Sasol
Buy, hold, or sell?

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In this month's edition of 'Buy, Hold, or Sell?', I decided to exchange my small-cap comfort zone for the big leagues. It sounded like a good idea at the time. Alas, you shouldn't believe everything you hear.

Coming to grips with Sasol was like bearhugging an Eel. But anything for the Biznews community, so here we go. And as always, the question of interest is whether our target is attractive at current levels? Is Sasol a good idea at R293-odd a share? I think so, and below I argue why. But before we get to that, the structure of the article.

In Part 1, I briefly sketch what Sasol does. In Part 2, I list and discuss what I take to be the company's major value drivers. Finally, in Part 3 I conclude with a valuation and a recommendation.

Introducing Sasol

Sasol is a R188-billion, JSE-listed, integrated fossil fuels and petrochemicals multinational. Don't worry if you needed to repeat that slowly, I had to as well, and I wrote it! Jokes and confusion aside, making sense of Sasol will initially require a bit of rough and tumbling in the weeds. But I'm quietly confident that – if nothing else - you will find the journey pretty interesting.

1. Fossil Fuels and Petrochemicals: What are they?

1.1 Fossil Fuels: Oil, Coal, and Gas

In essence, oil, coal, and gas are what the chemically inclined would refer to as hydrocarbons. More accurately, each is a *mixture* of different kinds of hydrocarbons. A hydrocarbon is simply a molecule consisting of hydrogen and carbon atoms – hence the name hydrocarbon. The shortest chained hydrocarbons – those with the fewest carbon atoms and simplest shapes – are typically in gaseous state, and include things like methane, ethane, propane, and butane (the primary constituents of natural gas). Those containing five or more carbons are usually in liquid form – the hydrocarbon pre-cursors for making petrol, diesel, etc. And finally, those with the longest chains – things like wax or tar – are typically solids.

1.2 Petrochemicals

Petro-chemicals are all those chemicals – and there are many – that are ultimately made from petroleum. ("Petroleum" is the Latin for rock oil, not to be confused with "petrol", which is one of the many kinds of refined products that can be made *from* petroleum).

2. The Fossil Fuels and Petrochemical Industry

Recall that fossil fuels – oil, coal, and gas - are mixtures of different hydrocarbons – with different chain lengths and shapes. One of the most economically attractive features of these hydrocarbon chains is that they can be broken apart, mixed, distilled, or stitched together to form other hydrocarbons. In other words, you can take oil, gas, or coal, separate it into its various hydrocarbon chains, and then "build" whichever hydrocarbon or hydrocarbon-derived products you may require.

Examples of such useful oil-to-other-product possibilities include paraffin, petrol, diesel, plastic, paint, rubber, glue, fertilizer, cosmetics, and textiles.

Performing these chemical and industrial transformations is exactly what much of the fossil fuel and petrochemicals industry is about. I will briefly describe how such fossil fuel alchemy is performed with reference to Sasol.

2.1 The Sasol Business Model and Value Chain

As I noted in the introduction, Sasol is an integrated fossil fuels and petrochemicals multinational. They are 'integrated' in two ways: Firstly, Sasol is *vertically* integrated in that the company not only turns coal, oil, and gas into refined fuels, but they also supply a material proportion of their own coal and gas feedstock needs. And secondly, Sasol is *horizontally* integrated in that they not only produce refined fuels, but also more specialized petrochemicals, a division of labour typically not performed under one roof. Finally, they are 'multinational' in they do these various economically significant things in multiple jurisdictions – South Africa, Mozambique, Qatar, China, Germany, Italy, and the USA.

Let's dig a little deeper.

Sasol disaggregates its business into two major segments: the energy business and the chemicals business. Each of these are in turn divided into three business units of their own. In the energy business, these are mining, gas, and fuels. And in the chemicals business, they are Chemicals Eurasia, Chemicals Africa, and Chemicals America.

