

PALM OIL

A CLOSER LOOK AT THE INVESTMENT FUNDAMENTALS

By Alan Lok, CFA, Eunice Chu, and Guruprasad Jambunathan

From cooking oil to biofuel, to the oleochemicals used in food additives, soaps, cosmetics, lubricants, and textiles, palm oil and its refined derivatives touch our lives in many ways. Given the commodity's ubiquity, we decided to perform some extraction of our own, and provide insights into the factors and dynamics to consider when analysing companies involved in the production of palm oil.

MARKET PLAYERS

ASEAN countries are by far the largest producers of palm oil, representing 85% of global productivity, with Indonesia and Malaysia the most prominent players. Thailand, Nigeria, and Colombia mostly account for the remainder of the world's output. The leading consumers geographically are India, where palm oil is used in a crude form as cooking oil; the EU, which utilises refined products in the manufacture of biodiesel and confectionery products; and China, which, like India, is a leading cooking-oil consumer.

Given the relative significance of the commodity in this part of the world, there are a number of palm oil or related companies trading on the Singapore Exchange, Bursa Malaysia, and the Indonesia Stock Exchange. Singapore-listed Wilmar and Malaysian companies Sime Darby, KL Kepong, and IOI Corporation are among the largest businesses in the region.

A COMPLEX REVENUE STORY

Palm oil companies vary in their degree of integration, with the sales and income potential a function of a company's positioning in the value chain. Positions range from upstream plantation production and midstream refining, to downstream trading and distribution. As a result, many metrics must be considered when choosing to invest in a name from this sector.

In assessing revenue potential at the upstream plantation level, fresh fruit bunch (FFB) production yield per hectare, mill production, and the extraction rates of crude palm oil (CPO) and palm kernel need to be examined depending on the product profile of the company. Additionally, the monitoring of average-selling-price trends (usually measured in US dollars per metric tonne) is critical to gauge the company's pricing power in the market.

For midstream manufacturing, look at plant utilisation levels, and the breakdown of sales between CPO refining, oleochemicals, and speciality oil and fat production; the latter are used in infant foods, animal nutrition, bakery, and confectionery products. At the downstream end, factor in the relative contribution of production (of edible and non-edible oils and fats, blended oils, and biodiesel) related revenue sources as against those earned from trading and distribution activities. Adding to the complexity, revenue also tends to be affected by global developments and foreign exchange rate movements, as most of the production tends to be exported.

Given the differing strands of revenue generation, no two plantation companies are the same. For instance, at the upstream level, yield can differ dramatically depending on where the plantation is located and the maturity profile of the trees. Therefore, doing a comparison based solely on plantation size is meaningless.

FACTORS INFLUENCING PROFIT

Many determinants of profitability must be taken into account when analysing this sector. Because palm oil a labour-intensive sector, salary costs and wage inflation have a strong bearing on operations of a company in the sector. Pest management, fertiliser, and transportation cost, could be significant here. Effective adoption of technology and advanced plantation management practices (grafting, tissue culture, and the cloning of selected varieties) are also important determinants of profitability. Also, the quality and quantity of the land bank may determine the profit profile of the upstream players. Assess the maturity profile of the land, which is split into three phases:

- 3–7 years: yield growth phase
- 7–12 years: mature phase
- 12–25 years: yield decline phase

Simultaneously, review the "brownfield-greenfield" mix, and the proximity to environmentally sensitive areas.

From a broader business perspective, try to gauge the level of dependency on specific product types, customers, and geographical areas, as well as the extent of competition. Aside from the number of market participants, profitability dynamics are influenced by the existence of barriers to entry for new players, and the availability of substitute products.

PALM OIL

RISKS TO WATCH FOR

As with other commodity products, CPO prices will fluctuate depending on the level of global stockpiles. Furthermore, harvests and yields may be highly sensitive to climate factors such as the amount of rainfall or El Niño events. Although, the climate aspect is common to many agricultural commodity producers, the palm oil industry is seeing an increasing structural influence from the green movement, which is focusing on sustainability issues.

