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SECTOR ANALYSIS
A Framework for Investors

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A Framework for Investors

ACCA (the Association of Chartered Certified Accountants) and **CFA Institute** have partnered on one of the most comprehensive research work of what drives performance across 21 industries, from mobile gaming to utilities sector. Titled ***Sector Analysis – A framework for investors***, the report aims to provide common frameworks to support investors in their analysis of prospects, risks and opportunities, guiding investors through fundamental analysis and showing them how to avoid red flags in business models.

By illuminating the critical components of what makes a successful and sustainable business model in each of the 21 sectors, and incorporating insight obtained from interviews with professionals within those sectors, this report is designed to help investors undertake proper due diligence on a company to uncover (1) whether the pertinent factors favour the firm in question; and (2) whether management is effective in executing its business model or value-generating strategies, while responding appropriately to its external environment.

FOREWORD

Decision-useful information is the lifeblood of successful organisations. And, in providing this, accountants and finance professionals are critical business partners. It is important for professional accountants to not only analyse the detail but to be able to do so in its full context- to understand the business landscape thoroughly, recognise the drivers of growth, and assess and explain the sustainability of different industries.

ACCA (the Association of Chartered Certified Accountants) and CFA Institute have partnered on one of the most comprehensive research studies of what drives performance across 21 industries. By illuminating the critical components of what makes a successful and sustainable business model in each sector, the report provides common frameworks to guide investors in their analysis of prospects, risks and opportunities.

It's essential reading for all industry practitioners, as it not only offers a common structural approach for investors to analyse different industries, but also provides invaluable guidance for professional accountants and business leaders when evaluating and communicating the macro-economic environment in which a company operates, highlighting major trends, potential impacts of government policy, demographic changes and the key drivers of success across different industries.

The most important job of corporate reporting is to give investors and other stakeholders understanding of the factors that determine long-term value creation. Progressive investors have consistently called for information on business models, strategy and the resources on which these rely to be provided in clear and comparable ways.

Working with CFA Institute to help provide these insights has been invaluable. Together, we hope we can play a leading role in enhancing understanding and insight for the benefit of the global business community and the citizens it supports.

Helen Brand OBE
Chief executive
ACCA

I am delighted to introduce this joint research study with ACCA, which marks another milestone in the relationship between our organizations and represents our joint interest in advancing financial analysis transparency for investors.

Our hope is that this work, which proposes a framework that investors can use to analyze a company's business model within and between sectors, will inspire investors to adopt a systematic analysis approach. The embedded 21 industry frameworks are not a panacea that will unravel all business-model-related complications, of course. They will, however, help guide investors through fundamental analysis and show them how to avoid red flags in business models. This study represents the aggregated views of myriad industry stakeholders, including listed company CFOs, asset managers, equity analysts, investor relations officers, and more.

As a new contribution to the literature on investor protection, I believe this study helps to advance the mission of CFA Institute, which is to lead the investment profession globally by promoting the highest standards of ethics, education, and professional excellence for the ultimate benefit of society. Working together with our friends and partners at ACCA, we will continue to prepare practitioners in both our professions for the challenges they face today.

Margaret Franklin, CFA
President & CEO
CFA Institute

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PRELUDE

BUSINESS MODELS UNDER THE ONSLAUGHT OF INDUSTRIAL REVOLUTION 4.0

The morning alarm goes off. You struggle to get out of bed. Sleep was shallow, at best. As you feel your way to the kitchen, the sensor in the smart alarm relays a message to the coffee machine that you need your staple coffee fix. The coffee aroma wafts down the corridor. The first sip perks you up as you mull over an important meeting in an hour. You shower and pick up your smart glasses, and just as you are leaving, sensors in the coffee machine send an order to replenish the arabica beans that will run out the following day. You get into the awaiting drone taxi, which detects your mood at the time of boarding and plays a suitable tune, which the smart player knows — by mining thousands of data points — will give you the needed confidence to convince your colleagues to back your team's project.

The internet of things (IoT) as illustrated in this vignette can dramatically improve quality of life. Every item like the smart alarm is equipped with sensors that pick up data to be transmitted to another item like a coffee machine. This interconnectivity means that by the time you have made your way to the kitchen, the freshly brewed coffee is ready and waiting. Sensors also can pick up your facial expressions to determine which coffee setting appeals to you — was the water temperature too high for your liking or was it perfect? Over time, through thousands of data points, the coffee machines learn. They learn what you prefer and what you feel is drinkable. These smart machines also learn a great many things about your personal life, including, for example, your music preferences. Machine learning or artificial intelligence (AI) is truly remarkable.

The IoT refers to an interconnected system whereby objects or things such as alarm clocks, washing machines, televisions, smart watches, and every conceivable object or thing senses and collects data to be utilised by another object of things through an internet connection.

THE FUTURE IS HERE WITH 5G

At the time of this writing, our scenario may seem to be in the future. Well, the future is here with 5G. With extremely quick internet connections, multidimensional interaction and engagement between customers and firms can be borne out with the IoT in real time, providing improved and targeted services in almost every facet of life.

The alarm clock senses and your smartwatch detects that you are awake and knows you want a freshly brewed coffee to start the day. By the time you make your way to the kitchen, the coffee is ready for consumption.

How do the machines know? The senses on every object collect a huge amount of data as raw material information that can be digitised. These information sets are sent through the internet to other objects where an embedded algorithm considers personal preferences. If senses detect that you feel better after a coffee either through a smile that emerges after a few sips or a host of other metrics, this feedback is noted and picked up by the objects. Over time, the feedback mechanism is used for refinement and precision — the machines understand your personal preferences, including the type of brew, temperature of water, and amount of sugar including whether you like milk in your coffee. This self-learning system (AI) happens in real time and is extremely cost-effective.

In short, the IoT allows for multidimensional interaction and engagement, enabling an enormous population of parties to meaningfully and precisely interact with each other. This is made possible with 5G connectivity at an affordable cost, which enables AI to deliver value-added services at the right point, at the right time, and to the right customer.

THE PACE OF CHANGE

The first commercial mobile phone was released in the early 1980s. With the widespread adoption of mobile phones (there were a lot of Motorolas and Nokias at that time), we could make decisions quickly and change locations as communication was possible on the go. Rarely did we need to decide on a movie theatre or restaurant days or weeks before hand. We could decide a few hours before meeting friends or family.

The same can be said for the adoption of smartphones. The rollout of these revolutionary device in the 1990s further accelerated changes in how we live, work, and play — remember Blackberry? Although these profound changes took years to play out, the pace was arguably quicker than that of the commercial mobile phones.

In 2007, the late Steve Jobs introduced a touchscreen smartphone. Disruption in every sense of the word ensued. Even more profound changes came. It is no longer necessary to find parking to pop over to the bank. One can bank on the go. It is no longer necessary to locate an address before departing the house. Online maps can guide you. These changes happened in just a few short years. And it was not too long ago where almost all backpackers had to rely on a local street map and a robust compass to navigate trips on foreign soil. Today, travellers no longer need to do so.

With the mass introduction of 5G in 2020, what will be the pace of change? An educated guess would say changes will be introduced even faster than previous developments. The potential gains of the IoT and AI are phenomenal; leave it to capitalism to accelerate this process.

WHAT DOES THIS MEAN FOR FIRMS?

More specifically, what does the introduction of 5G mean for investment management firms? Fund managers and professional accountants must be able to decide which firms will benefit and which firms stand to lose from the widespread adoption of IoT and AI brought on by 5G connectivity.

Fund managers and professional accountants and analyst must determine the following issues:

- **Mass customisation** — Mass customisation for consumers, which used to be a dream, is becoming practical. In the age of IoT, consumers will take centre stage from product inception until after sale service. Through big data and direct consumer feedback mechanism, AI is able to customise products and services cost effectively. Furthermore, instantaneous feedback is provided through live feed made possible by 5G. Firms that fall behind in such endeavours may find the demand for their products and services being eroded.

- **Production processes** — Any process in production that can be structuralised will be fully replaced by machines. Do firms have the capability and the resources to roll out automation? If they do, what is the effect on the firms' cost structure?

- **Degree of digitalisation** — Simply having a dynamic website and a vibrant team of in-house IT specialists no longer is sufficient. For a firm to optimise the benefits from the industrial revolution 4.0, painstaking efforts must be incurred to seamlessly gel all the in-house divisions and external stakeholders digitally. This means contributing to, archiving on, and extracting from a centralised pool of big data. The cost of doing so might generate negative returns on investment during the onset. But if executed properly, the benefits will rapidly accrue within a short period of time.

- **Ease of big data usage** — The data contribution process must not incur extra operational burden on the respective stakeholders. For example, when a customer purchases a product, a digital footprint is automatically generated, which may include gender, time of purchase, number of mouse clicks, and age group onto a central data pool. Throughout this process, the customer is oblivious to the footprint collection process, and it does not cost the customer more to purchase the product or service.

Only with a thorough understanding of this evolving landscape will fund managers and professional accountants be able to make the appropriate calls on firms' ability to generate value.

WHAT WILL THE FUTURE LOOK LIKE?

According to conservative estimates, 100 billion devices will be connected in one way or another to the 5G network by 2025. This will result in benefits (thanks to the much faster 5G network in transferring data) such as the following:

- The ubiquity of the smart home, which will feature energy management, internet-enabled appliances, and remote home security

- The rise in use of wearable fitness and health-monitoring devices, which can provide accurate data and feedback for users to make appropriate lifestyle decisions

- The fall in risk-profiling costs in major medical insurance programmes, resulting in lower premiums for standard life clients and making it easier to identify higher risk clients, who then can be offered a nonstandard coverage, if applicable

- The rise of smart cities with driverless cars, intelligent traffic signalling systems, and utility systems

Needless to say, the impact on existing business models will be extremely disruptive.

THE TRADITIONAL BUSINESS MODEL (WHICH WILL BE DISRUPTED): Before we delve into the details of what new business models will look like, let us first explore the various facets of a traditional business model, which are as follows:

- Uncover consumer preferences right down to the minute details — Preferences include desirable functionalities, preferred colour, and acceptable price range. Take for example, an instant noodle manufacturer who aspires to differentiate itself from the rest of the pack. The manufacturer needs to undertake regular focus study groups and surveys with customers to understand the subtle changes in their desired noodle's texture, packaging design, and preferable soup base.

- Satisfy the demand of most consumers —The more customised the products and services, the better the consumer experience, but such an approach is seldom cost-effective for mass customisation. As a result, product satisfaction is never a perfect experience. Businesses should strive to keep most consumers happy at a reasonable cost structure.

- Adopt a business-to-consumer (B2C) model — Businesses originate a product or service, incur marketing and distribution costs, and sell to customers. This is essentially a top-down process.

- Be prepared to face competition — Businesses engage in a perpetual tug-of-war, whereby consumers demand their increasingly granular preferences to be satisfied, while businesses compete to fulfil this perpetually escalating demand.

THE NEW BUSINESS MODEL: As we transition from the traditional business model to the new business model thanks to the widespread adoption of 5G, AI, block chain, and IoT, businesses face some profound changes:

- The attempt to uncover consumer preferences right down right to the minute detail remains paramount. The cost of doing so, however, has declined drastically — to the point at which businesses can supply customised products for individual consumers at an acceptable premium. In short, for the first time in history, mass customisation becomes reality.

- Close to perfect satisfaction can be achieved through IoT. Cheap sensors on active gadgets and passive devices collect huge amount of information that can be digitised. These information sets are sent through the internet to a network of cloud servers where smart algorithms paint accurate personal preferences. For example, if your bathroom mirror's sensor detects that you feel better aftera cup of coffee, either through a smile that follows a few sips or a host of other metrics, this feedback is noted and picked up by the cloud servers. Over time, the feedback mechanism is used for refinement and precision — your coffee machine will understand your personal habits, including the type of brew, temperature of water, and exact amount of sugar. This self-learning system (AI) happens in real time and will be extremely precise and cost-effective.

- With the widespread adoption of IoT and AI, the C2B model will dominate. Under C2B, consumers will be able to communicate to businesses what they specifically prefer on a consistent basis at next-to-nothing costs. Best of all, this feedback can be achieved inconspicuously: consumers automatically will leave a digital footprint after completing a transaction.

- The automated feedback loop through IoT and AI ensures a near perfect delivery all the time. Consumers will be undoubtedly pleased and so would businesses.

THE EVEN NEWER BUSINESS MODEL: Following these initial transitions, business should be prepared to continue to evolve:

- When most firms are digitally connected with stakeholders, human decisions and automated solutions from algorithms will merge seamlessly to unleash a granular consumer wish list. This list would include previously hidden demand as well. Thanks to body-sensing gadgets and real-time internet high-speed transmission, for the first time in history, the cost of extracting alternative information from consumers has become economical. Individuals might paint an inaccurate picture of what they want during surveys and focus group studies, but their body language will reveal the true underlying desire.

- Indeed, the ability to pinpoint hidden demand used to be the domain of highly creative individuals, such as Steve Jobs, Larry Page, and Jeff Bezos. In the near future, AI will enable more individuals to attain this level of mastery.

- In addition to indirectly providing feedback to companies through digital footprints, consumers would be elevated to the status of direct participation in the entire value chain — whether designing, prototyping, and manufacturing or marketing and sales. Block chain technology, for example, when fully deployed, will ensure genuine data feed from real users at a relatively low cost. Three-dimensional (3D) printing technology will drastically lower down the cost of conducting prototype trials among a large sample of consumers. Last but not least, body-sensing gadgets on consumers will provide an alternative data set that usually cannot be obtained from traditional questionnaires, interviews, or focus group studies.

- Eventually, the need for intermediaries will be minimal, simply because the flow of communication among nodes will carry additional datapoints, which will be available much closer to real time, and most important, be cheaper than ever. Take, for example, the parcel delivery industry. Today, a consumer can simply log on to his or her mobile phone to track down where the parcel is located at any specific point in time, without having to call a call centre. Going forward, we expect this de-intermediary phenomenon to be propagated across most industries.

- Supply chains will be drastically shortened and simplified. In lay terms, it will be even easier for businesses to locate the specific relevant suppliers, rendering a reduction in search costs. In the utopia state of things, the global supply chain should evolve to include of lot of small entities (dots), each supporting a highly specialised need required by brand owners (lines). Different brand owners will thrive in an efficient ecosystem (web) in which they share the services provided by the dots.

The journey towards B2C is a gradual process. Many industries are not ready — whether in terms of degree of digitalization or, say, having in place a unified information platform. The disruptions we have witnessed are just the tip of the iceberg.

For firms to successfully ride on this wave of industry 4.0, thinking out of the box is crucial but that alone will not be sufficient. Firms need to possess the appropriate management DNA right at the very start as well as adopt a do-and-plan approach. We will step into this discussion in more detail in later sections. For now, let's quickly summarise what we have discussed so far.

THE THREE GOLDEN STEPS FOR NEW-AGE FIRMS

Step one: In this new era, firms must undergo complete digitalisation — a stage at which all information flow has been tokenized. Firms must find a way to execute this digitalization cost effectively; which varies drastically across different industries.

Step two: Once information flow has been fully tokenized, multidimensional interaction among all relevant stakeholders (such as suppliers, customers, government, investors) needs to be fully automatic and in real time. The multidimensional interaction should allow an enormous population of individuals to meaningfully and precisely interact with each other at an affordable cost.

Not too long ago, this was extremely costly and therefore impractical. With the pending maturation of block chain technology, AI, and 5G, modern technology seems to be able to fulfil all these needs at reasonable cost.

Step three: Once this multidimensional interaction has attained a critical mass, the embedded feedback mechanism will be able to automatically make on-the-spot decisions to fine-tune the product or service being offered starting from designing, prototyping, and manufacturing, through marketing and sales. This embedded feedback mechanism is essential, as it is the mother of all critical learnings.

Fund managers and professional accountants must understand these changes to be able to value firms in the new era.

