10% margin	Operating profit, $	2,372,338,300

Source: Renaissance Capital estimates

- **As the corporate tax rate is 30%, this implies operations at the Dangote refinery will boost the Nigerian federal government's revenue by $712mn in 2021E, by our estimate.** Employees of the refinery and of its suppliers will also contribute to the government via personal income tax. The refinery's wage bill will amount to $122mn, by our estimate, which implies that at a tax rate of 15% the government will receive $18mn in taxes from the refinery's employees. The employees of the suppliers will pay $26mn in personal income taxes, by our estimates.
- The federal government's revenue will also be boosted by the income it makes from the NNPC selling 392kb/d of crude to the Dangote refinery (instead of swapping it for fuel). **We estimate that the federal government will make $2.5bn from selling this crude to the refinery.** See a more detailed discussion on this in the next section, *Impact on government finances*.

- **Net exports will improve by $8.8bn or 1.5% of GDP.** In our base-case scenario, exports of refined products from the Dangote refinery will exceed the crude imports required for the refinery to process, and imports of refined oil products will fall away. The Dangote refinery will export the volume of refined products that exceeds domestic demand (which we estimate will amount to $12.3bn), and will import 258kb/d of crude oil (which we value at $5.8bn) to meet its input requirements (see Figure 15). Crude is currently a zero-tariff good. However, we think this may change once Dangote starts importing crude, implying a potential source of additional tax revenue.
- As the Dangote refinery will make Nigeria self-sufficient in fuel, the country will save $11bn in fuel imports, by our estimate. We arrived at this estimate by taking our estimate of fuel consumption in 2021, of 20.3bn litres (55.6 litres/day) and deducting our estimate of production by the local public refineries of 1.7bn litres (4.8mn litres/day), assuming 12% utilisation. This implies fuel imports of 18.6bn litres in the absence of the Dangote refinery, and at a price of $0.59/litre Nigeria may save $11bn in fuel imports, in 2021, from the Dangote refinery's operations making the country self-sufficient in fuel.

Impact on government finances

- Here we look at the impact of the Dangote refinery on government finances, via the projected tax revenue generated from the facility becoming operational, and the revenue generated from selling crude to the refinery. We also look at the cost (gain) to the government of sustaining (removing) the subsidy.
- **We expect the government's tax revenue to improve by at least $756mn when the refinery is up and running in 2021. This is equivalent to 0.1% of GDP** (assuming GDP of $572bn in 2021, as per IMF estimates). One of the positive impacts of the Dangote refinery on government finances is that the entity will become a tax-paying corporate when it starts operating, which will contribute to the FGN's revenue. The refinery's employees, as well as the employees of its suppliers, will also contribute to personal income tax. This could be meaningful in a country where tax revenue is low, at 6% of GDP in 2017.
- **The federal government will gain NGN1trn from selling crude oil to the Dangote refinery, instead of swapping it for refined fuel.** When the refinery is operating, we assume the NNPC will cease the swapping of crude for fuel and will instead sell at most 392kb/d of crude to the Dangote refinery (see Figure 25).

Figure 25: Revenue earned by government from selling some or all of 392kb/d previously reserved for fuel swaps

Crude sales to Dangote refinery, mn litres	0	50	100	150	200	250	300	350	392
Revenue generated via NNPC, $bn/pa	0	1.1	2.2	3.4	4.5	5.6	6.7	7.8	8.8
Revenue generated via NNPC, NGNbn/pa (assuming FX rate of NGN406/$1)	-	453	907	1,360	1,814	2,267	2,721	3,174	3,555