Already evident in Europe, environmental, social, and governance (ESG) initiatives, such as the increased adoption of No Deforestation, No Peat, and No Exploitation policies applicable to entire supply chains, are now gaining traction in Asia. The implications of this are discussed in more detail later in this framework.

Palm oil is also an industry where regulatory factors have a bearing on the economics of each business. These are manifest in rules relating to maximum land-size ownership, price intervention in countries such as Indonesia, where CPO cooking oil is a central metric in the calculation of inflation, and the use of import tariffs in other territories.

An additional aspect to scrutinise is the development of new sources of supply. The palm-oil industry is not only expanding in its established geographies, but some Asian companies are also creating land banks in Latin America and West-Central Africa.

This enlargement presents some challenges, as each new territory comes with its own ESG conditions. For example, some operations have been blocked by land-use conflicts in Africa. Meanwhile, as part of its 2020 strategy for reducing emissions, Indonesia introduced a moratorium that prohibited new palm-oil-plantation licenses in primary forests and peatlands. The halt in development, which was first decided in 2011, and subsequently extended for the third time in May 2017, will run until May 2019. As other national governments may decide to follow suit to meet climate targets, it is essential to consider how these suspensions could impact those companies that have not yet adopted zero-deforestation policies.

Amid growing health consciousness, we should point out that there are mixed views on the merits of palm oil. However, it is difficult to comment across the board as the health benefits, or otherwise, largely depend on how the oil is processed as well as on indeed, the diet of each consumer.

AN EVOLVING INDUSTRY

Responding to these risks, the palm oil industry is undergoing an inevitable transformation. For instance, business costs are rising due to more stringent licensing requirements relating to land clearance, as well as conflict resolution compensation. Merger and acquisition (M&A) activity among the more prominent companies may also become a trend worth observing.

The determinants here are:

- cost savings through economies of scale;
- commodity traders' preference to integrate upwards for risk-diversification purposes
- the increasing complexity of global supply-chain management through the adoption of new information technology, which is increasing the appeal of M&A
- the need to establish a sustainable source of renewable energy platform encouraging nonplantation players to enter the palm oil industry.

Given the changing operational landscape, players will find it imperative to create their own set of differentiators around their core competencies to survive. Such trends need to be closely watched and could include:

- the achievement of superior crop yields;
- enhanced operational efficiency through higher productivity and economies of scale;
- superior technical expertise in resource manufacturing
- becoming more adept at sustainability practice-adherence to this creates the potential to unlock "green"-sensitive overseas markets.

DRIVE WITH CARE

We can identify some growth drivers that could impact the sector in the medium-to-long term. Palm oil is an increasingly important ingredient in cosmetics and health products, given its relatively high functionality-versus-cost ratio. It is the most productive vegetable oil, so if advances in technology lead to improvements in taste, we will see its role as a substitute for higher-grade cooking oil continue to expand.

There is also the prospect of palm oil being developed as a biofuel, but bear in mind that this evolution could be stymied by the EU, which proposes to exclude palm oil from its Renewable Energy Directive (RED). The final decision on this will not be made until the end of 2018.

As previously mentioned, ESG-related matters play a significant role in influencing company survival and profitability in this sector. Elements to contemplate include the scope and robustness and of a firm's sustainability policy. Understanding whether a firm's requirements extend to smallholders and suppliers will help in gauging the risk of environmental and social controversies arising within a business's operations or in its supply chain. The level of supply traceability is another vital factor to

PALM OIL

consider. Traceability provides evidence of the journey taken by the raw material from plantation or mills to the customer; it is critical to support claims that the product adheres to best practice from a sustainable standpoint. Emission intensity and effluent management are other environmental considerations.

In practice, the Consumer Goods Forum, which includes giants such as Kellogg's and Unilever, has vowed to improve its supply chains and bypass palm oil companies associated with deforestation. The Forum's goal is to see zero clearances by 2020.

Broader factors relate to the rights and treatment of some indigenous peoples and local communities, the "food versus fuel" debate, deforestation and ecological damage, and the rights of labour.