THE PRESENCE OF APPROPRIATE MANAGEMENT DNA

Before these three golden steps can be executed, four key elements of management DNA must be present:

- The desire to maintain a sustainable ongoing interaction with consumers
- The willingness to decentralise and erect humanistic outreach to consumers
- The vision to create brands that breed togetherness rather than purely sell for functionality
- The capability to organically gel prototyping, research, design, refinement, version upgrade, and promotion.

This new-age strategy is no longer a simple one-, three-, or five-year plan. It is a putting in place a super-efficient feedback mechanism between vision and action — that is, the do-andplan approach. In other words, company strategy will evolve to be more like a combination of planning and feedback to drive long-term sustainability and core competency.

FUND MANAGERS AND PROFESSIONAL ACCOUNTANTS NEED TO MONITOR THE CHANGE

During this process, some elements, structures, and ways of doing things will change, whereas others will remain the same. An appropriate combination will remain dynamic and extremely fluid under varying situations. Let's use the banking sector as a narrative example:

- Simple transactional client interactions, which start from the point a client enters the bank and end when the client leaves the bank, may be a thing of the past. An interactive banking mobile app will serve the daily needs of most clients. And when granted permission by the client, this app can track spending and investment habits by collecting mobile digital footprints. Through a cloud-based algorithm, the mobile app can ping customised services to the clients to pre-empt potential consumption.
- Although an interactive banking mobile app can serve the daily needs of most consumers, at times, customized human delivery still will be desired. In the past, this used to be the exclusive domain of private banking. Post–industrial revolution 4.0, this will not be the case any more! By leveraging block chain technology, compliance and the associated paperwork will become more streamlined, error free, and automated. This will decentralise part of the delivery processes as well as release more human resources to clients facing job roles henceforth rendering it more economical to provide customised human service delivery, even to retail clientele. Indeed, the ability to provide humanistic service delivery to clientele might be elevated to become the core competency of retail bankers.
- After getting used to the speed and efficiency of data transfer on a 5G network, the new generation of banking customers will become increasingly demanding, and at the same time, more intolerant with latency. Highly intuitive and interactive dashboards with vibrant themes will be taken into serious

consideration by banks when designing a product and service interface. Just because clients will be taking all these basic features for granted. Banking clients no longer will be satisfied with products that tick all the functional boxes. Clients will demand direct interaction with other clients to hear out objective assessments as well as obtain a sense of togetherness.

One will not be able to plan well until one gets live feedback and one cannot get live feedback until one seeks this feedback. In short, action leads to results, and results will incrementally shape a firm's next step (action) as well as its vision.

As a result, individuals who excel at executing things creatively (in the absence of a stable structure), know how to get timely and relevant feedback, and can fine-tune execution using this feedback will become highly sought after across every sector. Applied creativity therefore will become the key differentiating attribute among winners and losers, whether at the firm or individual level.

Individuals who possess applied creativity are known as enablers. Enablers support knowledge and resource congregation to equip people around them with what they need to achieve greater success.

For enablers to thrive, most firms must move away from a hierarchical structure to a platform structure in which employees can freely engage, smoothly collaborate, and efficiently co-create.

To achieve this transition, firm must establish a unified big data platform — one in which the definition of entry, usage, and results is efficiently centralised but at the same time shared equally among all divisions. This automated big data platform will record every single transaction, source code, and idea. And it should automatically determine who gets promoted and demoted as well as identify who are the loafers versus the industrious employees.

At full maturity, this unified big data platform will evolve to become a mobile communication web where a single change in a node will ripple through all other nodes on the entire web. When this occurs, full transparency will be attained and each node will know exactly, in real time, who and what to look for, as well as how, to solve the problem at hand. In other words, the full transformation from a hierarchical decision-making structure to a workflow-driven structure will have transpired.

Such a structure, once fully deployed, will empower creative individuals with the full flexibility to leverage a platform of resources in real time, thus enabling them to make decision with due consideration for the holistic context.

The healthy transactional cycle of the new-age business will look something like this:

a. As transactions take place, data (digital footprint) will be produced.
b. Data produced will be recorded automatically.
c. A cloud algorithm will immediately process this data.
d. The output obtained will be used directly to execute an action.[1]
e. The action will influence the client experience.
f. Enablers may or may not interject at this point to further enhance the customer experience.
g. Clients will take an action to repeat a transaction and the whole cycle will be repeated.

Fund managers and professional accountants must be able to spot these changes in firms.

21 INDUSTRIES VIEWED THROUGH THE LENSE OF THE INDUSTRIAL REVOLUTION 4.0

These features are not simply nice-to-have attributes for new-age companies. In fact, for companies thriving in industry sectors that have generated a significant digital footprint, these attributes become life or death matters. If you don't evolve with the steps of industry 4.0, your competitors will. Unfortunately, for most traditional companies, very few industries nowadays do not generate a digital footprint. As an example, the 21 industries covered by our research all generate a digital footprint:

- For the real estate investment trust (REIT) industry, the digital footprint originates from the IoT devices installed within smart buildings.
- For the airline industry, the digital footprint comes in the form of ticketing trends and passenger profiles.
- For technology-intensive sectors, such as banking, insurance, telecommunications, and semi-conductors, the digital footprint is even more obvious.

Different industries generate digital footprints in a wide variety of fashions. Considering this fact, a respective unified data platform, while similar in working principles, will differ greatly in deployment. The key lies in fine-tuning the unified data platform architecture to blend in with the specific business model. An established unified data platform adopted by bank A may not be fully functional when teleported to bank B.

Having a holistic understanding of an industry business model is the key to understanding how well a target company has prepared for the industrial revolution 4.0. That is precisely why we have produced the 21-industry business model questioning frameworks.

We now pass this over to you and wish happy investing to all our readers!

INTRODUCTION

A FRAMEWORK FOR INVESTORS

A company's success depends primarily on how well it executes its business model. This requires optimizing the allocation of limited resources to generate sustainable cash flows for investing in new products, technologies, and services in response to the wider competitive landscape or societal changes and mega-trends. It also calls for devising appropriate responses in the face of an evolving macroeconomic, regulatory, and political environment.

Different industries require different business models. Even within the same industry, the model that does add value to the business may vary somewhat from company to company.

To help investors undertake proper due diligence on a company, we have created a framework of questions designed to tease out the following:

1. whether the pertinent factors favor the firm in question; and

2. whether management is effective in executing its business model or value-generating strategies, while responding appropriately to its external environment.

This framework has been customized for specific sectors and incorporates insight obtained from interviews with professionals within those sectors.

MOBILE GAMING

PLAY TO WIN – UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF THE MOBILE GAMING SECTOR

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA; Guruprasad Jambunathan, CFA, FRM and Chan Fook Leong, CFA

Here's a game you can play – the next time you're out, whether on the train or waiting in line at your favourite coffee spot, look around and count the number of people tapping and swiping on their smartphones as they gaze blankly at the latest mobile game filling their screens. Does it surprise you to see how ubiquitous mobile gaming has become?

Mobile games have been around for quite a while – 25 years, in fact. Leading the market back then was something called Tetris, which you could only play it on an electronic brick called the Hagenuk MT-2000 (we had to Google it too). Three years later, Nokia preinstalled the hugely popular Snake on its devices – a watershed moment for the market. The launch of Apple's App Store in 2008 was another turning point, as it heralded the dawn of today's app-based mobile gaming era, which has led to a global industry worth billions of dollars.

A GROWING MULTIBILLION-DOLLAR JUGGERNAUT

If your preferred recreational mental challenges are restricted to the occasional newspaper crossword or a well-thumbed Sudoku book, then hearing that the global mobile gaming industry will be worth US$68.5 billion by the end of 2019 (and forecast to hit US$95.4 billion in 2022) might come as a bit of a surprise. That is until you realise that there are an estimated 2.4 billion gamers—over 30% of the world's population. That's a lot of people with double chins and sore thumbs.

Such huge numbers can be attributed to several factors. One primary aspect is the sheer accessibility of mobile games. This is thanks to the rise of smartphone usage and low-cost, highspeed mobile bandwidth. They are also, for the most part, free to play, further lowering consumers' barriers to entry and giving rise to an age of hyper-casual gaming.

Another factor is the nature of the market itself – a fast-paced environment where the cream quickly rises to the top. Mobile games' shorter build cycles relative to personal computers or console offerings, plus a structure that allows the passive collection of large amounts of real-time feedback (big data), combine to create a situation where developers can rapidly iterate to bring new or improved versions to the market.

However, this accessibility also begs the question – since most mobile games are free to play, how does this equate to tens of billions of dollars in value?

A FREEMIUM BUSINESS MODEL WITH A FEW BIG SPENDERS

It is true that most mobile gamers—at least 95%, according to some estimates—will never spend a cent on their amusements. But even such 'freeloaders' can be monetised using the most common strategy on the Internet – advertising. The percentage of revenues derived from advertising vary from game to game, particularly the type of offering, but general estimates put it at 30 to 50%. And although only an estimated 2.8% of participants are classified as 'big spenders', that is still over 50 million people according to leading games and esports analysts Newzoo.

As such, even this small slice of users is enough to make direct spending on mobile games translate to 74% of consumer app outlay. While some games require direct purchase or monthly subscriptions to play, most of this spending comes from in-app purchases which allow players to heighten their in-game experience through devices such as extra lives and other similar boosts. This freemium model has been enabled by tremendous improvements in encryption protocols which now make online monetary transactions both convenient and secure.

The business model is also adapting to the rise of esports. Previously limited to primarily personal computers, mobile games are now entering the fast-growing billion-dollar esports market. One example is Clash Royale, not only the mobile gaming world's top performer but one that has made a dramatic entrance into the esports arena with its successful tournaments and league features.

LEARNING HOW TO PLAY THE INVESTMENT GAME

The numbers don't lie – mobile gaming represents a huge and growing opportunity for investors. The challenge lies in separating the performers from the non-performers – it is a crowded and hyper-competitive market where the winners reap the lion's share of the rewards while for the losers, it's unfortunately 'game over' (for context, there are well over a million mobile games on the App Store and Google Play Store combined).

With that background information in mind, let's move on to understanding how to analyse a mobile gaming business structurally.

DEFINING THE COMPANY'S OFFERINGS

The first step is to establish the scope of its product and service offerings. Explore whether the company purely offers game apps or whether it is more diversified with non-game apps as well. From there, dissect its offerings further by both supported platforms and operating systems. Investigate the number of languages provided on user interfaces—this will give you a glimpse into its geographical strategy.

That level of segmentation is merely the beginning. You'll need to place the apps themselves into their own categories such as action, strategy, or puzzles for game apps and entertainment, fitness, dating, and the like for non-game apps. Even within these categories, you can always drill down further. Look at whether its offerings are single or multiplayer, and if they provide online communities or social media integration.

NICHE OPERATORS

As mentioned, this market is global, crowded, and ultra-competitive. But that doesn't mean there aren't any sub niches where lesser-known games can be profitable. Study the company's user base to get a more detailed picture of its customer demographic – which countries are they from and what languages do they speak? Is the business targeting a global audience or something more specific? Some games may also be more select not in the geographical sense, but in terms of their hardware requirements.

Once you have a clearer image of the firm's markets, analyse the competitive dynamics. Key data points to seek out include the top games in said space by number of installs, estimated usage levels, and unique points of differentiation. For the last point, one thing that will easily stand out is specific licensing, e.g. the use of characters from popular movies and TV shows.

GENERATING INTEREST

Mobile games compete squarely in the attention economy, meaning marketing and advertising play crucial roles in a game's success, particularly in its initial stages. When a game hits a critical point in terms of popularity, a positive feedback loop is created where new players participate simply because they have heard how popular it is. Features like public rankings and social media integrations can amplify this effect.

Therefore, review the effectiveness of the company's marketing channels. Is it purely advertising, or are there referral incentives as well? What has been the firm's return on every marketing dollar spent – how do its user acquisition costs compare to its peers?

While marketing goes a long way, the product itself is also obviously important. Dive deeper into its development and innovation strategies. Are updates addressing bugs and other performance issues being quickly released? What about new features and other enhancements – is the company launching those on a regular basis? Without those, even popular games can quickly become obsolete – in a market where switching costs are practically non-existent, a strategy for tackling obsolescence and keeping things fresh is paramount.

UNDERSTANDING MONETISATION

The next step is to examine monetisation methods – how exactly is the company making its money? Begin by looking at its end-customers. Are its products directed to endusers, or are they licensing them as white label offerings to third parties?

If it is primarily a direct offering to consumers, then scrutinise how it charges for its products – free, freemium, paid with free trial periods, or paid? Make sure you get a comprehensive overview of all its revenue models, from subscriptions and advertising to licensing and sponsorships and even offline revenue streams like merchandising and events. The data harvested by the apps are themselves valuable – beyond providing aggregate insights, it could also be potentially licensed or sold.

GAUGING FINANCIAL AND OPERATIONAL METRICS

Games may be frivolous, but a careful study of a company's financial and operational metrics is anything but. When you examine standard financial measures such as revenue, EBITDA, EBIT, and net margins, compare it with the growth in its user base – has the firm successfully used data analytics to increase its revenue per customer? Don't forget to also break down these figures by individual product, geographical market, and monetisation method, and then assess the trends in each area.

On the cost structure side, pay attention to R&D, marketing, staff, and distribution costs (e.g. commission charged by the App Store). Are there any components where the company may be either outperforming or lagging its peers (such as user acquisition fees)?

From an operational perspective, inquire into its user behaviour is key. While top-line data, such as the number of installs and growth in new users, are certainly important, make sure to also delve into retention metrics like the proportion of active versus inactive users, average time spent on the app, and the time taken for users to go from active to inactive. Check whether any strategies exist to convert dormant users back into functioning ones and if so, review their effectiveness.

ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)

The main ESG issue concerning the industry is addiction. Mobile games can be highly enslaving, particularly among the vulnerable. Further, their addictive nature is rarely a bug, but often a deliberate feature. Many of the aspects that hook people to mobile games, such as intermittent rewards, are conceptually no different from those used in the casino industry. However, unlike the latter, there are few restrictions in targeting underaged consumers.

Therefore, when probing into ESG factors, find out whether the company or its games have come under any scrutiny or accusations over potential user addiction. See how the company plans to address such issues or if they restrict the usage of their games by age. The problem of mobile games addiction also ties into this new age of constant connectedness – social media addiction is another similar and arguably larger societal challenge.

THE LONG-TERM FUTURE OF MOBILE GAMES

Consumers are fickle, and the mobile games market itself changes rapidly. As such, it can be challenging to gauge the long-term prospects of a company or game. However, some things you can still study to provide yourself more insight on long-term trends include a firm's expansion plans into less saturated markets, e.g. those with lower per capita gaming app usage and spending. Its product innovation strategy can also reveal insights as to how the company might perform over the longer term.

That's the micro perspective. On the macro side, it's clear that mobile games aren't going anywhere. As our smartphones become more powerful, the variety of mobile games will only expand.

You don't have to play mobile games to see the opportunities in this sector. Use this framework as your guide for future analysis of this lucrative industry – why bother with in-game rewards when you can play the investment game and earn real dollars instead?

MOBILE GAMING

A step-by-step guide to analyzing the mobile gaming sector

01 DEMAND DRIVERS

- Types of games offered
- Data-driven marketing
- Number of current users
- Business model/cost
- Development and innovation strategy
- Existence of unique mechanisms
- Hardware requirements
- Platform compatibility

02 MARKET POSITION

- Market saturation
- Competitor market share
- Proprietary technology
- Incumbent advantage
- End-customer demographics

03 STRUCTURAL INFLUENCES

- Expansion into less-saturated markets
- Smartphone penetration rates
- High-speed mobile data coverage rates
- Disposal income levels
- Per-capita game usage and spending

04 GAUGING PERFORMANCE

- Revenue, EBITDA, & net margins vs. user growth
- Revenue per customer
- Marketing and development costs vs. peers
- Commission costs from App Store/ Google Play
- Customer retention statistics
- Active vs. inactive users

05 ESG FACTORS

- Prevention measures against underage spending
- Mobile game addiction accusations
- Gambling-industry techniques
- Data protection and privacy

COMMON TO THE SECTOR

1. DD: WHAT ARE THE DIFFERENT PRODUCTS AND SERVICES OFFERED BY THE COMPANY?

a. What are the types of products offered: games vs non-game apps?
b. For which platforms are these products offered: desktop website, mobile website, mobile app, tablet app?
c. In case of mobile, which are the operating systems supported: iOS, Android, Windows?
d. In which languages are the user interface of these products provided?
e. Are these products being offered directly to end users?
f. Are the products and services licensed as a white label offering to third parties?

