Brazil

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With a population of more than 212m and a land mass of more than 20m square kilometres, Brazil is by far the largest country in South America. It is also the continent's largest lubricants consumer, taking almost 50% of the region's finished product market.

After a devastating recession between 2014 and 2016, the nation was showing signs of recovery until the beginning of 2019. A stalled domestic economy, combined with a fall in exports - particularly from key trading partner Argentina - has seen Brazil's GDP struggling again this year, with a predicted annual growth of 1.8%.

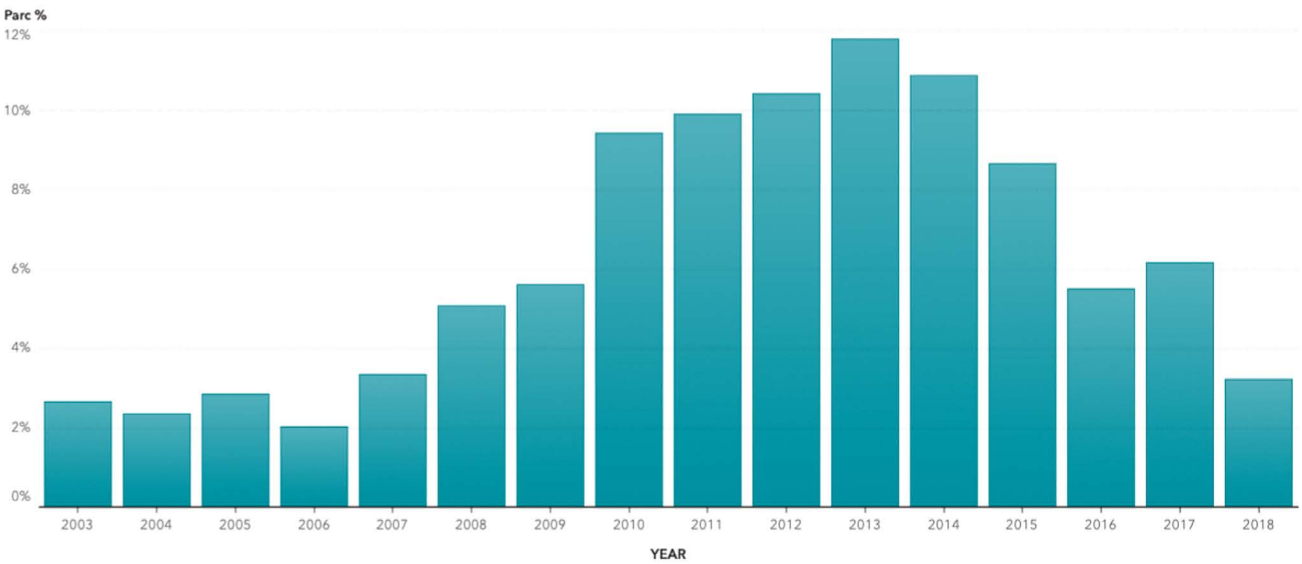
The vehicle parc and manufacturing

The effects of the recession apparently had a clear impact on the domestic vehicle parc, with new vehicle ownership starting to recover from 2017 as OATS' snapshot data to mid-2018 shows.

According to the Brazilian Institute of Geography and Statistics (IBGE), the vehicle, motorcycle parts and spare parts sector saw growth of more than 15% in 2018, the highest for 11 years. Light commercial vehicles and cars produced for the whole of 2018 totalled some 2.75 million at a monthly average of around 240,000 units. Heavy duty trucks and buses added 134,000 vehicles to the 2018 total. Agricultural and off-highway equipment added 66,000 units. Yet early economic weakness in 2019 does not appear to have dampened vehicle production, sales and exports. Combined growth has already reached 5.3% in January to May against the same period in 2018 (equating to 1.24m vehicles), according to Brazil's Associacao Nacional dos Fabricantes de Veiculos Automotores (ANFAVEA).

Brazil is ranked eighth amongst the world's motor vehicle producers based on the Organisation

Passenger car ownership in Brazil by year of registration at June 2018. Total Parc = ~31M *Source: OATS*



Internationale des Constructeurs d'Automobiles' (OICA) 2018 figures – just ahead of Spain but some way behind South Korea and Mexico. However, the country retains manufacturing presence from all major OEMs, despite Ford's announcement in February 2019 to close its São Bernardo do Campo plant after more than 50 years.

The battle to top the passenger and light commercial vehicle sales table remains between GM, through its Chevrolet brand, VW and Fiat Chrysler (FCA), with Renault, Hyundai, Ford and Toyota also high in the mix.