Increasingly, the certification and proper reporting of ESG is vital, as the industry is being required to meet stringent environmental standards. In March 2016, a company listed in Malaysia was suspended from the Roundtable for Sustainable Palm Oil certification programme for ESG failings. In response, the firm in question introduced greater transparency and enhanced its dialogue with stakeholders. By August of 2016, the company was reinstated after the authorities declared themselves satisfied with the progress made.

About the Authors

Alan Lok, CFA, is Director of Society Advocacy Engagement, Asia Pacific at CFA Institute. He researches and writes on investor protection issues and capital market structure and co-authored a CFA Institute position paper on capital market integrity, *"Portfolio Pumping in Singapore: Myth or Reality."* Mr. Lok has more than 10 years of equity research experience, spanning various industries and sectors.

Eunice Chu is an ACCA-qualified finance professional. She was a regional finance director of a Fortune 500 multinational corporation and at present heads the policy function of ACCA Hong Kong.

Guruprasad Jambunathan is Director for Financial Research at CRISIL, a global research and analytics company. He has more than 12 years of experience in equity research and works closely with a broad clientele of buy-side and sell-side firms as well as with academic think tanks across various continents.

With Contributions From:

Clara Melot: Clara Melot joined the Zoological Society of London (ZSL) in 2016 as SPOTT Engagement and Impacts Manager. Clara leads on engagement with the finance sector to promote the ESG assessments of Timber, pulp and palm oil producers and traders provided on ZSL's SPOTT platform. Clara has an MA in Marketing and Advertising from La Sorbonne University and an MSc in Environmental Policy and Regulation from the London School of Economics. Before joining ZSL, Clara worked in the Corporate partnerships department at WWF-France and supported the work of the Climate and Forest team at London-based environmental NGO ClientEarth.

Joyce Lam: Joyce Lam joined the Zoological Society of London (ZSL) in 2017 as SPOTT Manager after spending over a decade with Proforest. She has over 15 years of experience in responsible sourcing of timber and paper products. Ms. Lam has experience in auditing of timber product manufacturers, developing and delivering training courses on responsible sourcing, and has been involved in several projects related to Forest Law Enforcement Governance and Trade (FLEGT) in Vietnam and China. Previously, she worked for the Forest and Trade Network in WWF Hong Kong generating the demand for FSC certified forest products.

PALM OIL

01 GEOGRAPHY



Suppliers

- Indonesia, Malaysia, Thailand make-up 85% of global output
- Nigeria, Columbia, Others



Consumers

- India – cooking oil
- EU – biodiesel and confectionery (as butter substitute)
- China – cooking oil

02 USAGE - SOURCES OF DEMAND



Cooking oil



Cheap substitute for butter/trans fats



Non-edible use: Toiletries, cosmetics



Biofuel

03 REVENUE POTENTIAL Position in value chain



Upstream (Plantation)



Midstream (Manufacturing)



Downstream (Trading and distribution)

PALM OIL

A step-by-step guide to analyzing the palm oil industry

04 DETERMINANTS OF PROFITABILITY



Costs



Management practices



Level of competition



Quantity and quality of land bank



Dependence on product types/consumers/geography

07 ESG FACTORS



Sustainability policy



Palm oil traceability



Certification and reporting



Emission intensity



Land use tussle with indigenous people



Food versus fuel debate



Effluent management



Deforestation and environmental damage



Community & labor rights

05 KEY RISKS



Sensitive to global stockpile



Yield sensitive to climate changes



Green movement



Health consciousness of consumers



New supply of suitable land



Increased regulations

06 EVOLVING INDUSTRY DYNAMICS



Cost of business increasing



Consolidation amongst larger players



Standing differentiated by core competencies

PALM OIL

Palm Oil Producers

1. What are the details of the company's products?

- Which parts of the supply chain does the company operate in: upstream (oil palm plantations), midstream (kernel crushing plants, oil extraction mills, palm oil refineries etc.), downstream (production of edible and non-edible oils and fats, blended oils, biodiesel etc.) or trading?
- What products does the company produce: fresh fruit bunches (FFB), crude palm oil (CPO), palm kernel meal (PKM), crude palm kernel oil (CPKO), refined oils, edible and non-edible (such as oleochemicals) oils and fats, blended oils, biodiesel?
- What is the split between bulk and specialty products?
- What is the mix by saturated fatty acid content of the end products?
- What proportion of the company's products are covered by the Roundtable on Sustainable Palm Oil (RSPO) certification regime?
- What is the mix of the products by the four RSPO-defined sustainable palm oil supply chain options (Green Palm, Identity Preserved, Mass Balance and Segregated)?