2. DD: WHAT ARE THE DETAILS OF THE COMPANY'S GAMING PRODUCTS?

a. What are the categories of games offered: action, strategy, virtual worlds, sport, skill development and learning, puzzles, virtual/augmented reality based etc.?
b. Does the company develop and sell games based on movies, novels, real or fictional personalities, organisations or incidents?
c. Are the products single- or multi-user games?
d. Does the company offer online communities and social media integration for the users to interact and engage with fellow gamers?

3. DD: HOW DOES THE COMPANY'S NON-GAMING PROFILE PAN OUT?

a. What are the types of apps offered by the company: tools and utilities, health and fitness, media and entertainment, personal and dating, learning and reference, device management and enhancement, travel and navigation, finance and budgeting, office and collaboration, social media and networking etc.?
b. Are there any other service offerings in the pipeline?
c. What is the extent of usage of the various apps currently? How is the usage evolving?

4. DD: WHAT IS THE PROFILE OF THE USERS OF THE COMPANY'S PRODUCTS?

a. What is the estimated size and demographic profile of the company's potential customer base?
b. How is the user base spread across regions and countries?
c. What are languages spoken by them?

5. DD: IS DATA USAGE HARVESTED AND MONETISED?

a. What are the different data points collected by the company's through its products?
b. What are the different ways in which data is used and monetised?
c. Does the company use this data exclusively for its own purposes?
d. Does the company provide aggregate insights to third parties or sell/license raw data to third parties?

6. DD: HOW IS THE REVENUE MODEL OF THE COMPANY STRUCTURED?

a. How are the company's products charged: free, paid, paid with free trial period, freemium (basic features are given free and additional features are charged)?
b. Are paid products sold on a one-time payment basis or on a periodic subscription basis?
c. Are products being offered at a single price point or at multiple price points with different sets of features?
d. What are the company's revenue streams: app sales, licensing, subscriptions, advertising, and sponsorships?
e. What is the share of revenue derived from offline streams: merchandising, events?
f. What is the share of revenue from monetisation of harvested usage data?
g. What is the geographic and currency mix of revenue?

7. SI: WHAT ARE THE MACROECONOMIC FACTORS THAT ARE EXPECTED TO DRIVE BUSINESS FOR THE COMPANY?

a. Are the company's products tailored for any specific geographies or designed for a global audience?
b. What is the demographic profile (age, socio-economic category) of users in the company's key markets?
c. How prevalent is the gaming culture in the key markets?
d. What is the per capita gaming and app usage and spend in the company's target demographic?
e. How quickly does the population in the key markets adopt new technologies?

8. SI: WHAT IS THE LEVEL OF INTERNET AND MOBILE PENETRATION IN THE KEY MARKETS? HOW ARE THESE EXPECTED TO EVOLVE?

a. What are the penetration levels of computers, Internet, smartphones and data usage in the key markets?
b. What is the per capita usage of Internet in terms of duration of use and amount of data?
c. How does the cost of computers, Internet, smartphones and data compare with per capita income levels?

9. MP: WHAT IS THE LEVEL OF COMPETITION AND MARKET CONCENTRATION FOR THE COMPANY'S PRODUCTS?

a. What is the share of Top 3 players in terms of game/app installs, number of total/active users, usage levels and revenue in the domain operated by the company? Does it vary across the company's individual products or revenue streams?
b. What is the estimated number of the company's users also using competing products?
c. What is the estimated number of competing products a customer typically uses?
d. What are the factors that make a customer to choose the company's products over the competitors?

10. MP: WHAT ARE THE BARRIERS FOR OTHER PROVIDERS TO LAUNCH COMPETING PRODUCTS?

a. How does the feature set of the company's products compare with that of competing products?
b. Is there any product feature or benefit that is difficult to replicate?
c. Are the products based on any patents, trademarks, intellectual property or any proprietary technology offering the company a competitive advantage?
d. How much advantage does the network endows on the incumbents and acts as an entry barrier?

11. MP: WHAT IS THE MARKET POSITIONING OF THE COMPANY'S PRODUCTS?

a. What is the value proposition offered by the company and its products?
b. Do the products help realise a hitherto absent need?
c. Do the products solve, improve, substitute or replace any needs in the market?
d. Do they fill any gaps that existing products do not address?

12. MP: HOW DOES THE COMPANY'S SERVICE COMPARE WITH COMPETITION ON EASE AND COST OF ACCESS AND USAGE?

a. Are the company's products compatible with all the major platforms currently in use?
b. What are hardware requirements of devices for using the company's products?
c. What is the speed of Internet connectivity required for the products to function as intended?
d. How much data does the company's products typically use?
e. Are the products designed to work in budget devices with relatively lower-end hardware specifications and slower data connections?
f. Do the products provide multi-device, cross-platform (desktop, mobile) and cross-OS (Android, iOS, Windows) support, synchronisation and integration?
g. Are tools being provided for users to easily migrate the company's products to new devices, within the same platform and to new platforms?

13. MP: HOW STICKY IS THE CUSTOMER USAGE OF THE COMPANY'S PRODUCT?

a. What is the share of users which continue using the products after installation and activation?
b. How is the retention rate after milestone timelines such as a month, quarter and year?
c. How does the typical usage frequency and duration of use evolve after these milestones?
d. What strategies does the company employ to improve customer retention and stickiness?

14. PM: HOW HAS THE COMPANY PERFORMED ON OPERATIONAL MEASURES? HOW DOES THE PERFORMANCE COMPARE WITH PEERS AND HOW IS IT EXPECTED TO EVOLVE?

a. What has been the growth rate in usage of the company's products in terms of installs, total users, active users and usage levels?
b. What is the split of growth in usage levels between usage by new users and incremental usage by existing users (active for more than a year)?
c. How have typical usage frequency and duration evolved?

15. PM: HOW HAS THE COMPANY PERFORMED ON FINANCIAL MEASURES? HOW DOES THE PERFORMANCE COMPARE WITH PEERS AND HOW IS IT EXPECTED TO EVOLVE?

a. What are the trends in revenue growth from different streams? What is the breakdown by volume growth and price change?
b. What are the major components of the company's cost structure?
c. What is the company's research and development cost as a percentage of total costs and revenue?
d. How much is spent on advertising and promotion?
e. What is the staff cost as a percentage of total cost and revenue?
f. What is the revenue earned per employee?
g. What is the company's distribution cost? What is the rate of commission charged by major distributors such as Apple's App Store and Google Play?

16. PM: HOW DOES THE COMPANY ADVERTISES AND PROMOTE ITS PRODUCTS?

a. What are the channels employed?
b. Which channels are the most efficient and effective?
c. Is there a referral programme to encourage existing users to bring in new users?

17. PM: HOW SUCCESSFUL HAS THE COMPANY BEEN IN MONETISING ITS USER BASE?

a. How does the growth in customer base and usage compare with revenue?
b. What are the company's EBITDA, EBIT and net margins? How has it developed over the past few years?
c. How does the company use data analytics to improve customer experience, engagement and monetisation?

18. PM: WHAT IS THE COMPANY'S PRODUCT DEVELOPMENT, MAINTENANCE AND INNOVATION STRATEGY?

a. How frequently are product updates released?
b. How soon are bug fixes and performance improvements issued?
c. At what frequency are feature additions and enhancements released?
d. How are changing user preferences tracked?
e. How does the company ensure it continues to innovate as an organisation?
f. How does the company manage product obsolescence?
g. How big is the product development team? What are their skill sets and achievements?

19. PM: WHAT IS THE PROPORTION OF INACTIVE USER BASE?

a. After how long do users typically become inactive?
b. Does the company actively look to understand why users stop using the company's products?
c. Is there any strategy to get users to restart using the company's product again?

20. PM: HOW IS THE DATA AND PRIVACY OF THE COMPANY'S CUSTOMERS AND MERCHANTS PROTECTED?

a. What data points about the users does the company captures and stores?
b. What are the efforts taken to educate users about the company's policies and practices on data harvesting, usage and privacy?
c. Have there been instances of loss/theft of data or attempts to sabotage/breach the company's systems?
d. What are the measures practised to prevent, detect and avoid cyber sabotage of and through the company's apps and services?
e. How are payments disputed by the customer dealt with?
f. How are fraudulent transactions prevented, detected and managed?

21. ESG: DOES THE COMPANY'S PRODUCTS FACE SCRUTINY OVER USER ADDICTION OR ABUSE?

a. Are the company's or competing products facing accusations of causing user addiction towards them?
b. How does the company plan to respond to this issue?
c. Are children permitted to use the company's apps and services?
d. If children are not allowed, how is the age criteria of users established?
e. If children are allowed, is adult supervision and/or guidance required for them to use the apps?
f. What are the steps taken to ensure the company's products are not misused to bully, lure, defraud or abuse users? Specifically, how does the company ensure children using the products are not victimised?

CASHLESS PAYMENTS

UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF THE CASHLESS PAYMENTS

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA; and Guruprasad Jambunathan, CFA, FRM

Tap, swipe, wave. Technology has made it so wonderfully easy to spend our invisible money.

When was the last time you withdrew money from an ATM? This used to be the quintessential financial transaction, but it gradually has become less critical and thus less common. We'd be willing to bet that if you compared your bank account records from this year with that of even five years ago, the frequency of which you entered a PIN to received cash would have been markedly higher back then.

It makes sense. Why even bother with cash when you have smartphone-enabled e-wallets at your disposal? You not only save time from queuing for your turn at the ATM but also bypass the inconvenience of carrying notes and coins. Online transactions (which include mobile payments) have changed the way we pay for goods and services in our daily lives.

Of course, online payments are nothing new. Amazon has depended on them since 1995 when it was just a virtual bookstore. PayPal launched its money transfer services in 1999. But it is only with the advent of 4G mobile communication coupled with the simultaneous proliferation of smartphones that the online payments business model has come to the fore. Companies in this space need no longer rely on the legacy structure of credit card vendors, conventional retail banks, or even desktop computers.

A NONUNIFORM TREND

Although the general trend today is toward making cashless payments increasingly ubiquitous, the pace, format, and depth of coverage vary quite widely across jurisdictions. Consider Sweden, a developed nation on track to becoming an almost entirely cashless society by 2023. Only about 10% to 15% of point-of-sale purchases made by households use cash and many merchants no longer accept it at all. The same can be said of payments made in China: those who use notes and coins are mostly tourists.

That said, a few notable outliers among the industrial nations remain highly cash-centric, such as Germany and Japan. About 80% of German household point-of-sale purchases are still made using cash. In Japan, the largest coin is worth ¥500 (about US$5), meaning residents have little choice but to lug around pieces of metal. The attachment to physical funds in these countries, however, may reflect their recent traumatic past rather than an inability to embrace new technology.

COMMON CHALLENGES

Despite these variations across jurisdictions, all online payment businesses around the globe face common challenges. One such challenge is disappearing geographic boundaries, which bring opportunity but also more convoluted tax issues. Another is the increasingly real-time nature of society. Satisfying the on-demand needs of consumers creates more intense pressure on hardware infrastructure, which also means much greater opportunity costs for any downtime.

Then there are switching fees. Even if moving to a newer and more efficient service provider may realize significant savings in the long run, stakeholders in the ecosystem may still be unwilling to bear the upfront charges. This is especially true for companies beholden to public shareholders, which often results in an incentive system skewed toward the short term — one always focused on the next quarterly earnings report.

Finally, there's the challenge of security. Although encryption technology is improving by leaps and bounds, so too is the hacking capability of criminals. And in a world in which many proclaim that "data is the new oil," issues of privacy and potential theft of sensitive information are two significant issues that the industry faces.

CASHLESS IS WORTH TRILLIONS

Physical cash may be falling by the wayside, but the amount of money flowing through a myriad of digital channels continues to increase. Total worldwide digital payments by consumers alone (excluding business-to-business) reached US$4.1 trillion in 2019 and is estimated to hit US$6.7 trillion by 2023, equating to a compound annual growth rate of about 12.8%.

This impressive growth rate highlights the upside of the nonuniformity of the cashless trend. Many lucrative untapped markets remain. Against this background, let's move on to a systematic framework for analyzing both the high-level and nitty-gritty aspects of online payment business.

NICHING DOWN

Online payment is a term encompassing many different subcategories. As such, step one is to determine what specific products and services a company provides. See whether the business is a payment gateway, digital wallet, mobile app, or a combination of these services. Then ask what this service enables: is it for firms to accept online payments, for domestic and international funds transfer, or for something else entirely?

Answering this question will help you ascertain the company's revenue model. In other words, who exactly is paying the company and what for? Fees are the most common revenue model in the industry, whether it is for transferring monies or enabling digital payments (such as e-wallets). Discover whether the company is offering its services directly to end users, or if it plays a more intermediate function. It also may be licensing its products as white-label offerings to third parties.

UNDERSTANDING DEMAND DRIVERS

Next, probe the market structure. Certain areas can serve as demand proxies for a company's services, so it's worth taking stock of their numbers. For instance, if the firm is a digital wallet, then the size of the retail space is something you would need to study. Ensure that you also research the size and share of its e-commerce activities. If the company is dealing with transfers, then the proxy would be the remittance and fund transfers markets; review the proportion of online and electronic transfers and break it down by both transaction volume and value.

Sometimes, demand drivers aren't so evident. You'll have to dig a little deeper to uncover something a little less obvious. One example is the prevalence of online bill payments. It's a seemingly minor thing that doesn't jump immediately to mind but that could have huge effects on a country's online payments ecosystem.

THE COMPETITIVE LANDSCAPE

Now, it's time to scope out the competition. The online payments ecosystem, being so closely related to the technology sphere, can be brutally Darwinian. Weak companies don't last long, and oligopolistic "winner-take-all" scenarios are common.

So, the first question is, are there any entrenched incumbents and is the company you are analyzing one of them? Examine the market share of the various players by the number of merchants and consumers using their services and also look at whether consumers tend to use multiple competing services.

Then, scrutinize barriers to entry. Often, regulations will prove to be the highest hurdle against new entrants; investigate the licenses and approvals required. Capital requirements (which also may be tied to regulations) are another obstacle.

Finally, in an industry in which offerings tend to be almost homogeneous, you should identify any competitive advantages or points of differentiation a company might have. These could range from fee structure and ease of enrollment to merchant partnerships and interoperability with the primary payment networks and intermediaries, such as SWIFT and Visa. See how this aligns with the firm's customer acquisition strategy; essentially, the question you want to answer is, what makes a merchant or consumer choose the company's services over the competition?

ANALYZING FINANCES AND OPERATIONS

Start with the usual suspects of financial analysis, such as revenue, EBITDA, and margins. Break down this information by types of services, markets, and end users, and contrast them against the firm's user numbers and transaction volume. How do the company's margins shift in accordance with its user and transaction volume? Single out the main margin drivers. Is it the number of merchants, transaction frequency, or size?

Move on to its cost structure. What are its capital expenditures and infrastructure outlays? If the company does not own the payment infrastructure, how is it being charged for riding on third-party infrastructure? Pay attention to the ratio between fixed and variable costs. Next consider customer acquisition, which is paramount but also can be expensive. Delve into the marketing and promotional strategies and see what kind of return is being generated, especially in relation to peers.

On the operational front, go beyond a scrutiny of top-line transactions and customer volume and explore the growth rates of its gross transaction volume (GTV) and gross merchandise value (GMV). Probe usage frequency and per transaction value trends: what picture does this paint of the company's customer stickiness? Compare the percentage of its active and inactive user base to gain insight into the firm's retention strategy, and see how it is using data analytics to improve it. Last, evaluate how the business designs the fee structure for its different types of customers and how it stacks up against the competition.