2.1.1 The Energy Business

The energy business value chain runs roughly as follows: Step 1: Sasol mines coal and extracts gas from its coal mines in SA and gas fields in Mozambique. Step 2: The coal and gas are then railed or piped to its city-sized Secunda and Sasolburg plants in Mpumalanga. Step 3: At Secunda/Sasolburg, the coal and gas go in at the one end, complicated chemical and industrial things happen in the middle, and refined fuels and chemicals come out the other side. Step 4: The resulting fuels are sold to all the willing and able, either wholesale or retail. The coal and gas that's not used to make fuel is either sold as coal and gas simpliciter or used to make chemicals. More on the chemicals business later.

As you can see, the (coal) mining and gas (extraction) businesses make step 1 (and 2) of the value chain happen, while the fuels unit covers steps 3 and 4. The question that interests me is this: 'What is the intrinsic value of each of these business units? To answer this question, we will need to get a reasonable fix on what sort of (sustainable) free cash flows they are likely to generate in the future. And finally, to answer *that*, we need to identify the key economic drivers of these units' free cash flows and then think about how they will play their respective free cash flow causing roles going forward.

Let's begin our enquiries with the coal mining unit.

2.1.1.1 (Coal) Mining

What are the key value drivers of Sasol's coal mining business? Well, like in any mining business, or in any business for that matter, the profits a business earns in any given year is equal to the difference between the revenues it generates in that year, and the costs it incurred to do so.

Key Value Driver 1: Coal Prices and Volumes

All else equal, the higher the coal price, and the greater the amount of coal the mining unit sells, the greater the amount of money it makes, and thus the higher its intrinsic value. The problem: Its revenue growth from *price* increases is limited by design, while its revenue growth from *volume* increases is currently being limited by production weaknesses. More specifically, on the price side, the coal business is obligated by the group to sell most of its production – typically 95% - at a (low) cost-plus arrangement to the fuels and chemicals units, while, on the volume side, recent production numbers paint an increasingly bleak picture.

My impressions: Coal price rises will be limited by the economic needs of the much more important fuels and chemicals units, while production numbers will probably only return to their 2019-2022 averages in 2024. The implications: The unit's revenue growth will be limited and is unlikely to exceed its 2022 numbers until at least 2024.

Key Value Driver 2: Costs (Fixed, Variable, and Capital)

In general, a mining venture's required outlays include things like exploration costs (searching for new resources), capex (costs of building new mines, or further development of existing mines), operating costs (costs to keep the resources coming, both fixed and variable), and finally, rehabilitation costs (closing the curtains on the operations in an environmentally friendly way).

At present, Sasol coal has few capital and rehabilitation cost worries. The canaries in its coal mines are rather of an operational kind, and they number two. The first, as noted, is that their coal production profile is deteriorating, and not by design. The result: their operating cost efficiency is suffering (same fixed cost, lower production).

And secondly, and related to the first, is that the coal that they *are* managing to deliver is often of an inferior quality. This is leading to production losses at Sasol fuels and chemicals, which is obviously far from ideal given the crucial economic importance of the latter.

Bottom line: Sasol coal is not producing enough coal and the coal they are producing is lacking in quality. The result: the value of both the gas business and the fuel and chemicals business will be discounted until the market expects its operational performance to improve.

2.2.1.2 The Gas Business

Key Value Factor 1: Gas Sales Prices and Volumes

Gas Volumes: The gas business extracts gas in Mozambique and sells most of it in South Africa – 67% of production typically goes to Sasol fuels and chemicals, while the rest is sold to local third parties. Unlike the coal business, the gas business's production profile has been steady since 2019. And I see no reason why this will change for the worse anytime soon.

Gas Prices: During the last 4 years, the gas business charged its South African fuels and chemicals sister company an average of about R56 per thousand cubic feet of product - the corresponding third-party average sales price was R119 per thousand feet of gas - give or take.

As you can see, the difference in internal and external pricing is significant, which explains why even though external sales *volumes* are typically only half of those sold internally, external gas *revenues* are often double those generated from internal activity. In other words, while internal selling prices cover the gas business's basics, it's really the external gas price that drives most of its value.