Source: Renaissance Capital estimates

- **The federal government's boost from selling crude oil via the NNPC to the Dangote refinery will be NGN1trn or 0.5% of GDP, by our estimates.** We expect the NNPC to be paid for the crude oil in naira. Assuming an oil price of $61.2/bl in 2021 and that the Dangote refinery buys 392kb/d of crude from the NNPC, we estimate that the NNPC will receive the naira equivalent of $8.8bn pa for the crude it sells to the Dangote refinery, vs $5.5bn that the NNPC made in 2017 from domestic crude sales, by our estimate. Of this amount, about 70% is remitted to the Federation Accounts Allocation Committee (FAAC). This implies the FAAC would get c. $6.2bn of the proceeds from the sale of crude to the Dangote refinery. The FAAC distributes these funds to the various arms of government, including federal, states and local government councils. In 2017, the federal government received a 40% allocation from the FAAC account. Assuming the same proportional allocation in 2021, **this implies the federal government may get $2.5bn as proceeds from the sale of crude to the new refinery.**
- If we assume the government maintains a stronger FX rate for its budget (as it does now with an FX rate of NGN305/$1 vs the official interbank rate of NGN362/$1), then our assumption of the naira depreciating at the inflation rate of 10% pa implies that the budget FX rate may be NGN406/$1 in 2021. At this rate, the federal government's revenue boost from selling crude oil via the NNPC to the Dangote refinery would be NGN1trn. This is equivalent to 0.5% of GDP (as per the IMF's 2021 GDP projection) or 11% of the NGN9.1trn FY18 budget.
- We now turn to the 'petrol subsidy' and its implications for government finances. At a crude oil price of $50/bl or above, the federal government pays a 'petrol subsidy' or under-recovers revenue from its sales of petrol to fuel marketers, because the landing cost of petrol exceeds the regulated pump price of NGN145/litre. As we are projecting an oil price of $61.2/bl in 2021, this implies the government will pay a subsidy for petrol if the price is not deregulated.
- **The cost to (improvement in) government finances if the petrol subsidy is maintained (removed) will be NGN386bn or 0.2% of GDP, by our estimates.**
- **If the petrol price remains regulated when the Dangote refinery starts operating…**

1. If the FGN decides to maintain a regulated petrol price of NGN145/litre after the refinery starts operating, we believe at an oil price of $61.2/bl that the government will have to pay a subsidy of NGN35 for a litre of petrol (see Figure 6). We estimate petrol consumption of 30.2mn litres/day, or 11bn litres in 2021. This implies that **the government will have to pay a subsidy of NGN386bn or 0.2% of GDP, by our estimates.**
2. **Instead of accumulating debt related to an under-recovery of the petrol price, the FGN may opt to sell crude to the Dangote refinery at below its market price.** So, the Dangote refinery's gain on procuring crude at below market prices could be offset by the loss it makes on selling petrol to fuel marketers at a regulated price (below the market price). This agreement would require for the crude to be sold at a low enough price to the Dangote refinery to enable it to make attractive margins on the petrol. The NNPC may receive less than its crude is worth, but at least it would stop building up debt on its books via an under-recovery of the petrol price.
3. The NNPC may also opt to sell crude to the Dangote refinery at a fixed price. This would help to protect the consumer from fluctuations in the crude oil price. But the price would have to be attractive enough for the refinery to make a decent margin on petrol.
4. The NNPC may choose to sell the crude to the refinery at a fixed FX rate that is lower than the official rate, i.e. NGN406/$1 in 2021 (assuming the currency appreciates at our assumed rate of inflation of 10% pa). This would offer a subsidised FX rate to Dangote refinery, and a fixed FX rate would protect the consumer from FX fluctuations.
5. Dangote Exploration Assets Ltd plans to pump around 20kb/d of crude oil from two shallow water blocks, OML 71 and 72, located in the Niger Delta River in south-eastern Nigeria. The crude pumped from these blocks will supply the refinery. The exploration company is looking for blocks to produce up to 250kb/d. This implies that the refinery could procure crude at a lower cost, which would improve its margins.

- **If the FGN decides to deregulate petrol prices when the Dangote refinery is up and running,** this implies

1. **The Dangote refinery and the public refineries could sell their fuel at market prices.** This would waive the fiscal burden on the government of 'subsidising' fuel, and improve government finances by NGN386bn or 0.2% of GDP. It would also improve the supply of fuel, because if marketers can sell fuel at cost-recovery prices, they will no longer under-recover the revenue required to procure fuel. **If petrol prices were to be de-regulated in the year the Dangote refinery starts operating, the boost to GDP from both the refinery's operations and the subsidy removal would increase to 2.6% of GDP, by our estimates.**
2. Deregulation would in theory be negative for the consumer, as it implies higher fuel prices. However, in our view the upside is that fuel will be more readily available. Under regulated prices, the reality is that when the crude oil price increases, fuel shortages build up and fuel is often only available at a premium.

Caveats

One of the shortcomings of our analysis is that we only look at the impact of the refinery's operation in its first full year of production, 2021, and not the years beyond that. We expect the most significant variable to the annual impact on Nigeria's GDP to be net exports. This because as fuel demand picks up post-2021, we expect the volume of fuel exports to decrease, as an increasing share of fuel is retained in Nigeria for domestic consumption. We also expect crude oil exports to decline, as a growing share is retained for local processing. Below we provide estimates of the energy-related trade balance in the Dangote refinery's first six years of production. We calculate the trade surplus will decline by c. $4bn, albeit at a gradual pace, by our estimate. This implies the net export impact on GDP will decline over the medium term, but only moderately.