GAUGING LONG-TERM PROSPECTS

The trend is clear, and the future of online payments is bright. But this broader outlook doesn't necessarily translate to that for individual companies, especially given the competitive nature of the industry.

To better assess the long-term growth prospects of a firm, look at the markets into which it is planning to expand. Is it a saturated space in which cashless payments are already the norm? Study the larger factors that affect a market's potential, such as per capita consumption, working-age population, and the penetration levels of smartphones, internet, and financial products.

INVEST IN WHAT YOU ALREADY USE

Online payments aren't going anywhere: they're only going to become more prevalent. Use this framework as a starting point for further analysis of this growing industry. You already use these services, so why not move from being a mere customer to an investor as well?


CASHLESS PAYMENTS
A step-by-step guide to analyzing the cashless payments sector
01 DEMAND DRIVERS
Types of payment methods offered
Services to end-users
Size of payments/ transfers processed
Revenue mix by product type
Share of retail/ e-commerce market
02 MARKET POSITION
Market concentration: customers vs merchants
Compatibility with existing systems
Barriers to entry
Incumbent advantage
Ease of adoption and use
Customer retention programmes
Operational restrictions
03 STRUCTURAL INFLUENCES
Population: age and spending patterns
Bank account and card usage
Levels of cashless activity
Ease of access to the internet
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04 GAUGING PERFORMANCE
Investment in infrastructure
Growth in transaction value and volumes
The monetization of a company's user base
Inactive customers
Use of data analytics for business growth
Use of data analytics for fraud prevention
Fee structures
Revenue, EBITDA, & net margins vs. user/transaction growth
User privacy and cybersecurity
Level of value-added services
05 ESG FACTORS
Data centre efficiency
Efforts made to truly democratize financial services

COMMON TO THE SECTOR

1. WHICH PRODUCTS AND SERVICES DOES THE COMPANY OFFER?

a. Does the company offer its services directly to end users?
b. Is a payment gateway/digital wallet/mobile app available to customers?
c. Can end users access online/mobile bill payment services?
d. Are in-store payments at a merchant's premises available to customers?
e. Does the company offer domestic and overseas funds transfer services to businesses or end users?
f. Does the company enable service providers to accept online payments from their customers?
g. Are the company's products and services licensed as a white label offering to third parties?

2. EXAMINING THE COMPANY'S END-USER MARKETS

a. How large is the retail market in the regions and countries where the company operates?
b. What is the company's share of the organized retail market?
c. What is the size and share of e-commerce in the countries where the company operates?
d. How widespread are online bill payments in the company's key markets?
e. How big is the remittances and fund transfers market, in terms of both transaction volumes and value?
f. What is the share of electronic and online channels in funds transfers?
g. Which other end-user markets contribute to demand?

3. ARE DIGITAL-BASED CITIZEN SERVICES AVAILABLE IN THE COUNTRIES THE COMPANY OPERATES IN?

a. Which services does the company provide?
b. Are there any other service offerings in the pipeline in these countries?
c. How extensive is current usage and how it is evolving?

4. WHAT IS THE COMPANY'S REVENUE MIX?

a. How much revenue does the company earn from payment gateways, wallets, bill payments, fund transfers?
b. What size is the company's revenue from other components? These include customer fees, merchant fees, licensing revenues.

5. HOW WILL MACROECONOMIC FACTORS SHAPE THE PAYMENTS MARKET?

a. What is the breakdown of the working age population in the company's markets?
b. How significant is per-capita consumption spending in these markets?
c. What is the penetration level of financial products, such as bank accounts and payment cards?
d. What is the share of non-cash modes of payment in different end-user markets?
e. Which elements constitute the non-cash segments of the company's markets?
f. How much is known about the demographic profile (age, socio-economic category, geographic location) of non-cash users?

6. INTERNET AND MOBILE PENETRATION

a. What are the penetration levels of internet, mobile telephony and smartphones in the company's key markets?
b. What is the per-capita usage of internet in terms of duration of use and amount of data in these markets?
c. How do the cost of internet access, mobile telephony and smartphones compare with the per capita income levels?

7. COMPETITION AND MARKET CONCENTRATION

a. How large is the company's customer base? How is it spread across regions and countries?
b. How many payment-service providers operate in the company's markets?
c. What is the share of top-three players in terms of number of users, transaction volumes and value?
d. How many of the company's customers also use competing services?
e. How many different services does a customer typically use?
f. When looking at all available options, what attracts customers to the company's services?

8. WHAT IS THE LEVEL OF COMPETITION AND MARKET CONCENTRATION CONCERNING MERCHANTS AND BILLERS?

a. How many merchants and billers accept the company's payment service?
b. What is the share of top-three payment providers in terms of number of merchants and billers, transaction volumes and value?
c. How many of the company's merchants also use competing services?
d. How many different services does a merchant typically use?
e. What makes a merchant choose the company's services from the available options?

9. HOW COMPATIBLE ARE THE COMPANY'S OFFERINGS COMPARED WITH EXISTING SYSTEMS?

a. What are the different payment methods currently in use in the company's key markets?
b. In these markets, which are the primary payment networks (like SWIFT) and intermediaries (like VISA, Mastercard)?
c. Is the company's payment platform linked to or interoperable with major payment networks and intermediaries?

10. WHAT ARE THE BARRIERS OF ENTRY TO NEW PLAYERS? WHAT ARE THE LICENSING REQUIREMENTS AND ASSOCIATED COSTS?

a. Which licenses and approvals are required in the countries where the company operates?
b. What are the criteria that need to be satisfied to obtain the required licenses and approvals?
c. What is the cost and time involved?
d. Are there any caps on the number of licenses issued for payment services?
e. Are the licenses and approvals exclusive? Are they transferable?
f. Are the company's licenses renewed periodically? Will the company experience any difficulties when applying for a renewal?
g. How strongly does the network effect favour incumbents and act as a robust barrier for new entrants?

11. HOW MUCH INVESTMENT IS REQUIRED TO SET UP AND MAINTAIN THE PAYMENTS INFRASTRUCTURE?

a. Does the company own the infrastructure required to support its payment system? If not, who provides it and what is the cost structure?
b. How much does it cost to set up and maintain infrastructures, such as servers, communication networks, software and security systems?
c. What is the company's transaction handling capacity currently? How does it plan to increase this?
d. Has the company experienced disruptions to its service due to higher transaction volumes than its systems can handle? How does it plan to minimize these disruptions in future?
e. What is the company's capex plan for technology and operations for the next few years?

12. HOW DOES THE COMPANY'S SERVICE COMPARE WITH THAT OF ITS COMPETITORS?

a. What is the company's sign-up process for customers and merchants?
b. How much time and cost is involved?
c. Does the company offer any sign-up incentives for customers and merchants?
d. What Know Your Customer norms need to be fulfilled by the company's customers and merchants?

13. HOW 'STICKY' ARE THE COMPANY'S CUSTOMERS?

a. How many of the company's users continued to use its services after the initial sign up?
b. What is the customer retention rate after milestone timelines, such as a month, quarter, and year?
c. How does the company's per-user transaction volume and value look after these milestones?
d. What is the company's strategy to improve customer retention and stickiness?

14. WHAT PROPORTION OF THE COMPANY'S USER BASE IS INACTIVE?

a. How long does it take for a typical user to become inactive?
b. Why do customers stop using the company's services?
c. Does the company have a strategy to resurrect inactive users?

15. WHAT RESTRICTIONS DOES THE COMPANY PLACE ON TRANSACTION FREQUENCY OR SIZE?

a. Are these restrictions determined by the company or are they mandated by the regulator?
b. How are these restrictions determined?
c. What are the regulations governing cross-border payments?
d. How much transaction volumes and value are lost as a result of these restrictions and regulations?

16. HOW HAS THE COMPANY PERFORMED ON OPERATIONAL MEASURES? HOW DOES THIS COMPARE WITH ITS PEERS?

a. What has been the growth rate in the company's customer numbers?
b. What has been the growth rate in the company's merchant and biller base?
c. How have typical usage frequency, transaction volume, aggregate and per transaction value evolved?
d. What are the growth rates of the company's gross transaction value (GTV) and gross merchandise value (GMV)?
e. What type of products and services does the company offer to its merchants and billers?

17. WHAT ARE THE VARIOUS COMPONENTS OF THE COMPANY'S REVENUE?

a. Does the company charge customers for using its services? If so, what is the fee structure?
b. How much does the company charge merchants? What are the fixed and variable components?
c. What are the initial set-up costs?
d. Is there a monthly fixed cost to the merchant in addition to the transaction fees?
e. What is the structure of the company's transaction fee in terms of fixed and variable components?
f. How does the company design the cost structure for its customers and merchants?

18. HOW SUCCESSFUL HAS THE COMPANY BEEN IN MONETISING ITS USER BASE?

a. How does the company's customer/merchant share compare with its share of transaction volumes and value?
b. How does any expansion in user numbers and transactions compare with the company's revenue growth?
c. What are the company's EBITDA margins?
d. What is the correlation between GTV/GMV and EBITDA margins?
e. How well does the company maintain its margins as GTV/GMV grows?
f. What drives the company's margins: more customers, more merchants, more transactions, more frequent transactions or larger size of transactions?
g. How has the company designed its fee structure?
h. How has the company utilised data analytics to improve customer experience, monetization and fraud prevention?

19. PROMOTIONS AND LOYALTY PROGRAMS

a. Does the company run promotions and loyalty programs for its customers?
b. How useful are these programs in retaining customers, increasing their engagement levels and expanding transaction volumes and values?
c. How sustainable are these programs?
d. How useful are these programs in improving customer stickiness in the long term?
e. How does the company prevent abuse of these loyalty programs?

20. VALUE-ADDED AND DIFFERENTIATED SERVICES

a. What value-added and differentiated services does the company provide to its customers and merchants?
b. How commonly and how frequently are these used?
c. What is the cost involved in providing these services?
d. How much additional usage and revenues do they bring in?

21. DATA AND PRIVACY OF CUSTOMERS AND MERCHANTS

a. Does the company store data points about its customers, merchants and transactions?
b. Have there been instances of loss, theft of data or attempts to sabotage or breach of the company's systems?
c. What measures does the company take to prevent, detect and avoid cyber sabotage?
d. How does the company deal with payments that are disputed by the customer?
e. How does the company prevent, detect and manage fraudulent transactions?

TRADITIONAL RETAIL AND ITS SUB-SECTORS

ARE YOU BEING SERVED? UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF TRADITIONAL RETAIL

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

In 107 AD, Emperor Trajan had an idea that would not only improve the life of Rome's citizens but eventually transform the way we spend our money today. What the city needed, he decided, was a shopping mall.

And that's exactly what he got. Three years later, Trajan's Market, featuring more than 150 stores and offices spread over several levels, opened to the public and, it could be argued, modern retailing was born.

Indeed, using ancient Rome as an example helps us realize that traditional retail is probably the most fundamental of the sector fundamentals we will study. After all, we all need to shop, most of us are quite good at it, and, as you can see, humans have been doing it for rather a long time.

NEVER KNOWINGLY UNDERSOLD

Of course, the sector is wider ranging in scope than just megamalls. Traditional retail begins with the convenience stores located on the ground floor of your apartment block and encompasses everything in between. So, before we get down to the business end of this discussion, let's take a high-level look at the sector.

Traditional retail shares many similarities with the food-andbeverages industry — location is crucial because it drives traffic flow and therefore revenue turnover. Emperor Trajan knew this, and that is why he built his mall a slingshot away from the Colosseum.

Another crucial factor underpinning this business model is operational efficiency. How shopkeepers undertake product sourcing and organize their stores, as well as a host of valuechain- related engagements, eventually add up to the dollars and cents on the expenses category of their profit-and-loss statement.

Managing operational costs is definitely an important aspect, but it should never be achieved by compromising the shopping experience. We have all been in a store where it's impossible to find a sales assistant or where the lighting is so dim we can barely read the product labels. This may save staff and power costs, but it doesn't improve our mood.

EVERY LITTLE BIT HELPS

Retail is a scale business — the bigger the operation, the lower the cost per square foot of retail space. As noted, operators have relatively mature operational procedures given the centuries of experience on which they draw. This is reflected in the depth, breadth, and accuracy of their merchandise and how it is displayed. Consider the placement of fruit and vegetables at the beginning of your supermarket journey — its looks fresh, colorful, and inviting. Retailers have become good at promotional pricing strategies: $9.99 is more appealing than $10. Buy one, get one free may give us a thrill, but do we really need two of the same item, especially if the additional product just adds to the general clutter at home?

Store operators know that after a long day at work, consumers may not be in the mood to test their hunter-gatherer instincts any further by traipsing around a busy shop; hence, the rise of value-added services, such as door-to-door delivery. This point leads us to the future — this industry is not being spared from the impact of technological advancement. The internet has become a massive shopping mall that we can explore from our living rooms.

I LIKED IT SO MUCH I BOUGHT THE COMPANY

A logical framework of analysis commences with an understanding of the nature of a company's offerings. Examine the extent of nondiscretionary demand — in other words, does the firm sell essential items, nice-to-have products, or a mix of the two? This will alert you to the company's sensitivity to changes in the economic climate. Simultaneously, explore the elasticity of its products and services and determine whether a change in unit price will affect customer demand. This may be more applicable to food retailing, in which numerous firms are selling the same item. Establish which of the company's product categories are more sensitive to price changes. It is worth understanding whether the company is purely into thirdparty retailing or maintains its own labels, as the latter tends to offer higher margins if value has been established.

It makes sense to find out whether the company fully understands its customer base. Does it undertake segmentation to classify different spending groups? If so, which dimensions does it use and does it have specific product lines, brands, or strategies that target these segments?

To build a more in-depth knowledge of the company, consider the bigger picture and look at the longer-term demographic, macroeconomic, and geographic factors that affect its operations. Are its stores in city-center locations, but the population is moving elsewhere? This occurred in the United States, with downtown districts becoming ghost towns, while the suburbs boomed. Does the company face tough competition — for example, how easy is it for new players to emerge and compete, and are there any barriers to entry?

IT DOES EXACTLY WHAT IT SAYS IT DOES

It is sensible to delve into the company's books with a study of its operational efficiency. Lines of enquiry to follow include a review of how it has performed organically and on a like-for-like basis. Can the business provide a detailed breakdown of its sales performance?

Appraise the cost structure of the firm's products and services. What are the key elements that drive cost and how does it manage each aspect? Importantly, survey its cash position and the way in which it is controlled.

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE FACTORS

The study of environmental, social, and governance (ESG) factors goes hand in hand with operational efficiency. The retail sector stands out as being more exposed to ESG risks than other areas of the market. Among the many avenues of inquiry, we suggest concentrating on people and process. Has the company implemented policies that protect workers' rights? Many jobs in retail are low paid, and firms rely heavily on cheap goods manufactured in the developing world. From a process perspective, how much money does the company spend to ensure that its packaging is recyclable and viably sourced?

THE FUTURE IS BRIGHT

Following that examination, analyze the future growth potential of the business. This screening should occur in two steps: First, look at the company's principal store formats. Are these department stores, hypermarkets, discount warehouses, or convenience outlets? If it has a mix of formats, does the company have a strategy to manage this? Second, probe space expansion and store openings, which can be a double-edged sword. It helps to have some knowledge of how much the firm's plans will cost financially and how they will affect brand appeal. A quick expansion can go horribly wrong — doughnut seller Krispy Kreme suddenly appeared everywhere, but its profits, unfortunately, failed to maintain the pace of its growth.

VORSPRUNG DURCH TECHNIK

Retailing and the internet were made for each other — shopping pleasure combined with sofa-based convenience, particularly on a rainy Sunday in January. No study of the sector would be complete without touching on the effectiveness of a company's online presence. Moreover, if a company lacks one, what threats does it face? Businesses that sell nonessential items are at risk, because people won't go out of their way to find a store if they can source the product online. The proof of this is reflected in Amazon's profits.