But here things get interesting, for, by law, there is a cap on what Sasol is allowed to charge its local third-party customers – something called the 'maximum allowable (gas) price'. And what this price should be is currently the subject of a dispute (between Sasol and Nersa). Sasol wants to charge third parties R141 per thousand cubic feet of gas, while Nersa is adamant that R70 per thousand cubic feet is much more acceptable.

I have no idea how this disagreement will ultimately play out. But given that the average gas price per thousand cubic feet during the last 4 years – including the presumably low Covid price – was R119 per thousand cubic feet, I find it hard to believe that the sustainable gas price going forward won't be much closer to R119 than Nersa's R70 (per thousand cubic feet).

Key Value Factor 2: Costs

The gas business, like the coal mine business, is essentially a mine. It just happens to "mine" gas instead of coal. And hence the kind of costs it faces is very similar – exploration and capital costs (searching for and developing new gas fields); fixed and variable operating costs to keep the show on the road, and rehabilitation costs to ensure an eventual respectable exit.

The gas business disposed of its Canadian and rest-of-Africa assets in 2020 – with its attendant revenues and costs - which means that it's tricky to gauge whether management's 2021/2022 cost management performance is indicative of things to come, or just the normal year-on-year variability common in complicated businesses. What the numbers do show is that management was able to reduce the fixed cost base in 2022 – without the operating capacity of the business reducing. On the other hand, the cost of sales number had a bit of a blowout – rising by 64% - which is not something you want to see, and certainly not something you want to continue seeing. The 2023 numbers should provide greater clarity. I assume that average 2-year margins (for both gross profits and operating profits) are sustainable.

2.1.1.3 The Fuels Business

Despite Sasol's increasingly international venturing, the largely SA-based fuels (and chemicals) business is still the stallion in its stable of ventures. Here I focus on the fuels part.

The basic economics of the fuels business is simple. It turns coal and gas into refined fuels – petrol, diesel, jet fuel, and the like. The difference between the costs of its coal and gas feedstocks and the basket price it receives for its refined fuels output is its refining margin. Identify and add the costs required to manage and do the actual refining, and you will get a good sense of how profitable - and hence valuable - this enterprise is.

Key Value Factor 1: The Rand Oil Price (ZAR/Oil Price)

The single most important factor driving the value of the fuels business – and Sasol as whole for that matter – is the ZAR/Oil price. And Sasol has no control over it. This wouldn't be a vexing valuation problem if the ZAR/Oil price was reasonably and consistently predictable. Alas, it's not. Or at least I'm not aware of anybody that's particularly good at it.

It's not difficult to see why: after all, you would have to be good at both forecasting one of the most volatile currencies in the world – viz. the Rand – *and* be more than proficient at doing the same for the oil price. A tough ask, and one that the history of such forecasting exercises suggests is probably beyond most of us. The only solution I can think of is to try and smooth out the ups and downs of the relevant price cycle by going with historical averages, and not to try and predict the future. In other

words, let's see what Sasol's fuel business is worth if future prices track historical ones. (More on that shortly).

Key Value Factor 2: Production and Sales Volumes

In the last couple of years – bar 2020 – the Rand/Oil price hasn't dipped below the fuel unit's cost of production, which means the higher the unit's fuel production, the higher the top line. And vice versa.

Refined product sales averaged about 56 million barrels per year during the last 4 years, with yearly highs and lows of 60 million barrels and 53 million barrels in 2019 and 2020 respectively. I will assume that the company returns to what I think is its sustainable sales rate – 56 million barrels – in 2024, as the most recent data indicates that 2023 sales will be just north of 50 million barrels.

Key Value Factor 3: Costs and Margins

I assume the fuels unit continues to maintain its average profit margin over four years. Although I do make some margin adjustments for differences in expected production in the short term, my aim is to estimate what Sasol fuel's *sustainable* operating margin is, and my best guess is that the 2019-2022 average is as good a representation of this as any.

2.1.2 The Chemicals Business

As noted, Sasol Chemicals is divided into three main business units – Chemicals Africa, Chemicals Eurasia, and Chemicals America. And each does essentially the same thing, transforming fossil fuels (coal, oil, and gas) - and a few other chemicals goodies - into various petrochemicals. Where they differ is the scale of their respective operations, their product focus, and in their choice of primary fossil fuel feedstock. Let's consider each briefly.