2. Which end-user markets does the company cater to?

- How much of the products are sold in bulk vs in retail?
- Who are the end users: food producers (makers of processed foods, confectionaries, pastries, chocolate, margarine, breads, cookies, ice-cream, instant noodles etc.), food service providers (quick service restaurants, industrial caterers etc.), non-food uses (makers of cosmetics, toiletries, cleaning products, industrial & process chemicals, pharmaceuticals, animal feed, biofuels, lubricants and paints)?
- Does the company supply packaged products to retail chains to be sold under their own private labels?
- Does the company sell its products directly to retail customers (households, small eateries etc.) under the company's own brand?

3. What is the consumption profile of the company's products?

- What is the demand for bulk vs specialty products?
- What is the per capita direct consumption of edible fat and oils (primarily as cooking medium) in regions which are the company's key markets?
- How much is the per capita indirect consumption (processed and packaged foods) of edible fats?
- What is the share of processed and packaged foods in the consumption platter?
- What is the consumption levels of non-edible fats and oils (toiletries, cosmetics etc.)?

4. How much demand is driven by biodiesel use?

- What factors drive the demand for biodiesel?
- What is the price differential with petroleum-based diesel?
- At what level of crude oil price does biodiesel become economical, without subsidies?
- How is the price parity between petro-diesel and bio-diesel expected to evolve?
- What are the major regions consuming biodiesel?
- What is the extent of biodiesel subsidy given by the governments in those regions?
- How long are the subsidy regimes likely to continue?

5. What is the geographic profile of consumption of the company's products?

- Which are the major markets for the company's different products in terms of current and future demand?
- What is the split between developed markets and developing markets?
- Which are the markets with high sensitivity to the sustainability issues surrounding oil palm-based products?

6. What is the profile and drivers of demand for the company's products?

- How much of the demand in each end market is met by palm-based fats vs fats from other sources?
- At what rate is the consumption of fats and oils by each end market growing in the key markets?
- How does growth in consumption of palm-based fats compare with that of fats from other sources?
- For each of the end-use markets, what are the substitutes to palm-based fats? What are the relative merits and demerits of the substitutes? How does this affect demand for palm-based fats?
- What are the different factors driving demand - price, easy availability, lack of substitutes, lack of domestic sources, quality and health aspects etc. - for different products in different end markets across different regions?
- Is there any seasonality in demand for the company's products?

PALM OIL

7. Which factors determine pricing of the company's products?

- What is the price differential compared to other oils and sources of fat?
- How do the prices of different products compare: CPO, PKO, RPO, edible oil and fats, biodiesel?
- How does the fatty acid content in the end product affect prices?
- What are the categories under which the products are classified based on the fatty acid content?
- How do the perceptions of quality and health influence prices?
- Which end-use markets provide better prices?
- Are there any seasonal variations in pricing?

8. What is the mix of revenue and profits?

- What is the mix of revenue and profits by end markets, products and regions?
- How do the margins vary across end markets, products and regions?
- What are the margins in different parts of the supply chain?

9. What are the long-term drivers for the company's business?

- What are the per capita direct and indirect consumption levels of products in different regions? What is the share of consumption levels by end markets and by products?
- How much is the potential for structural growth in different end markets and products across regions? Which of these markets are expected to drive structural growth?
- Which markets, by end use and by geography, have higher sensitivity to sustainability issues surrounding oil palm-based products?
- Are consumers in other geographies likely to become more sensitive to sustainability issues, as income and prosperity levels increase?
- What are the areas where technology can be seen playing a significant role: mechanisation of plantation operations, crop management, oil extraction, sustainable management etc.?