The other side of the technology coin pertains to distribution, and how quickly a retailer can get its products to market. Investigate how much money a company is spending (or has spent) on ensuring that its operations run efficiently.

As always, these guidelines are designed to provide a short but solid foundation to kick-start any future analysis. As we end, let's raise a glass to Emperor Trajan . . . because you're worth it!


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A step-by-step guide to analyzing traditional retail and its sub-sectors
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Fair treatment of suppliers

COMMON TO THE SECTOR

1. HOW ELASTIC ARE THE COMPANY'S PRODUCTS AND SERVICES?

a. Does a change in unit price impact customer demand for the company's products?
b. Do price decreases and increases have the same elasticity? Does it vary across price levels?
c. Which of the company's product categories are more sensitive to price changes?
d. When prices change, how does the company manage its purchases? How much of price impact is passed on to its customers?
e. What price investment strategy does the company follow in the sector? How competitive or different is this from other firms?

2. WHAT IS THE EXTENT OF NON-DISCRETIONARY DEMAND FOR THE COMPANY'S PRODUCTS AND SERVICES?

a. What is the company's product profile?
b. What proportion of the company's product range is categorized as enjoying non-discretionary demand?
c. For those products where demand is discretionary, which factors drive consumption?
d. How does the company forecast demand for its products?
e. Does the company observe seasonality in demand or supply across the products it manages? If so, which products are these and what is the company's strategy when managing them?

3. WHAT ARE THE LONG-TERM DEMOGRAPHIC, MACROECONOMIC AND GEOGRAPHIC FACTORS IMPACTING DEMAND?

a. What is the average person's age in the company's key markets? Is this expected to change?
b. How significant a role does consumption play in the company's key markets? Is there space for structural growth in these economies?
c. How urbanized are the company's key markets?
d. Is the company flexible enough to quickly leverage or exploit changes in customer trends?

4. DOES THE COMPANY UNDERTAKE SEGMENTATION OF ITS CUSTOMER BASE? IF SO, WHAT DIMENSIONS DOES IT USE?

a. Under which segments does the company classify its customer base?
b. Are there significant differences in spending behavior across these categories? How does the company track these?
c. Does the company have specific product lines/ brands/strategies that target the different segments?

5. HOW EASY IS IT FOR NEW PLAYERS TO ENTER AND COMPETE? WHAT ARE THE ENTRY BARRIERS?

6. HOW HAS THE COMPANY PERFORMED IN TERMS OF CONSTANT CURRENCY GROWTH AND ORGANIC VOLUME GROWTH RATES?

a. Does the company provide a detailed breakdown of its sales performance in terms of volume and price? Similarly, can it produce growth by same-store sales, net additions, inorganic growth and FX impact?
b. What are the key qualitative factors driving these numbers?

7. WHAT IS THE COST STRUCTURE OF THE COMPANY'S PRODUCTS AND SERVICES?

a. What are the key elements that drive the company's cost profile? How does it manage each cost aspect?
b. What are the company's gross, operating and net margins?
c. How has this trend evolved over the past few years and how does the company see it developing in the coming years?
d. How is the company placed in terms of profitability and cash position against its competitors?

8. HOW IS THE COMPANY'S CASH POSITION MANAGED?

a. What is the company's inventory and working capital management strategy? How successful has it been in implementing this and what have been the key challenges? How does it plan to address future challenges?
b. What is the company's average debtor turnover, creditor turnover and inventory turnover days? Combining these, what is the average cash-conversion cycle, in terms of days?
c. What is the company's free cash flow level as a percentage of sales? How has this trend evolved over the years?
d. How do the company's turnover and cash flow trends compare to its competition?

9. SPACE EXPANSION AND STORE OPENING – WHAT ARE THE ASSOCIATED EXPENSES?

a. What is the company's strategy for managing space through the addition and removal of stores?
b. How many stores have been added and how many closed in the last few years? What were the reasons for this?
c. How do sales from new stores compare with sales from existing stores?
d. If new stores typically contribute more, how long does this usually last? If they contribute less, how long it takes for them to catch up with the older stores?

10. WHAT ARE THE COMPANY'S LEADING STORE FORMATS – DEPARTMENT STORES, HYPERMARKETS, DISCOUNT STORES OR CONVENIENCE STORES? IF IT IS A MIX OF FORMATS, DOES THE COMPANY HAVE A STRATEGY TO MANAGE THIS?

a. What is the revenue mix from different store formats and how is this evolving?
b. How does the company differentiate between store formats and tackle cannibalization among them?
c. Do profitability and margin trends differ among store formats?
d. Has the company identified any preference among its customers for a store format?
e. Does the company have a long-term management plan for its store format mix?
f. What percentage of sales comes from online channels and how does the company see this evolving?
g. Do per-unit economics differ between the online channels and the brick-and-mortar channels?
h. What are the company's average delivery and technology costs for its online channels? Does it have a strategy to reduce these?
i. Which store formats are most likely to be affected by a rise in online sales? Does the company have a strategy to manage this change?
j. Does the company have pick-up points or pick-at store options that work in tandem with its online channels? Will these impact its costs and margins?

11. DEMOGRAPHICS AND URBANIZATION LEVELS IN THE COMPANY'S KEY MARKETS – HOW IS THE COMPANY PLACED TO MANAGE CHANGES AND CHALLENGES?

a. Where are most of the company's stores located – cities or suburbs? Are these stores concentrated in a specific region or state?
b. Does the company profile its customers by age group and position its products accordingly?
c. Which categories and age groups offer the most potential for future growth?
d. Are the company's capex and expansion plans aligned with urbanization rates of the markets in which it operates?

12. DOES THE COMPANY HAVE A SALES STRATEGY FOR PRIVATE LABEL AND SPECIALISED PRODUCTS, SUCH AS ORGANIC AND FRESH FOODS?

a. What percentage of the company's sales comes from private label and specialized products?
b. What are the company's medium and long-term revenue targets for these categories? How does it expect to achieve these?
c. What are the company's price investment and marketing strategies for these products?
d. What is the margin attractiveness in private label and specialized products?
e. Is the growth in private label products affecting the company's relationships with its existing vendors? How does it manage these relationships?

13. WHAT IS THE IMPACT OF CHANNEL CHURN ON THE RETAIL SECTOR? HOW IS THE COMPANY MANAGING THIS?

a. How is the company adapting its business from multi-channel retailing to omnichannel retailing?
b. How does the company enable seamless connectivity for its customers among the different channels?
c. Does the 'pick-up at store' strategy help in reducing churn rate?

14. HOW MUCH CUSTOMER AND SHOPPING-PREFERENCE DATA DOES THE COMPANY CAPTURE?

a. How does the company analyze the data it captures?
b. How does the company categorize different customers? Does it develop individual marketing strategies for each customer group?
c. What is the company's definition of a 'loyal customer'? How does it nurture loyalty?
d. Which strategies are employed to retain loyal customers?
e. Does the company have loyalty programs? Is so, how do these improve sales efficiency?
f. What percentage of the company's total sales comes from loyal customers?

15. WHAT ARE THE COMMON ECONOMIES AND DISECONOMIES OF SCALE IN THE COMPANY'S BUSINESS MODEL?

a. How do economies of scale operate between different store formats and customer categories?
b. Being a general retailer, how does the company attract customers who are focused on specialised products?
c. What is the company's broad marketing philosophy? How is it tailored to different customer and product segments?

16. HOW WELL DOES THE COMPANY MANAGE ITS COSTS?

a. How does the company manage currency risk for imported products and ingredients?
b. How often does the company renegotiate its contracts with partners and vendors?
c. How does the company manage operating costs and wage increases, including pensions?

17. WHAT IS THE IMPACT OF TECHNOLOGY ON SALES, DISTRIBUTION AND OTHER FUNCTIONS? HOW IS THE COMPANY MANAGING THIS?

a. Which technologies are deployed across the company's various functions?
b. How does the company measure the benefits of technological change? What have been the outcomes?
c. How robust is technology that runs the company's online channel?
d. How much does the company plan to invest in technology over the coming years?

SHIPBUILDING AND OFFSHORE MARINE

THE SHIPPING FORECAST — UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF THE SHIPYARD BUSINESS

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

A PERFECT STORM

The shipbuilding and offshore marine industry specializes in the manufacture and maintenance of oceangoing vessels, which includes everything from cargo ships, tankers, and oilrigs to passenger liners. In recent years, however, the industry has faced significant headwinds, with overcapacity at the shipyards in mainland China, escalating trade wars, and oil-price weakness combining to ensure that this sector is at the center of a perfect storm.

Given its labor-intensive characteristics, companies often tussle with trade unions and local regulations. From a capital expenditure perspective, the industry requires significant outlay to operate expensive docking facilities and invest in highly customized tools and equipment.

ECONOMIC ICEBERG, RIGHT AHEAD!

Many shipyards were wrong-footed by the most recent slowdown in global demand, which was partly driven by softness in the Chinese economy. The impact was most keenly felt at lower-end shipyards, which are vulnerable to changes in volume and tighter price competition.

Higher-end shipyards that manufacture specialized equipment, such as semisubmersible oilrigs, were not spared either. When oil prices crashed below US$50, a large number of orders were dishonored, with clients forfeiting deposits of up to 20% (which often amounted to millions of dollars).

OVER THE HORIZON

On a positive note, shipping remains the top choice for global cargo transportation, accounting for more than 90% of all trade. In fact, the mammoth container ships still carry 70% of the world's goods, including bikes and shoes.

THE VIEW FROM THE BRIDGE

How, then, should we analyze the shipbuilding and offshore marine industry?

As always, begin by establishing which products and services the company you are researching provides. This could include ship construction, maintenance, repair, or renovation. Also look at the types of vessels it focuses on, such as cargo ships and cruise liners or special-purpose vehicles, including ice-cutters and tugs. Armed with this information, explore how much revenue your company derives from each of these services, pinpointing its key customer segments.

With solid knowledge of the company's structure, examine how changes in the economic climate will affect revenue from each element of its operations. Look ahead and study the long-term factors that will influence growth. How will these evolve? Examples include the rise of emerging economies, such as China and India, as well as the changing profile of the energy market.

SELF-ASSEMBLY

Another force in play might not be immediately obvious — that is, the effect of disruptive technologies, such as smart manufacturing and three-dimensional printing, on the industry. The ability to produce parts near to the source of demand will help shipyards reduce costs. From a spares-and-repairs perspective, however, this new technology may be a doubleedged sword, as ship operators could bypass shipyards altogether and generate the parts they need while at sea. It is worth ascertaining whether the company has a position in one or both scenarios.

LABOR PAINS?

That said, it doesn't matter where a shipyard is located if you can't source and retain a skilled workforce. This point should prompt you to analyze the strength and depth of the current labor force and enquire about local institutions that specialize in marine engineering, shipbuilding, and naval engineering. Find out, too, whether risks are associated with trade unions. Is there a history of industrial action by the workforce?

ROLLING IN THE DEEP

We must mention that oil-and-gas exploration is progressively moving to the deep sea. Learn about the company's presence, capabilities, and strategy in this segment. Simultaneously, the demand for offshore wind power likely will rise. Does the business intend to expand into the production of windmills?

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE FACTORS

The days of throwing what we don't need into the sea are hopefully numbered. With this in mind, has the company invested in solutions to reduce various discharges like ballast water, gray-and-black water, and bilge from the vessels it builds? Another valuable enquiry is to check whether the firm participates in industry forums, such as the Sustainable Shipping Initiative, the Clean Cargo Working Group, and Green Ship of the Future.

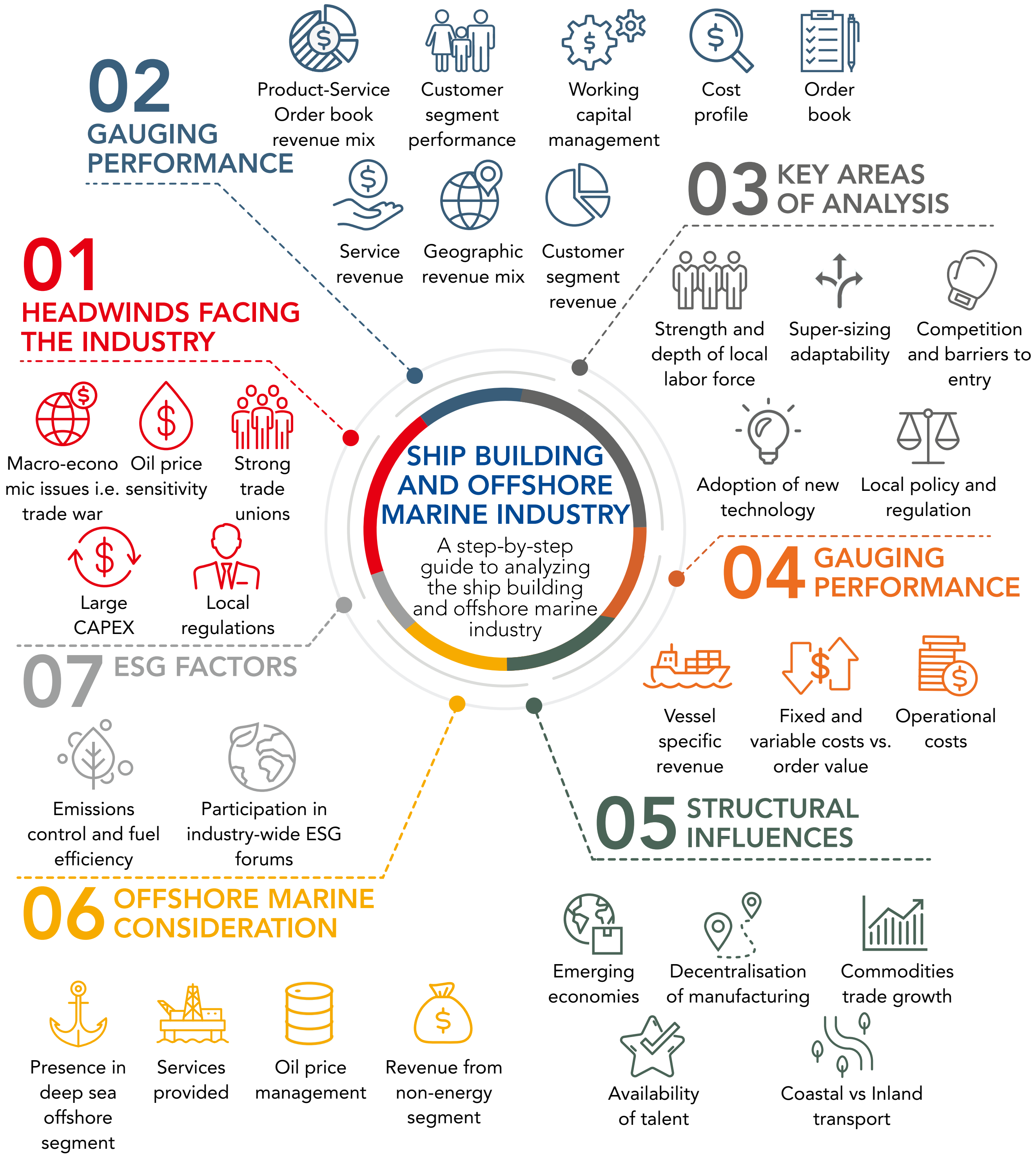
THE CAPTAIN'S LOG

It's time to visit the company's engine room by looking at its books. Start your enquiries by establishing how the firm has performed on operational measures. What has been its growth in terms of order-book size, services provided, customer type, and complexity of the vessels being built or repaired? How do these compare with those of its peers? Next, take stock of the various factors that affect costs. Examples include components, supplies, and equipment. How do these affect demand? Finally, turn to financial measures and, among other things, investigate the company's working-capital requirements as a proportion of order value. How are these funded?

HAPPY SAILING

This framework has taken you on a short cruise around the shipbuilding and offshore marine industry. Hopefully, it acts as a solid base for a longer journey across the sector.