For heavy-duty trucks and buses, Mercedes-Benz leads the field. MAN, owned by VW subsidiary Traton SE, is in second place - producing its own-brand trucks and buses as well as VWs in Brazil and throughout Latin America – with Scania third just ahead of Volvo.

The fuel and lubricants sector

So, what impact has a recession, weak economic growth, but relatively strong vehicle production and sales had on Brazil's lubricants market?

The overall market volume in 2018 was a fraction under 1.2m cubic metres, a 1.9% year-on-year increase. Of the six Brazilian states, São Paulo is by far the largest lubes consumer at 28%.

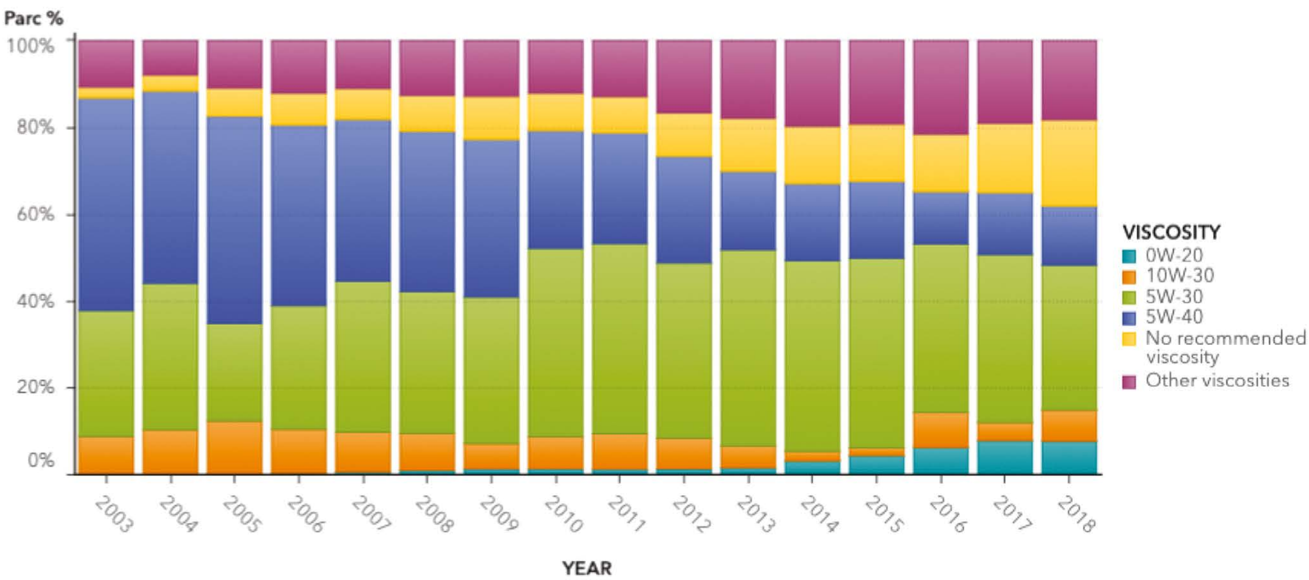
Many of the oil majors have aligned themselves with regional operators and macro distributors. In terms of brands, the market has remained largely stable over recent years. With Chevron and Ipiranga now represented by Iconic, their 21.3% market share is close to one percent ahead of state-owned Petrobras. Cosan – the holding company of MOOVE lubricants who are agents for Mobil – account for around 14%, with Shell and Petronas the two other major players.

After the 1973 fuel crisis, flex-fuel (ethanol-blended gasoline) became mandatory and still powers 87.6% of Brazil's engines, with diesel at 8.9% and pure gasoline at just 3.3%. Today's modern IC flex-fuel engine designs are engineered to run on any percentage of ethanol or ethanol blends (E100 or E20-E25 gasoline). This now includes flex-fuel motorcycle engines. During 2017, more than 2 million flex-fuel automobiles and light trucks were produced in Brazil.

However, even modern flex-fuel engines present challenges for lubricants: fuel dilution, lower viscosity, increased acidity and emulsions formation – all affecting friction and durability. Some of the disadvantages can be overcome by different coatings and materials used in the engine, or by modifying the lubricant formulation and base oil.

Based on OATS' own data, the Brazilian market is starting to follow the lube consumption patterns already well-documented in most developed markets. From 2003 until 2010, 5W-40 engine oils dominated market share at around 36-49%, with 5W-30 making up the majority of the rest, followed by 10W-30.

Parc % by Year of Manufacture by significant Viscosities



Brazilian vehicle parc based on engine oil viscosities (No recommended viscosity = no OEM recommendation or record as implicit in the OEM specification.) *Source: OATS*

From 2010 the balance started to shift, with the 5W-30 share increasing to more than 43% and the notable appearance of high-performance 0W-20 lubes. These started to have real influence on the market by 2014, with both 5W-40 and 5W-30 demand being squeezed as a result.