The Chemicals Basket and "Basket" Prices: Sasol divides its chemical product suit – its chemicals "basket" if you will – into four general kinds: base chemicals, essential care chemicals, advanced materials, and performance solutions. For our purposes, it's not crucial to know exactly what these products are, except to say that, among the four, base chemicals are the "cheapy", whereas the others are more chemically special, and hence pricier.

What is important to know is that although each of the three units produces the same products – for the most part – their specific chemical baskets differ because they produce them in different proportions. For example, whereas base chemicals dominate the product baskets of Chemicals Africa and Chemicals America (more than 60% of the total of each), Chemicals Eurasia doesn't produce any, which explains why the latter receives a great deal more money for its product suit than either of the former - $1998/ton vs. $993/ton (Chemicals Africa) and $1317/ton (Chemicals America) [2019 to 2022 averages].

(Financial) Scale: Chemicals Africa is the chemicals segment's economic workhorse, with Chemicals Eurasia and Chemicals America adding their weight in second and third place respectively. For example, on average, Chemicals Africa generated R56.2 billion in revenue and R12.9 billion in operating profit per year since 2019. The corresponding revenue figures for Chemicals Eurasia and Chemicals America were R45.7 billion and R30.4 billion respectively, and the operating profit numbers R3.5 billion and R1.8 billion each.

Fossil Fuel Feedstock: As explained previously, Chemicals Africa's primary feedstocks are coal and gas, the bulk of which they source internally. On the other hand, Chemicals America – the (in)famous

Lake Charles venture – primarily uses gas (ethane specifically), which it sources from third parties, while Chemicals Eurasia mostly uses Naphtha (similar to petrol) in its chemical transformations.

The economic implications of these differences are two-fold. Firstly, in an increasingly environmentally conscious world, Chemical Africa's dirty coal will have to go. This is going to be expensive. The good news is that it has relatively easy access, and some pricing control over the next best thing, gas. And secondly, the original economic attraction of the United States – and the reason why Lake Charles was built in the first place – was, and is, its access to cheap gas. Were the gas ever to become much more expensive...due to massive recent - and expected - increases in LNG exports to the EU for example...well, you can imagine that the economics of Lake Charles could suddenly become a lot less appealing.

3. What is Sasol Worth?

To my mind, any company's value is equal to – or closely related to – the sustainable cash flows its likely to generate in the future, discounted to the present at a discount rate appropriate to the uncertainty and timing of those flows. Sasol is no different. What makes its valuation tricky is the fact that its fundamental economics – and hence its value - is so sensitive to the largely unpredictable ups and downs of so many different commodities prices. As such, my Sasol valuation should be seen as illustrative of what I think the company could be worth *if* commodity prices were such-and-such, or so-and-so, rather than what it would be worth based on predictions of what commodity prices *will* be.

My base-case was to assume that Sasol's most recent 4-year performance (commodity pricing and operational performance) is a decent representation of the company's sustainable economic powers - at least in the medium term. Where I think it's not, I made some slight adjustments up or down – mostly down. Herewith my most important 2023-plus assumptions (I think they're pretty conservative, but that's for you to decide):

1. (Real) Brent Oil Price = $65 per barrel.

2. ZAR/US$ = R17 spot (depreciating at 4.7% per year on average).

3. Sustainable Growth Rate (4 to 6%).

4. Sasol doesn't achieve any *sustainable* fixed cost savings.

5. Sasol manages to achieve half of its 2030 carbon emission reduction goals - and (real) carbon taxes of $10/per ton.

6. Sustaining Capital Expenditure = R25 billion per annum in real terms.

The result: I think Sasol is worth a conservative R296 per share. At current levels of R293 per share (November 2023), I therefore recommend it as a solid hold (as far as any commodity companies can be such). And for the more daring, I think you could do a lot worse than adding a few Sasol shares to your portfolio at present. With a bit of luck, I can easily see Sasol at R350 before the end of the year.