Bon voyage!


SHIP BUILDING AND OFFSHORE MARINE INDUSTRY
A step-by-step guide to analyzing the ship building and offshore marine industry
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Oil price management
Revenue from non-energy segment
07 ESG FACTORS
Emissions control and fuel efficiency
Participation in industry-wide ESG forums

COMMON TO THE SECTOR

1. WHAT ARE THE PRODUCTS AND SERVICES PROVIDED BY THE COMPANY?

a. What are the services provided by the company - ship building, maintenance, repair, renovation or any other services?

b. Which customer segments does the company cater to: transportation (passenger, cargo), military, cruise lines or any other defined segment group?

c. What are the types of ships built or repaired: barges, cargo ships, passenger ships, cruise liners, oil and gas rigs, military vessels and special purpose ships (like dredgers, search and rescue rigs, tugs, ice cutters, pollution fighting rigs and research vessels)?

d. What are the types of cargo ships built or repaired by the company: bulk carriers, general cargo ships, oil tankers, crude carriers, container carriers?

2. WHAT IS THE GAP BETWEEN TRADE VOLUME AND FLEET CAPACITY IN THE KEY MARKETS, SEGMENTS AND CARGO TYPES SERVED BY THE SHIPS THAT THE COMPANY BUILDS OR REPAIRS?

a. How sensitive is demand for shipping capacity to the trends in trade deficit/surplus and overall demand and supply of goods in regions, segments and cargo types to which the company caters to?

3. WHAT ARE THE COMPANY'S DIFFERENT REVENUE STREAMS?

a. What is the mix of revenues by type of service provided: ship building, renovation, repair, maintenance and other services?

b. How much revenue is derived from key customer segments: transportation (passenger, cargo), military, cruise lines and other

c. What is the mix of revenues by size (by capacity) and complexity (general purpose vs. specialised) of vessels built or repaired?

d. What is the geographical mix of revenues?

4. WHAT ARE THE LONG-TERM FACTORS THAT INFLUENCES COMPANY GROWTH? HOW ARE THESE EXPECTED TO EVOLVE?

a. What are the implications of commodity-driven trade growth from the rise of emerging economies such as China and India to demand for shipping capacity in the long term?

b. What does the shifting of manufacturing locations on the basis of cost of production, availability of talent or technology portend to the demand for shipping capacity?

c. Are production and consumption likely to get geographically closer or farther, on average? How different is this likely to be for different goods? What are the implications for demand for shipping capacity?

d. What are the trends in traffic through coastal shipping and inland water transport and consequent demand for capacity?

5. IS MANUFACTURING EXPECTED TO BECOME MORE DECENTRALISED IN THE BACKDROP OF EMERGING TECHNOLOGIES SUCH AS SMART MANUFACTURING AND 3D PRINTING?

a. What are the likely implications for demand for shipping capacity?

b. What are the areas likely to be disrupted by technology- driven innovations? How does the company intend to leverage these opportunities and address threats?

6. HOW IS SUPER-SIZING—THE TREND OF THE AVERAGE SIZE AND CAPACITY OF SHIPS INCREASING—VIEWED BY THE COMPANY?

a. What are the likely implications of the conversion of single hull tankers to double hull tankers?

b. How flexible are the company's facilities and equipment to adapt to build and repair larger ships and double hull tankers?

c. How is the average service life of ships evolving and what are the implications for fleet replacement cycles?

d. How does the scenario look for the company, in the backdrop of specific segments where it has significant presence?

7. WHAT ARE THE LIKELY IMPLICATIONS FROM THE EVOLVING PROFILE OF THE ENERGY MARKET?

a. How much of the demand for crude tanker capacity is likely to be lost to long-distance pipelines in the medium to long term?

b. What is the likely impact on demand for bulk and crude carrier capacity due to shifts away from coal and crude oil towards natural gas and renewables?

c. What are the implications of these trends for the ship building and offshore marine industry? How are the consequences likely to be managed?

8. WHAT IS THE COMPANY'S OUTLOOK ON THE LINK BETWEEN TRADE THROUGH THE HIGH SEAS AND WORLD ECONOMIC ACTIVITY?

a. Is the link between economic growth and trade expected to strengthen or weaken, in the backdrop of trends such as rebasing and decentralisation of manufacturing, shift from fossil fuels to renewables and shift from ownership to sharing economy?

b. Is the share of sea transport in world trade likely to increase or decrease?

c. What are the implications to demand for shipping capacity? How are these challenges likely to be met?

9. WHAT IS THE LEVEL OF MARKET CONCENTRATION AND ENTRY BARRIERS?

a. What are the Top 5 regions/countries accounting for the highest share of orders?
b. What is the extent of market concentration? What is the market share of the Top 5/Top 10 players in the industry?
c. What are the major barriers and capital requirements for new players to enter the industry?
d. How important is the availability of fiscal and policy support for the entry of new players in the industry?
e. What is the state of the industry from the perspective of consolidation of ship yards? What is the company's strategy?

10. HOW DOES THE LOCATION OF YARDS INFLUENCE THE BUSINESS?

a. What are the inherent economic (like skilled and competitively priced labour and cheaper power) or other advantages (like access to deep water port, coastline or relevant type of waterfront and presence of a strong shipping tradition) available in locations where the company has yards?
b. How mature and developed is the ecosystem of ancillaries—steel mills, engine builders, component makers (like propellers, boilers, seawater treatment plants and navigation equipment), engineering and design bureaus —around the company's yards? What is the proportion of inputs sourced from the local ecosystem?
c. How easy and economical is the availability of suitable land parcels for locating the yards and plants?
d. Is adequate power supply available at competitive prices where the company's yards are located?
e. Are the company's repair facilities located on key maritime trade routes?

11. WHAT ARE THE OBSERVED TRENDS IN THE LOCATION OF SHIP- BUILDING BASES?

a. Has there been an industry-wide shift in the location of ship-building bases? What are the emerging locations?
b. What are the factors causing these shifts – like capacity constraints in mature locations, lower costs in emerging locations, shifting demand profile, evolving policy environment, government incentives and tariff and non- tariff barriers?
c. How does the location profile of the company's facilities compare against these industry trends? What is the company's strategy in this aspect?

12. HOW DOES THE POLICY ENVIRONMENT AFFECT THE INDUSTRY IN LOCATIONS WHERE THE COMPANY OPERATES?

a. What are the subsidies, incentives and other supportive measures available in areas where the company operates?
b. What are the import quotas and export controls in existence? Are there restrictions in selling to the domestic market?
c. Are there any existing or proposed import taxes, levies or tariffs for components, equipment and supplies in countries where the company's yards are located?
d. What are the existing or proposed import tariffs or non- tariff barriers in countries which are export markets for the company?
e. Are there cabotage restrictions in markets the company operates?

13. WHAT ARE THE CHALLENGES IN SOURCING AND RETAINING A SKILLED WORK FORCE?

a. How does the labour market look, on cost and availability of skilled labour, in areas where the company operates?
b. Are there mature and established institutions for training, design, research and development in the areas of marine engineering, ship building and naval engineering?
c. What are the risks associated with trade unions? What is the minimum wage criteria and what are the implications to costs?
d. Has there been any history of industrial action by the work force? How does the company manage such situations?
e. What is the mix of permanent employees vs. contractual workers? How is the churn rate and lower employer loyalty arising from higher use of contract personnel managed?
f. What are the challenges posed by regulations on employing non-local work force?
g. What is the perception of the foreign workforce among local population and workforce?

14. HOW HAS THE PERFORMANCE BEEN ON OPERATIONAL MEASURES? HOW DO THESE COMPARE WITH THOSE OF PEERS AND HOW ARE THESE EXPECTED TO EVOLVE?

a. What has been the growth in terms of the size of the order book, new orders and deliveries, by service provided, customer segment and the type, size and complexity of vessels built or repaired?
b. What are the costs as a percentage of revenue? What are the various components?
c. What is the nominal and productivity-adjusted labour cost as a percentage of total? How is this evolving?

15. WHAT ARE THE VARIOUS FACTORS IMPACTING COSTS? HOW DO THESE AFFECT DEMAND?

a. What are the major input costs governing the company's operations?
b. What is the share of input costs (components, supplies and equipment) from imports? What is the sensitivity of these costs to fluctuations in exchange rates?
c. How does the location of ship yards affect transportation costs for components, supplies and equipment? How does this in turn affect the choice of suppliers?

16. HOW HAS THE PERFORMANCE BEEN ON FINANCIAL MEASURES? HOW DO THESE COMPARE WITH THOSE OF PEERS AND HOW ARE THESE EXPECTED TO EVOLVE?

a. What are the working capital requirements as a proportion of order value? How is this funded?
b. What is the company's gearing level and how does it compare with its peers?
c. Is the company able to raise funds at competitive rates? How does the company stand in terms of interest cover? What is the sensitivity of interest expenses and interest cover to changes in interest rates?
d. What are the commitments pertaining to bank guarantees the company is required to provide to counterparties? What is the cost involved?
e. What are the gross, operating and net margins? How does it compare in relation to its peers?
f. What is the sensitivity of revenue, costs and profitability to changes in currency exchange rates?

OFFSHORE MARINE

17. WHAT ARE THE PRODUCTS AND SERVICES PROVIDED TO THE OFFSHORE MARINE INDUSTRY?

a. What are the various services provided to the offshore marine industry?
b. What is the mix of order book, new orders, deliveries and revenues by different product and service offerings?
c. How sensitive to changes in oil prices is the demand for these products and services?
d. What is the company's strategy to manage volatility arising from changes in oil prices?
e. What is the proportion of revenues from the non-energy segment (like offshore wind-mills and port-support vessels)?

18. HOW MUCH PRESENCE DOES THE COMPANY HAVE IN THE DEEP SEA OFFSHORE SEGMENT?

a. What proportion of the company's products and services cater to the deep-sea vs nearshore/offshore marine segment?
b. In the backdrop of oil and gas exploration progressively moving deep sea, what is the company's presence, capabilities and strategy for the segment?
c. Does the company intend to leverage the likely surge in demand for offshore wind-mills?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE

19. WHAT ARE THE DETAILS OF THE COMPANY'S ESG PRINCIPLES, PRACTICE AND TRACK RECORD?

a. What is the company's strategy, practices and track record in reducing the energy intensity, water intensity, emissions intensity, material consumption, waste generation and overall environmental and ecological footprint during ship building, repair and maintenance operations?
b. How much recycled, eco-friendly and locally sourced material are used during shipbuilding?
c. How does energy consumption, emission, water use and waste generation intensity of the ships and other vessels developed by the company, during their normal functioning, compare with industry benchmarks? What are the initiatives taken to reduce these?
d. Does the company invest in developing solutions to reduce, or make less hazardous, various discharges like ballast water, grey and black water and bilge water from the vessels it builds?
e. What are the measures such as anti-fouling systems implemented to eliminate or minimise transfer of invasive aquatic species through the vessels built by the company?
f. Are systems and mechanisms implemented to reduce, reuse and recycle water used during normal functioning of the vessels?
g. How has been the company's track record regarding the safety and fair treatment of workers employed in its facilities? What is the total number of fatalities, days lost and injuries in relation to total number of personnel employed?
h. What is the proportion of total work sub-contracted or outsourced?
i. What is the proportion of the local population in the workforce?
j. How much is the typical spend on maintenance and safety at the company's facilities?
k. Does the company participate in industry fora such as The Sustainable Shipping Initiative (SSI), The Clean Cargo Working Group (CCWG) and Green Ship of the Future?

SEMICONDUCTORS

UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF THE SEMICONDUCTOR SECTOR

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA; and Guruprasad Jambunathan, CFA, FRM

One sure-fire way to kill any technology-related conversation is to talk about vacuum tubes. Bear with us though, because they're incredibly important. Before there were semiconductors in our electronic gadgets, we used vacuum tubes. Both vacuum tubes and semiconductors carried out the same function, but the vacuum tube was a monster that required immense physical space and energy. And at its height, the vacuum tube technology was employed in the ENIAC, the world's first digital computer, built in 1946. It weighed over 30 tons, consumed 200 kilowatts of electricity, but was somewhat unreliable.

Semiconductors changed all that. The chip that powers your mobile phone and computer is made possible with semiconductors, which are minute and consume significantly less power compared to vacuum tubes. Without these ingenious semiconductors, there would be no internet, no tech giants, no international space stations, and definitely no Facebook. Simply put, they allowed us to progress into the information age.

Today semiconductors continue to drive our digital economy; our increasingly technology-reliant society needs even more circuits, chips, and microchips. Semiconductors are also the foundation of the "Industrial Revolution 4.0" as necessary components of the growing number of smart production facilities connected with the Internet of Things (IoT).

In this investment framework, we will first take you on an exploratory journey through the global semiconductor industry landscape, now worth almost US$500 billion in annual sales. Thereafter, we will proceed to give you an analytical framework to assess investment opportunities in this sector.

A COMPLEX GLOBAL ECOSYSTEM

In a nutshell, the semiconductor value chain comprises six stages, beginning with research and development, followed by design, manufacturing, assembly, testing and packing, and finally, distribution. This is a complex value chain spanning different continents; in fact, a global R&D cum supply chain ecosystem is how the industry is organised, as it is impossible for one country to try to house all six stages in a single location and excel at every stage.

On the demand side, consumers unceasingly insist on more features, greater reliability, and higher speed. This has resulted in higher R&D expenditure (R&D on average consumes about 15% to 20% of revenue) in a bid to improve on current models.

On the supply side, fierce competition dictates that the eventual manufacturing, testing, assembling, and packaging must be of sufficient scale to enjoy low unit cost.

Satisfying both criteria requires completely different sets of logistical infrastructures, not to mention human resources and working environments. And this is why chip designers such as Intel, AMD, and ARM are in the US Silicon Valley, whereas manufacturers and assembly lines like Foxconn and Flextronics are in China. The industry has optimised production through a globally interdependent ecosystem that pools up the best each country or economy can offer. However, this arrangement may change in the future following the US ban on China's technology champion, Huawei. Chinese companies will definitely attempt to develop their own chips and machines that manufacture these chips, including chip designing capabilities.

A SHIFTING LANDSCAPE

In addition to being complex and in production in multiple continents, the industry is also far from static. Currently, integrated device manufacturers (IDM) such as Intel, Micron, and Samsung continue to dominate the landscape. However, fabless foundries (which focus exclusively on design while outsourcing fabrication) such as AMD, Qualcomm, and Broadcom are slowly but surely evolving into a force to be reckoned with. This shift is inevitable as products become ever more sophisticated, increasing the need for further specialisation.

FUNDAMENTALS AMONG INCREASING COMPLEXITY

The reach, complexity, and ever-changing landscape of the semiconductor industry present a challenge for investors looking to gain exposure to firms within the industry. How do you make sense of an industry with so many fast-moving sections and uncover the fundamental factors they need to create a robust analytical framework?

Answering that question is precisely our key objective, and we will begin by categorising a company by its position on the value chain.

A LINK IN THE CHAIN

The first step is to determine the position of a company on the value chain: Is it an integrated device manufacturer doing both design and fabrication, or a fabless foundry, or a semiconductorfoundry? While there are many factors common to all three, there are also differences; so it is integral you know where a company lies on the value chain.

From there, look at the company's presence across the various market segments: memory, logic, or standard chips. Find out exactly what products are in its portfolio and which end-user market each product serves.

GETTING A GRASP OF THE MARKET STRUCTURE

Next, get a feel of the market structure the company is operating in. Generally, the industry is one where high buyer concentration is not uncommon. It is essential to learn just how concentrated are buyers in a company's end-user markets. Are there only a few large buyers, and if so, what effect does that have on the firm?

Demand cyclicality is another crucial element to consider. Establish how various macroeconomic factors might affect product seasonality. Factors like GDP growth, consumer sentiment, corporate spending, and changes in disposable income could all have a significant impact on demand and pricing.