10. What are the consumer-driven factors expected to influence structural demand?

- What will be the effect of increasing consumer awareness of, and negative perception on, health implications of fats, trans fats and Genetically Modified Organisms (GMO) crops on demand?
- To what extent does the positive perception of palm as a non-GMO source of low trans-fat oil offset the negative perception as a high saturated fat oil posing higher risk of heart diseases and cancer?
- How will the changing perception of quality of different oils influence consumer preferences?
- Is the rising sentiment against GMO likely to affect consumer choices?
- How will the rising preference for natural and organic produce influence consumer choices?

11. What are the regulation-driven factors likely to influence structural demand?

- What are the labelling requirements regarding the source of oil used, in different regions?
- Are there any upcoming regulatory changes in this regard?
- What are the changes and their effects on use of palm-based products?
- What is the extent of challenges to oil palm demand from environmental activism?
- How does the company intend to manage these challenges?

12. What are the potential substitutes to palm-based fats in different end markets and products?

- What are the challenges associated with the substitutes? To what extent do those challenges work in favour of palm?
- How long are these challenges likely to persist? When and at what price point is the cost-benefit balance likely to turn against palm?

13. What is the market concentration and barriers to entry?

- What is the share of top 3 and top 5 suppliers by products, end markets and regions?
- What are the factors facilitating or impeding entry of new players?
- Are there any mandated or voluntary moratorium on planting in new land?
- How difficult will it be for a new entrant to compete, in the context of increased focus on sustainability?
- Does a new entrant have an advantage by starting with a clean slate – without having a track record of past practices that are now considered undesirable?

PALM OIL

14. What is the size and quality of the company's land bank?

- What is the mix of land bank owned by the company vs managed by the company?
- Where are the land parcels located?
- How close to legally protected areas, High Conservation Value Areas (HCVA) and High Carbon Stock Areas (HCSA) are the company's holdings situated?
- How conducive are the zoning and land use regulations governing plantations? How are these likely to evolve? Does the company foresee any potential challenges?
- What are the restrictions on ownership of plantation land?
- Is foreign ownership of plantation land permitted?
- Are there any ceilings on the extent of land that can be owned by a single entity?
- What is the likelihood of parts of the company's land bank being acquired by government for various purposes?

15. What is the extent of brownfield (planted) vs greenfield (unplanted) holdings?

- What is the ageing schedule of the company's fields?
- What is the share of fields having plants that are younger than the harvestable age of 3 years?
- What is the proportion of fields that have started yielding produce (age greater than 3 years)?
- What is the extent of fields in the yield growth phase (age from 3 to 7 years)?
- How much of the company's fields are mature (fields that are near, at or past the peak of production—age from 7 to 12 years)?
- How much of the fields are in the yield decline phase (age from 12 to 25 years)?
- How much of the fields are close to end of productive lifespan (age greater than 25 years)?
- What is the average distance from the fields to extraction mills?

16. How is the industry structure evolving?

- Are key players likely to integrate vertically across the supply chain?
- Which parts of the supply chain are likely to witness more integration?
- What are the factors driving this trend: better margins, security of supplies, control of value chain, sustainability issues etc.?

17. What is the scenario with respect to labour availability and cost?

- How labour intensive are the company's operations in terms of man hours required per hectare of plantations, per tonne of CPO or PKO extracted etc.?
- How easy or difficult is it to find workers with the necessary skills?
- What is the share of local population in the company's workforce?
- What is the extent of dependence on migrant workers from other regions or countries?
- How has been the wage inflation? How is it expected to evolve?

18. What are the crop management practices employed by the company?

- What are the details of the company's cropping and plantation management practices?
- How do these practices compare with those of peers? What distinguishes the company's practices?
- What is the mix of crop by varieties of palm? How is the decision on to what variety to plant where made?
- Is there any preferred variety of crop that is used extensively?
- Are techniques such as grafting, tissue culture and cloning used to multiply preferred varieties and plants that produce high-quality FFBs?
- Does the company use hybrid and GMO varieties?
- How much crop inputs such as fertilisers, herbicides and pesticides are used per hectare of plantation and per tonne of CPO and PKO produced?
- Does the company practice integrated pest management (IPM)? How does the cost-benefit balance compare with the conventional, intensive practices?