Today, API SM, SN, SN plus and ILSAC GF-5 specifications create an increasingly fragmented marketplace, whilst an increase in GM and Ford lubes and the appearance of Fiat is further complicating the post-recession picture. In the heavy-duty diesel market, engine oils have been typically API CI-4/ACEA E7 specifications, rapidly moving to recommended low ash fluids such as API CJ-4 following the implementation of Euro V/PRECONVE P-7 emission engines from 2012.

PRECONVE P-8/Euro VI standards are set to be implemented in Brazil from 1 January 2022 and for new sales and registrations from 1 January 2023. This is potentially good news for Brazil's competitiveness, as it is ahead of the regional curve in HD engine production, making it the 'go-to' provider of compliant engines at least in the short-to-medium-term.

Base oil

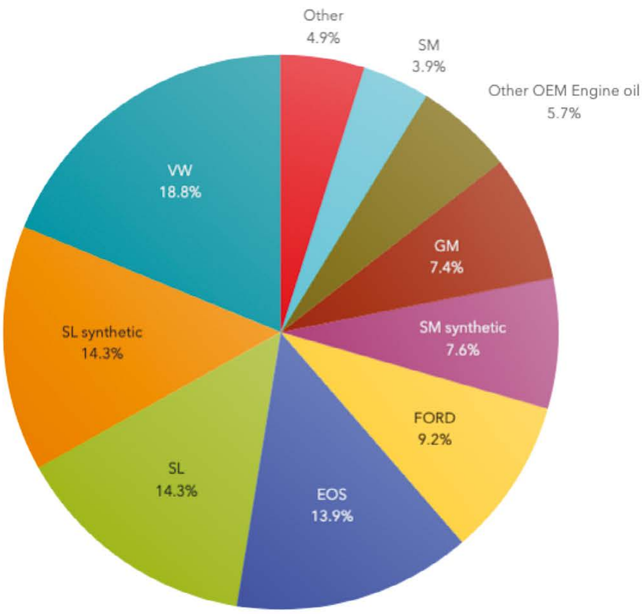
In Latin America, Brazil - along with Mexico and Chile – is currently driving the synthetic lube market which, in turn, requires Grp II+, and Grp III/III+ base oils for the passenger car products. Although 1.4m cubic metres of base oil was produced in 2018, up 19% on the previous year, imports were still at a 42% record high, according to Portal Lubes. Petrobras contributed the majority of the output, with only local producer, re-refiner Lwart Lubrificantes, currently providing any significant Grp II volume at around 92 thousand cubic metres.

In summary

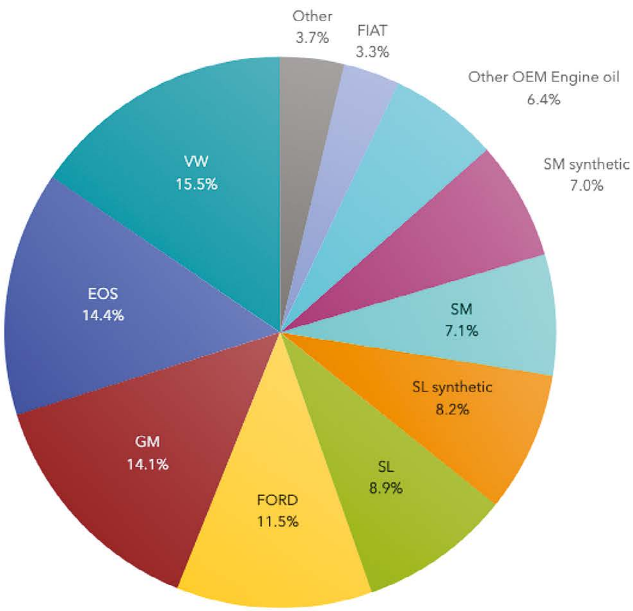
There is little doubt that, at least in the short-term, Brazil's lubes producers will be dependent on imported higher-grade base oils as demand for high-performance engine oils continues to outstrip supply. The challenge for refiners and lubes producers alike is to boost domestic production as quickly as possible as the influence of improved engine technology and stricter emission standards increases.

Ethanol has the potential to halve GHG emissions compared to gasoline and is expected to remain an important bio-fuel industry in Brazil and enhance energy independence. However, although flex-fuel has great benefits for transport and the rural economy, its overall impact across the complete life cycle requires greater investigation.

Parc % by EOS before recession



Parc % by EOS after recession



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