Speaking of pricing, you should also study the firm's strategies – these would typically vary according to where a product lies in its life cycle. An excellent way to do this is by researching a company's peers or competitors pricing policies. While you're at it, survey the competitive landscape: Is it more concentrated or fragmented? How is market share distributed, and what are the barriers to entry?

PRODUCT DEMAND AND PRICING

Now that you've grasped the market structure, it's time to delve into company-level factors. Examine its shipment among various end-user markets and product segments. Scrutinise shipment growth expectations, including how much demand a company estimates will be driven by the product upgrade cycle, market expansion, or new products and markets.

You've already studied general pricing strategies. Now, examine how a company stacks up. Is the company taking advantage of its pricing power? Or is the company suffering from pricing pressure? Peer analysis will help shed light on this; dig deeper to inspect if it has higher pricing power compared to its competitors. If the company is enjoying higher pricing ability, determine the reasons for this ability. It could include presence of proprietary technology, intellectual property, or uncommon products, technology, or manufacturing techniques.

Finally, understand its pricing along the product life-cycle curve. Do pay particular attention to how long it can sustain higher prices before the inevitable drop.

OPERATIONAL AND FINANCIAL METRICS

Cost structures must be examined. Review both fixed and variable costs across the company's product line and contrast those numbers with its competitors. Other financial metrics you should closely look into include free cash flow generation as well as gross, operating, and net margins. Given the international nature of the industry, don't neglect examining the foreign exchange hedging strategies, if any at all.

Depending on a company's position in the value chain, there are specific queries you should make. For instance, if the company is an IDM, does it also offer contract manufacturing services to third parties, and if so, what percentage of the foundry capacity is being utilised? Thereafter, do perform a margin comparison between the two.

For fabless foundries, work out how vulnerable the company might be to increasing concentration in fabrication capacity. Supply chain risks are real, especially given the interconnected global supply chain. As for semiconductor foundries, explore metrics like foundry capacity, utilisation, downtime statistics, and the lag time between capital expenditure and revenue generation.

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE FACTORS

While the semiconductor industry is not a significant contributor to greenhouse gas emissions, the manufacturing process still requires the use of perfluorocarbons (PFCs), which have a greater impact on global warming compared to carbon dioxide. Critics of the industry also point to potential groundwater pollution, although official statistics show otherwise.

As such, a large part of assessing environmental, social, and governance factors in the industry comes down to environmental issues. Does the company routinely measure its environmental footprint? What are its consumption and emission statistics, and what steps is it taking to reduce its footprint? Enquire into whether it has a concrete strategic roadmap on the environmental front, and probe its track record in this area.

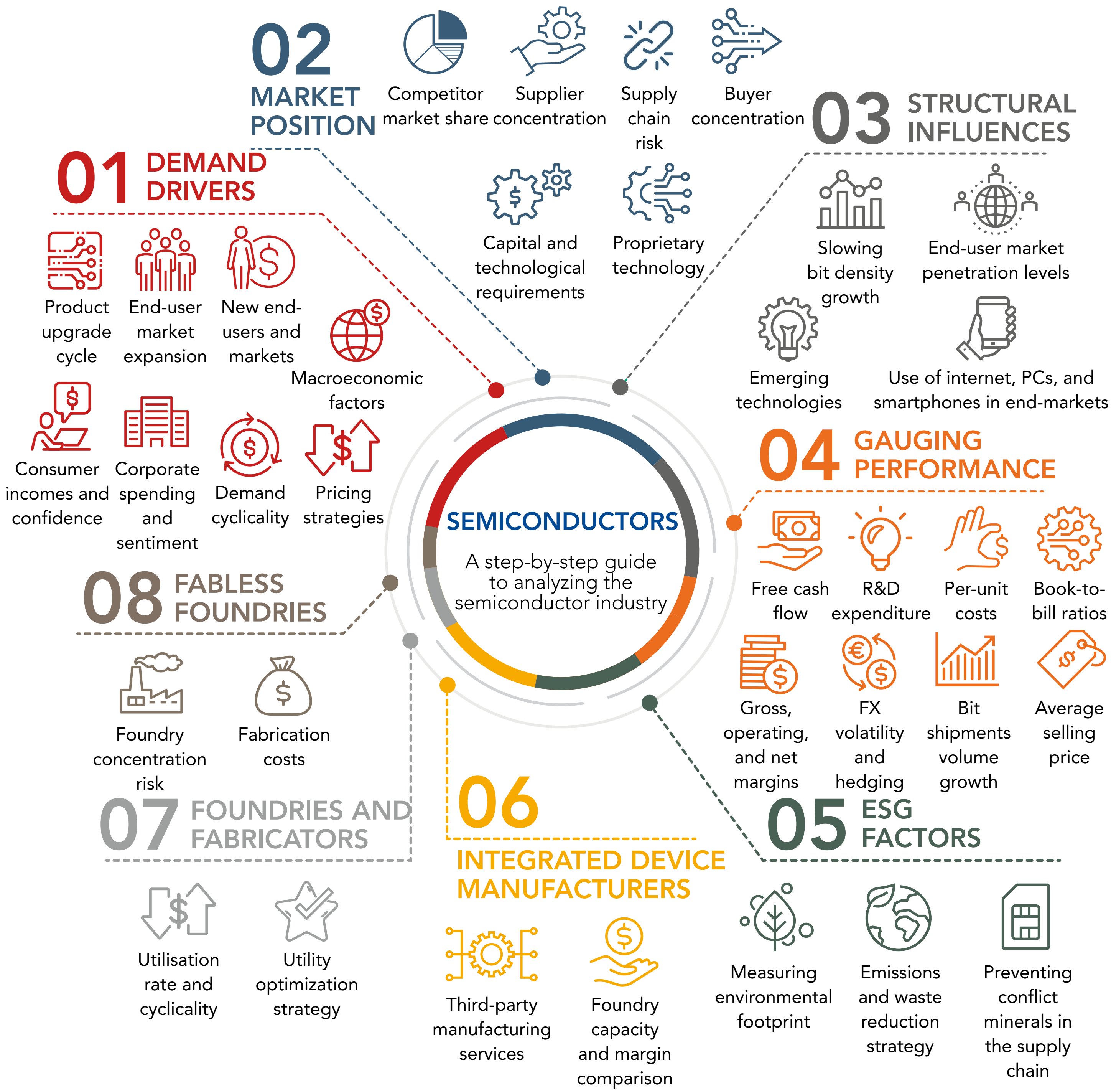
The company's supply chain also deserves your scrutiny. Given the long-reaching supply chain, investigate whether any dubious minerals could have been used in its manufacturing process. More importantly, examine the method it uses to track its suppliers to ensure no inadvertent use of such minerals.

LONG-TERM DEMAND GROWTH

Being a driver of the digital economy has its drawbacks; technology evolves at a rapid pace, and even dominant incumbents can fall if they don't keep up. Two primary structural demand drivers you need to take into account are markets and technology. Consider emerging markets with relatively low penetration levels of internet and smartphones – a company's presence in such markets might be a long-term growth driver.

On the technology side, the data show bit-density growth slowing across the board. Find out how the company is planning to tackle this issue. Will it be through financial measures, facility upgrades, or investments into emerging technologies such as machine intelligence and IoT?

We wrote this framework to provide you with a systematic way to cut through the evolving complexity of the semiconductor industry. These guidelines may be short and sweet, so use them as your base from which to launch your analysis and give yourself a head start on your investment journey.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A step-by-step guide to analyzing the semiconductor industry
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08 FABLESS FOUNDRIES
Foundry concentration risk
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COMMON TO THE SECTOR

1. PRODUCT PORTFOLIO AND END-USER MARKETS

a. How much presence does the company have across the different market segments? These include memory, logic, standard chips and system on a chip.
b. What are the various products in the company's portfolio?
c. What are the end user markets for each of the company's products?
d. How does the performance and price of the company's products compare with that of its competitors?

2. WHICH FACTORS IMPACT DEMAND FOR THE COMPANY'S PRODUCTS?

a. How much volume and revenue does the company derive from different end-user markets and product segments?
b. What is the company's volume growth expectation for its end-user markets and product segments?
c. How much demand is driven by the product upgrade cycle of the company's end-user markets?
d. How much demand is driven by expansion in the company's end-user markets?
e. What is the demand that arises from newer end-user products and markets?

3. HOW CYCLICAL AND SEASONAL IS THE DEMAND FOR THE COMPANY'S PRODUCTS?

a. What macroeconomic factors affect cyclical demand for the company's products?
b. What is the impact of GDP growth and expectations?
c. How much of the company's revenue is derived from the consumer and corporate end-user segments?
d. What is the impact of changes in disposable incomes and consumer sentiment on demand from the consumer segment?
e. What is the impact of corporate spending and outlook on demand from the corporate segment?

4. WHAT ARE THE FACTORS AFFECTING THE PRICING OF THE COMPANY'S PRODUCTS?

a. What pricing strategies are adopted in the industry?
b. What is the company's pricing strategy and how does it vary from that of its peers?
c. Does the company have different pricing strategies for new, mature and legacy products?
d. What is the typical duration after which the company considers a product as a mature and, subsequently, a legacy offering?

5. THE DRIVERS OF STRUCTURAL GROWTH

a. What are the penetration levels of the company's end-user markets and products across various regions and countries?
b. What are the penetration levels of the internet, PCs and smartphones?
c. Which end-user markets and products have the potential for structural growth?
d. Which regions and countries offer space for structural growth?
e. What are the emerging technologies, such as Machine Intelligence and Internet of Things, that could drive long-term growth?
f. In the light of these opportunities, how do the company's product portfolio and capabilities compare with those of its competitors? Are there gaps?
g. Where applicable, how does the company intend to fill these gaps and build the required capabilities?

6. TRENDS IN BIT DENSITY GROWTH

a. What is the company's strategy to counter a potential slowdown in bit density growth?
b. Is the company exploring any technologies that could tackle any slowdown?
c. Does the company intend to upgrade its design and fabrication facilities?

7. THE COMPETITIVE SITUATION IN THE COMPANY'S INDUSTRY

a. How concentrated or fragmented is the market for the company's products?
b. What is the market share of the top three/ top five players across the different products where the company has a presence?
c. Which factors facilitate or inhibit the entry of new players?
d. What are the capital and technology requirements for new players to enter the market?

8. WHAT ARE THE COMPANY'S PRODUCT, TECHNOLOGY AND COMPETITIVE STRENGTHS?

a. Does the company possess a unique or uncommon product, technology or manufacturing technique?
b. Does the company possess a significant competitive advantage in any product segment?
c. Does the company own any proprietary technology or intellectual property (IP) in any product segments or manufacturing technique?
d. How many patents does the company own? What are the current or potential applications that these can be used for?
e. Is the company involved in any disputes relating to patents and IP?

9. NEW TECHNOLOGY

a. Does the company prefer in-house R&D, acquisitions or licensing?

10. WHAT IS THE LEVEL OF BUYER CONCENTRATION IN THE COMPANY'S END-USER MARKETS?

a. What is the company's share of top three/top five buyers in its product segments?
b. How much pricing pressure does the company experience due to buyer concentration? How does it manage this?

11. HOW MUCH PRICING POWER DOES THE COMPANY HAVE?

a. What is the company's market share in different product segments and across the various end-user markets that it caters to?
b. Does the company have a leading presence in any product segments or end-user markets?
c. Are there areas where the company's product pricing power is higher than its peers? What gives the company this advantage?
d. Typically, how long is the company able to sustain the initial higher prices of its new products?
e. How much of the lifetime volume of a typical product is the company able to sell at the initial higher price?

12. HOW HAS THE COMPANY PERFORMED ON OPERATIONAL MEASURES? HOW DOES THIS COMPARE WITH THAT OF ITS PEERS AND HOW IS THIS EXPECTED TO EVOLVE?

a. What is the company's volume growth in terms of bit shipments?
b. Have there been any changes in the company's average selling price for its different products?
c. What is the company's book-to-bill ratio? How does this vary across products?
d. What are the company's per-unit fixed and variable costs?

13. PERFORMANCE ON FINANCIAL MEASURES – HOW DOES THIS COMPARE WITH THAT OF THE COMPANY'S PEERS?

a. What are the company's gross, operating and net margins?
b. How much free cash flow does the company generate as a percentage of sales?
c. What is the company's expenditure on research and development (R&D) as a percentage of its sales?
d. What is the company's hedging strategy to manage volatility in its input costs and foreign exchange?

INTEGRATED (DESIGN AND FABRICATION) SEMICONDUCTOR MAKERS

14. DOES THE COMPANY RUN BOTH SEMICONDUCTOR DESIGN AND FABRICATION OPERATIONS?

a. Does the company offer contract manufacturing services to third parties?
b. If so, how much of the company's foundry capacity is used for contract manufacturing versus the manufacture if its own products?
c. What is the company's mix of volume and revenue from contract manufacturing versus end-to-end products?
d. How do the margins from the company's two operations compare?

15. WHAT IS THE COMPANY'S EXPENDITURE ON R&D (INCLUDING THE DESIGN OF ITS OWN PRODUCTS) VERSUS THE TECHNOLOGY USED IN MANUFACTURING AND FABRICATION? HOW DOES THIS COMPARE WITH THAT OF ITS PEERS AND HOW IS IT EXPECTED TO EVOLVE?

a. Which manufacturing process and techniques are the company most bullish on over the next 3–5 years?
b. Which product segments is the company focusing its R&D efforts on currently?
c. Which end-user markets does the company target with its R&D efforts?

16. HOW MUCH IS THE COMPANY'S CAPITAL EXPENDITURE AS A PERCENTAGE OF SALES? HOW DOES THIS COMPARE WITH THAT OF ITS PEERS AND HOW IS IT EXPECTED TO EVOLVE?

a. What is the company's capex in its fabrication facilities (fabs)?
b. What is the ratio of this as capex a percentage of sales derived from the fabs?

SILICON FOUNDRIES/SEMICONDUCTOR FABRICATORS (FABS)

17. WHAT ARE THE COMPANY'S TYPICAL CAPACITY UTILIZATION RATES?

a. How cyclical and seasonal is the rate of utilization?
b. How does the company optimize utilization?
c. How does the company forecast demand for its fab capacity?

18. DETAILS OF THE COMPANY'S FAB CAPACITY

a. How much fabrication capacity does the company own?
b. How much capacity is it adding? When are these new capacities expected to be ready for production?
c. How does the company forecast capacity requirements and plan for expansion?

19. THE OPERATIONAL PERFORMANCE AND CAPITAL EFFICIENCY OF THE COMPANY'S FABS?

a. What is the typical operational downtime rates of the company's fabs?
b. How much yield is the company able to achieve per unit of silicon wafer processed in its fabs?
c. What is the typical lead time before the company's capex (on fabs) starts to generate revenue?
d. What is the company's medium and long-term capex outlook by technology?
e. What is the company's capex-to-sales ratio?
f. How much free cash flow does the company generate as a percentage of capex invested?

FABLESS SEMICONDUCTOR MAKERS

20. HOW VULNERABLE IS THE COMPANY TO THE RISING CONCENTRATION OF FABRICATION CAPACITY?

a. How many different foundries does the company outsource fabrication of its products to?
b. How much does the company pay for the fabrication of its different products, at different volumes?
c. How vulnerable are the company's margins to increases in fabrication costs due to increasing concentration of capacity?
d. How does the company manage the supply-chain risks that arise out of fabrication capacity concentration?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE FACTORS (ESG)

21. WHAT ARE THE COMPANY'S ESG PRINCIPLES, PRACTICES AND TRACK RECORD?

a. Does the company perform a life cycle assessment of its products to estimate its environmental footprint?
b. What is the energy consumed by the company's products in operation? What measures does it use to quantify this? What is the firm's roadmap for improving efficiencies?
c. How much packaging material does the company use while shipping its products? Does the company have plans to reduce packaging and use recycled material?
d. Does the company have a strategy for managing the e-waste generated by its products?
e. What is the emission, energy, water consumption and pollutant release intensity of the company's manufacturing processes? What steps is it taking to improve performance on these fronts?
f. Does the company use any conflict minerals in its products or manufacturing processes? How does it track and ensure these minerals are sourced in a fair and transparent manner?