19. How much yields are generated from the company's plantations?

- What are the Kernel (KER) and Oil Extraction Rates (OER)?
- How much yield is generated from a hectare of plantation?
- How do the yields from the company's plantations compare with those from plantations of peers which are of similar land quality, geographical location and experience similar climatic patterns?



PALM OIL

20. What is the milling capacity and utilisation rates of the company's extraction facilities?

- a. What is the average utilisation rate of the mills?
- b. How seasonal is the utilisation rate? How is the utilisation rate optimised?
- c. What is the average time taken from harvest to move FFBs from fields to extraction mills?

21. How has the company performed on operational measures? How does the performance compare with that of peers? How are these expected to evolve?

- a. What has been the volume growth of different products?
- b. What has been the growth in average selling price of products?
- c. What are the major components of the costs?
- d. What is the share of labour cost as a percentage of revenue and total cost?
- e. How much is the cost of crop inputs as a percentage of revenue, cost, per hectare of plantation and per tonne of CPO and PKO produced?

22. How has the company performed on financial measures? How do these compare with those of peers? How are these expected to evolve?

- a. What has been the company's revenue growth? What are the components by volume growth, price growth, inorganic growth and foreign exchange effect?
- b. What has been the gross, operating and net margins?
- c. What has been the revenue, costs and profits per hectare of plantation?

23. What are the various risk factors the business is exposed to?

- a. How much vulnerable are the yields to unexpected weather conditions, rainfall patterns and extreme weather phenomena such as El Nino?
- b. How does the company intend to cope with the increasingly unpredictable weather cycles driven by climate change?
- c. What is the likelihood of government intervention from the perspective of competition, given the highly concentrated nature of the industry?
- d. What is the level of preparedness to the risk of consumer countries imposing tariff or non-tariff barriers on palm-based products on various grounds such as predatory pricing, labour conditions, conflicts with indigenous communities, deforestation and wildlife habitat destruction?
- e. How significant and tangible is the risk of a consumer-led backlash on health, ecological and sustainability grounds?

PALM OIL

Environmental, Social and Governance

24. Could details of the company's ESG principles, practice and track record be provided?

- a. How much of the company's land bank and plantations are, or formerly were, tropical rain forest, peat land, critical habitat for threatened flora or fauna, HCVA or HCSA? What does the company intend to do with the part of these land parcels which are not yet developed / planted?
- b. Does the company abide by the moratorium on planting in new land? How long has this been observed?
- c. When was the last time new land was cultivated? How large are those plantations and where are they located? How was the said land used previously?
- d. What is the proportion of plantations that were subjected to carbon stock review, Environmental and Social Impact Assessment (EIA/SIA) before clearance and planting?
- e. Is there a Biodiversity Action Plan for the plantations?
- f. What is the direct (from plantation and milling operations) and indirect (from forest clearance and consequent loss of carbon sink) emission intensity?
- g. How much of the pesticides and herbicides used are approved by the RSPO?
- h. Does the company monitor the effect of its crop and pest management practices on the natural ecosystem adjacent to the company's plantations?
- i. How much palm oil mill effluent (POME) and other wastes are released per unit of oil extracted?
- j. How does the company ensure proper treatment and safe disposal of effluents and waste generated?
- k. What has been the track record in managing conflicts with communities displaced by or living in proximity to the company's plantations?
- l. What has been the track record on worker safety and welfare?
- m. What are the measures in place to avoid child labour across the entire supply chain?
- n. Has the company ever faced accusations of violation of human rights, mistreatment of indigenous communities or labour laws and regulations?
- o. Has the company faced or, is currently facing, litigation for issues relating to deforestation, global warming contributions, labour issues, social conflicts with local communities, pollution from palm oil fires or any other issues?
- p. Does the company participate in programmes such as the Indonesian Nucleus Estates project, to develop oil palm plots for small and subsistence farmers?
- q. Has the company ever faced accusations of encroaching on legally protected areas?
- r. How much of the company's output of various products complies with ESG standards presently? What are the standards followed?
- s. Is the company able to offer traceability of ESG compliance across the entire supply chain? How much of the production is yet to be covered by fully traceability regime?
- t. What are the different mandates for ESG compliance that are likely to come into force?
- u. How much additional share of production will these mandates cover?