Figure 26: Medium-term energy-related trade balance

	2021E	2022E	2023E	2024E	2025E	2026E
Fuel production, bn litres pa	42.3	42.3	42.3	42.3	42.3	42.3
Fuel demand, bn litres pa	20.3	21.7	23.2	24.8	26.5	28.3
Fuel exports, bn litres pa	22	20.6	19.1	17.5	15.8	14
Net crude exports, mnb/d	1.3	1.27	1.25	1.23	1.2	1.17
Net crude oil exports, $bn pa	29	29	29.1	29	29	28.9
Fuel exports, $bn, pa	12.3	11.7	11.1	10.3	9.5	8.6
Energy-related trade balance, $bn, pa	41.3	40.8	40.2	39.4	38.5	37.4
Assumptions:						
Fuel price, $/litre	*0.56*	*0.57*	*0.58*	*0.59*	*0.6*	*0.61*
Crude oil price, $/bl	*61.2*	*62.4*	*63.7*	*64.9*	*66.2*	*67.6*

Source: Renaissance Capital estimates

It is noteworthy that other private refineries are scheduled to come on stream in the medium term, which should limit the downside to net exports and delay the prospect of Nigeria needing to import fuel to meet domestic consumption.

Another shortcoming of our analysis is that we assume the Dangote refinery will operate at full capacity. The reality is that capacity utilisation is likely to fall short of 100%, which implies its impact on net exports, in particular, may turn out to be smaller than we have estimated.

Note: In writing this report we drew on Van Audenrode, M., Pinheiro, L., Faye, A.C., (November 2013), *An Economic Impact Analysis of Suncor's Montreal Refinery in Montreal and Quebec.*

Figure 27: Nigeria – key economic forecasts

Ratings (Moody's/S&P/F): B2/B/B+	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018E	2019E
Activity													
Real GDP (% YoY)					5.3	4.2	5.5	6.3	2.7	-1.6	0.8	2	2.5
Private consumption (% YoY)					2.6	0.3	29.3						
Government consumption (% YoY)					4.6	-2.0	1.4						
Investment (% YoY)					-29.8	1.9	10.5						
Oil production (mn b/d year-end)	2.2	2.1	2.1	2.4	2.4	2.0	2.2	2.2	2.1	1.6	1.9	1.9	1.9
Nominal GDP (NGNbn)	31,359	37,780	39,562	55,469	63,713	72,600	81,010	90,137	95,178	102,575	114,899	129,179	145,279
Nominal GDP (EURbn)	182	216	189	277	293	359	382	415	431	362	309	297	310
Nominal GDP ($bn)	249	317	264	367	408	462	508	546	481	399	345	356	382
Population (mn)	144	148	152	156	160	165	169	174	179	184	189	194	199
GDP per capita ($)	1,734	2,148	1,739	2,354	2,547	2,803	3,001	3,136	2,693	2,171	1,828	1,838	1,919
Gross national saving (% of GDP)	30.6	25.3	26.8	21.2	19.2	19.3	18.8	16.0	12.3	16.0	18.2	15.7	14.8
Stock of bank credit to corporate/ household sector (NGNbn)	5,055	8,057	10,152	9,704	14,184	15,152	16,191	18,115	18,719	21,982	22,290	22,959	24,107
Stock of bank credit to corporate/ household sector (% of GDP)	16.1	21.3	25.7	17.5	22.3	20.9	20.0	20.1	19.7	21.4	19.4	17.8	16.6
Loan to deposit ratio (%)	70.9	94.7	100.8	86.7	79.3	73.3	69.1	72.1	71.0	72.0	70.0	71.0	71.5
Prices													
CPI (average % YoY)	5.4	11.5	12.6	13.7	10.8	12.2	8.5	8.4	8.2	15.6	16.6	11.9	11.3
CPI (year-end % YoY)	6.6	15.1	13.9	11.8	10.9	12.0	8.0	8.1	9.6	18.6	15.4	10.8	11.4
Fiscal balance (% of GDP)													
Federal government balance	-0.3	0.6	-1.9	-2.5	-1.7	-1.5	-1.4	-0.9	-2.5	-2.8	-4.3	-3.4	-3.0
Total public debt	8.5	7.5	9.6	9.6	12.1	12.7	12.9	13.1	16.0	19.6	21.8	24.8	26.9
External balance													
Exports ($bn)	54.8	86.3	56.8	78.5	97.2	94.3	95.1	82.6	45.9	34.7	45.8	57.8	50.0
Imports ($bn)	32.7	40.1	31.1	46.8	62.2	53.4	51.4	61.6	52.3	35.2	32.7	35.3	41.2
Trade balance ($bn)	22.1	46.2	25.7	31.8	35.0	40.9	43.8	21.0	-6.4	-0.5	13.1	22.5	8.8
Trade balance (% of GDP)	8.9	14.6	9.7	8.6	13.5	8.9	8.6	3.8	-1.3	-0.1	3.8	6.3	2.3
Current account balance ($bn)	31.1	32.6	14.0	14.6	12.7	18.9	20.1	1.3	-15.4	2.7	10.4	13.2	8.0
Current account balance (% of GDP)	12.5	10.3	5.3	4.0	3.1	4.1	4.0	0.2	-3.2	0.7	3.0	3.7	2.1
Net FDI ($bn)	6.0	5.5	7.1	5.2	8.1	8.1	4.4	3.1	1.6	3.1	2.2	2.4	2.5
Net FDI (% of GDP)	2.4	1.7	2.7	1.4	2.0	1.7	0.9	0.6	0.3	0.8	0.6	0.7	0.7
Current account balance plus FDI (% of GDP)	14.9	12.0	8.0	5.4	5.1	5.8	4.8	0.8	-2.9	1.5	3.7	4.4	2.7
Exports (% YoY, value)	-7	58	-34	38	24	-3	1	-13	-44	-24	32	26	-13
Imports (% YoY, value)	44	23	-22	50	33	-14	-4	20	-15	-33	-7	8	17
Foreign exchange reserves (ex. gold, $bn)	51.3	53.0	44.8	32.3	32.4	44.2	43.6	34.5	29.1	25.8	38.7	52.0	55.0
Import cover (months of merchandise imports)	18.9	15.9	17.3	8.3	6.3	9.9	10.2	6.7	6.7	8.8	14.2	17.7	16.0
Debt indicators													
Gross external debt ($bn)	3.9	4.1	4.5	5.0	6.1	7.2	11.1	11.5	47.2	46.1	56.5	65.0	71.2
Gross external debt (% of GDP)	1.5	1.3	1.7	1.4	1.5	1.6	2.2	2.1	9.8	11.6	16.4	18.2	18.6
Gross external debt (% of exports)	7	4.8	8.0	6.3	6.3	7.7	11.7	13.9	102.9	132.8	123.3	112.5	142.4
Total debt service ($bn)	1.0	0.4	0.4	0.3	0.4	0.3	0.5	0.5	2.3	2.0	2.4	3.5	2.8
Total debt service (% of GDP)	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.7	1.0	0.7
Total debt service (% of exports)	1.8	0.5	0.8	0.4	0.4	0.3	0.5	0.5	5.0	5.9	5.2	6.1	7.1
Interest & exchange rates													
Monetary policy rate (MPR), % year-end	9.5	9.8	6.0	6.3	12.0	12.0	12.0	13.0	13.0	14.0	14.0	14.0	14.0
Broad money supply (% YoY)	58.1	58.0	17.1	7.1	15.8	12.0	14.7	16.0	18.2	16.0	1.7	4.0	8.0
Credit to the private sector (% YoY)	97.1	59.4	26.0	-4.4	46.2	6.8	6.9	11.9	3.3	17.4	1.4	3.0	5.0
3-month interest rate (T-bill year-end %)	7.8	6.9	4.3	7.5	14.1	11.7	10.9	10.8	5.7	21.0	14.0	12.0	11.5
3-month interest rate spread over $-Libor (ppts)	1.8	4.1	3.7	6.7	13.0	11.2	10.4	10.2	4.9	19.6	12.3	9.9	11.5
5Y yield (% year-end)	9.5	10.5	9.4	12.0	11.2	11.8	13.5	13.8	13.1	13.3	16.0	15.5	15.0
Exchange rate (NGN/EUR) year-end	172	195	214	203	206	206	221	222	219	332	425	445	494
Exchange rate (NGN/EUR) annual average	172	175	209	200	217	202	212	217	221	283	372	435	469
Exchange rate, NGN/$) year-end	118	140	150	152	159	156	160	183	199	315	360	365	395
Exchange rate (NGN/$) annual average	126	119	150	151	156	157	159	165	198	257	333	362	380

Source: IMF, World Bank, national statistics agency, central bank, Renaissance Capital estimates

Disclosures appendix

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