LUXURY PRODUCTS AND RETAIL

BECAUSE YOU'RE WORTH IT — UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF LUXURY RETAIL

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

Dopamine. It's the pleasure-inducing brain chemical that is released when we treat ourselves to something new. And the surge of elation we get when we go to the cash desk and discover there's an additional 30% discount? Well, that's the dopamine kicking in big time.

Of course, all retailers are fully aware of this reward-motivated behavior, but none more so than the luxury goods branch of the industry.

CHASING A DREAM

Compared with other industries, the luxury retail business model certainly has some distinct characteristics.

For a start, its demand curve is not downward sloping. In other words, demand does not always increase with a decline in price — in fact, one of the industry's key tricks is to raise the average cost of an item — the rationale being that higher prices keep the middle class (the target customer group) chasing the dream of luxury.

HAVE YOU SEEN HIS ROLEX?

Contrary to typical offerings from other industries, a luxury brand's image is not pushed solely at potential consumers. Massive communications to nontarget groups are also crucial. Product admiration from others creates a sense of social and economic superiority among actual consumers — the glint of a Rolex under a starched cuff impresses strangers and makes the owner feel wonderful. Indeed, anything that enhances this sense of uniqueness can boost sales.

BRAND PROTECTION

Maintaining full control over the value chain, as well as distribution channels, is a necessity rather than a choice. There are countless real-life examples of quality names that have been tarnished at the hands of franchisees or appropriated by nontarget groups. Burberry still has an image problem in the United Kingdom because it became the brand of choice for lower socioeconomic elements of the population. Moreover, a command of the manufacturing chain results in consistent craftsmanship and a supreme eye for detail, while a close-knit distribution channel guarantees that the one-to-one customer service is top notch.

In many situations, the functionality of the product is secondary. After all, Jimmy Choo sandals and slip-on Crocs serve precisely the same purpose, but the latter would look strangely out of place at the Oscars. Service delivery is far more important. Essentially, the entire business proposition means adhering tightly to the noted set of strict principles to preserve the uniqueness of the luxury item and trigger enormous brand "stickiness."

From an analyst's perspective, this can be a tricky business model to grasp. Many of us are, perhaps, rather sober in nature and not easily swayed by the ephemeral glitter of highend consumerism. A safe bet, therefore, is to examine the companies in this sector as we always do — logically and with an incisive mind.

PRICED TO PERFECTION?

A good place to begin your journey is by understanding the company's profile and identifying where in the luxury retail chain it operates. What unique value proposition does the company offer to customers?

Ascertain the discretionary and nondiscretionary demand for the company's products and services. At the same time, establish which of the company's product categories is most sensitive to price changes. These products could be affected by long-term demographic, macroeconomic, and geographic factors, so get to know what these are. For example, what is the average age and level of wealth of consumers in the company's key markets? Is this expected to change? Importantly, does the firm undertake segmentation of its customer base? If so, what dimensions does it use? These could include specific product lines, brands, or strategies that target different groups.

With regard to price, what is the company's strategy for different products, and which of these offerings are most immune to price changes? Do past trends support this?

SALES COUNTER

In terms of sales, does the company provide a detailed breakdown of its performance in terms of volume and price? Similarly, check whether it generates growth by same-store sales, net additions, inorganic growth, and foreign exchange impacts — and explore how this trend will evolve.

The various elements that drive a firm's cost profile and how it manages these elements also are linked to sales. What are the company's gross, operating, and net margins? This information will prompt you to learn more about the business's profitability and cash position versus its competitor's position.

RECOGNIZING THE NAME

Given the importance of a company's branding strategy, it is crucial to investigate how a luxury retailer markets its products and services and to establish how much it spends on these pursuits. What are the primary modes of advertising and promotion activity: television, magazines, or billboards? Who heads up the company's creative team and what are their credentials? Do these people truly understand the nuances of luxury branding?

GLOBAL REACH

From a technology perspective, review the firm's social media presence and pay attention to its preferred channel. This can tell you a lot about its target audience — Instagram is aimed at under 30s, whereas Facebook has a broader demographic. Looking ahead, consider whether the company grasps how e-commerce affects its sales. Does it have a strategy to increase revenue from home shopping?

Although the internet makes the world feel smaller, people living in different regions still have different tastes. So, establish the geographic importance of the company's outlets and the pricing structures across these different geographies. Which products are the most popular in each location? You may find that a company with a higher exposure to the industrial world has stagnating sales, but a firm with a strong presence in China, for example, is experiencing a surge in activity.

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE FACTORS

The luxury retail sector, with its soft focus on making life more pleasurable, does not automatically spring to mind as an industry that needs to focus too closely on environmental, social, and governance factors. Underneath the cashmere coat, however, the industry faces the same challenges as any other part of the economy. Consider a company's energy, electricity, and water use and its waste generation. Has it invested in ways to improve performance on these fronts?

What is the company's policy on sourcing raw material from conflict zones? Does it ensure that the extraction and sourcing of this material is done in a lawful, fair, and sustainable manner? From a labor perspective, can it provide evidence that it treats its employees and suppliers fairly? Finally, it is vital to know whether the company directly or indirectly employs child workers.

As always, these guidelines are designed to provide you with a short but solid foundation to kick-start any future analysis. So, rest your feet on that expensive Italian leather sofa, relax, and start your in-depth journey through the sector.


LUXURY RETAIL
A step-by-step guide to analyzing the luxury retail sector
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05 MEASURING GROWTH EXPECTATIONS
High-net-worth individuals population
Consumer preference
06 ESG FACTORS
Operating Conditions
Energy use
Waste generation
Sourcing of sustainable materials
Fair treatment of employees
Fair treatment of suppliers

COMMON TO THE SECTOR

1. WHAT IS THE DEGREE OF ELASTICITY OF DEMAND FOR THE COMPANY'S PRODUCTS AND SERVICES?

a. What is the extent of change in demand observed in response to a unit change in price?
b. Does price decrease and increase have same elasticity? Does the elasticity vary across price levels?
c. Which product categories are more sensitive to price changes than others? What are the dynamics driving these differences?
d. What are the details of the company's price investment strategy? How does it compare with industry practices?

2. WHAT ARE THE DETAILS OF THE DEMAND PROFILE OF THE COMPANY'S PRODUCTS AND SERVICES?

a. What is the consumption profile of the products managed by the company?
b. What are the key factors driving their consumption?
c. How does the company forecast demand for its products?
d. Is there a seasonality observed in demand for the products managed by the company? What are some examples of such products and the strategy used to manage seasonality?

3. WHAT ARE THE LONG-TERM DEMOGRAPHIC, MACRO-ECONOMIC AND GEOGRAPHIC FACTORS AFFECTING DEMAND?

a. What is the average age of the population in the company's key markets?
b. How is it expected to evolve?
c. What is the share of discretionary consumption as a percentage of GDP in key markets? Is there space for structural growth of consumption?
d. What is the level of urbanisation in key markets?
e. What are the other factors that could affect demand? How does the company see these evolving in the coming years? How does the company intend to leverage these trends?

4. HOW DOES THE COMPANY UNDERTAKE SEGMENTATION OF ITS CUSTOMER BASE? WHAT DIMENSIONS (AGE, INCOME, GEOGRAPHY, ETC.) ARE USED FOR THIS PURPOSE?

a. Under which segments does the company classify its customer base?
b. What are the differences observed in the consumption and spending behaviour of customers across these segments?
c. How does the company track the consumption and spending behaviour of customers in these segments?
d. What are the details of specific product lines, brands and marketing strategies to target customers in different segments?

5. HOW EASY IS IT FOR NEW PLAYERS TO ENTER AND COMPETE? WHAT ARE THE ENTRY BARRIERS?

6. HOW HAS BEEN THE COMPANY'S PERFORMANCE IN TERMS OF VOLUME GROWTH?

a. What is the break-down of the company's sales performance by volume and price?
b. What are the details of other aspects of sales growth such as same-store sales, new store sales, inorganic growth and the effect of foreign exchange?
c. What are the key qualitative factors driving these numbers?

7. WHAT IS THE COST STRUCTURE OF THE COMPANY'S PRODUCTS AND SERVICES? HOW DOES IT COMPARE WITH THAT OF PEERS?

a. What are the key elements that drive the company's cost profile?
b. How does the company manage each aspect of cost?
c. What are the gross, operating and net margins on an aggregate basis and across key product lines?
d. How have the company's margins evolved over the past few years? How does the company expect margins to shape up in future?

8. WHAT IS THE COMPANY'S STRATEGY FOR SPACE EXPANSION AND STORE OPENING? WHAT ARE THE ASSOCIATED EXPENSES?

a. How does the company optimise utilisation of retail space through the addition and closure of stores? What is the approach between optimising utilisation in existing stores vs opening new stores?
b. How many stores have been added and how many have been closed in the last few years?
c. What are the details of the company's strategy underlying store opening and closures?
d. How do sales from new stores compare with sales from existing stores?
e. If new stores typically contribute more, how long do they continue to provide higher sales? If they contribute less, how long does it take for them to catch up with older stores?

9. WHAT ARE THE MOST AND LEAST EFFECTIVE CHANNELS OF REVENUE GENERATION FOR THE COMPANY?

a. Which are most and least stable sources of sales for the company?
b. What are the most common direct and indirect sources of income?
c. How has the revenue mix from different channels and sources evolved over the past few years? How is this expected to shape up in the next few years?
d. How much of sales is driven through the online channel? How is the channel's contribution expected to evolve?

10. WHAT IS THE IMPACT OF TOURISM ON DEMAND FOR THE COMPANY'S PRODUCTS AND SERVICES?

a. What proportion of the company's revenue is generated from international travellers compared with revenue from domestic buyers in its key markets?
b. How different are the ticket sizes (spending per purchase) of domestic and international customers for various product categories?
c. Which are the major stores and products that depend primarily on tourist traffic?
d. How much revenue is generated from these stores and products?
e. How much revenue can be attributed fully to tourist spending?
f. What is the company's strategy to manage dependence of growth on tourist spending?

11. WHAT PART OF THE LUXURY RETAIL CHAIN DOES THE COMPANY OPERATE IN?

a. Does the company's products fall under the affordable luxury category aimed at mid- to high-end customers or the premium luxury category targeted at ultra-high net- worth individuals?

12. HOW IS THE COMPANY'S CUSTOMER BASE, SPECIFICALLY THE HIGH NET-WORTH INDIVIDUAL (HNI) SEGMENT, EVOLVING IN ITS KEY MARKETS? HOW IS THE COMPANY RESPONDING TO THESE CHANGES?

a. Which regions does the company consider as its primary markets?
b. What proportion of the customers are repeat or regular customers?
c. How does the company retain and cross-sell to regular customers?
d. What is the company's strategy to target customers from new regions?
e. What are the details of rewards or incentives offered to attract new / first-time customers?

13. HOW WOULD THE COMPANY EXPLAIN THE KEY UNIQUE VALUE PROPOSITION IT OFFERS TO CUSTOMERS?

a. In the company's view, how are its brands perceived in the market?
b. What are the results of a brand valuation exercise done by the company?
c. How differentiated are the company offerings, in its view, in relation to those of its competitors?

14. WHAT ARE THE DETAILS OF THE COMPANY'S BRANDING STRATEGY? WHAT ARE THE ASSOCIATED COSTS?

a. How much is the Advertising and Promotion (A&P) cost as a proportion of revenue and total costs?
b. What are the main modes of the company's A&P activities (TV, print, outdoor, internet etc.)?
c. How seasonal are the company's promotional activities?
d. What strategies does the company employ to promote awareness and value of its brands?
e. Does the company disclose details of its creative team? What are their credentials and track record?

15. HOW DOES THE COMPANY KEEP TRACK OF CHANGING CUSTOMER PREFERENCES?

a. How do the life cycles of the company's products compare with those of competing products?
b. What is the typical average lifespan of a product the company introduces in the market?
c. In the company's view, does the market perceive it as a follower or as a creator of new trends?
d. How quick is the company to adapt to the changing preferences of customers?
e. In the company's view, to what extent can its products be replaced or re-created?
f. What is the impact of digitisation on the company's business?

16. WHAT IS THE INFLUENCE OF SOCIAL MEDIA ON REACH AND SALES OF THE COMPANY'S PRODUCTS?

a. Which social media channels (Facebook, Twitter etc.) does the company has a presence in?
b. Which of these channels does the company find to be the most useful?
c. What are the details of the company's strategy in managing social media outreach?
d. Which aspects of the social media channels (user activity, engagement etc.) are tracked by the company?
e. How correlated are sales to momentum of the company's brands in social media channels?
f. How does the company track social media activity around its brands in China, in the absence of Google and other major global channels?
g. In the company's view, how important will be the role of social media in future?

17. WHAT ARE THE DETAILS OF THE COMPANY'S PRICING STRATEGY FOR DIFFERENT PRODUCTS?

a. Which products does the company expects to undergo large price increases in future?
b. What is the likely effect of these price increases? How does the company intend to manage this?
c. Which products are less vulnerable to price changes, in the company's view? Is this supported by past trends?

18. WHAT IS THE MIX OF THE COMPANY'S BUSINESS BETWEEN WHOLESALE AND RETAIL CHANNELS?

a. What is the mix of revenues from retail and wholesale businesses?
b. How has the trend been over the past few years and how is it expected to be in the future?
c. Which channels earn the most margins for the company?
d. What are the challenges to expand the channels in which margins are most lucrative?

19. WHAT IS THE EXTENT OF THE IMPACT OF GEOGRAPHIC LOCATION OF SELLING OUTLETS ON PRICE REALISATION?

a. Where are a majority of the company's stores located?
b. How different are the selling prices across different geographies?
c. Does the company actively practice differential pricing or tries to minimise the price differences across locations and geographies?
d. What are the regions where the margins are superior to others?

20. WHAT ARE THE DETAILS OF THE COMPANY'S STRATEGY TO MANAGE INVENTORY?

a. What are the inventory days by channel, mode and geography?
b. What are the details of waiting period for customers, if any, for the company's products?
c. What strategies does the company employ to push inventory to dealers?
d. What are the issues faced in sourcing raw materials?
e. How much of critical raw material requirements depend on external vendors?
f. How many days does it typically take for raw material conversion?
g. How geographically spread is the manufacturing process?
h. What are the modes of transporting raw materials and finished goods?
i. What other challenges does the company face with respect to managing inventory?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE

21. WHAT ARE THE DETAILS OF THE COMPANY'S ESG PRINCIPLES, PRACTICE AND TRACK RECORD?

a. What is the energy, electricity, water use and waste generation intensity of the company's operations? What are the steps being taken to improve performance on these fronts?
b. What proportion of the company's stores and other buildings are certified under programmes such as LEED?
c. What is the company's policy on sourcing raw material from conflict zones? What measures does the company practise to ensure the extraction and sourcing of these are done in a lawful, fair and sustainable manner?
d. Does the company track the packaging intensity (e.g. amount of packaging used per tonne of goods sold) of its products? What are the details of any programmes to encourage suppliers to reduce packaging, use biodegradable or recycled material?
e. What are policies and practices implemented by the company to ensure fair treatment of employees, contractors and workers employed by suppliers?
f. How does the company ensure its operations do not directly or indirectly employ child labour?
g. What measures does the company practise to ensure customer privacy and the safety of customer data collected and stored by it? Have there been any breaches of customer privacy or data?
h. To what extent do various stakeholders in the company's supply chain practise ESG principles? How does the company's actions influence the practices of its suppliers? How does the company plan to improve adherence by its suppliers?

HEALTHCARE

UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF LIFE SCIENCES AND HEALTHCARE

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA; and Guruprasad Jambunathan, CFA, FRM

The internet has done a superb job in making everyone somewhat of an expert in most fields of life, including health care. Most of us have performed a Google diagnosis of our state of health at some point in time. However, the problem with self-assessment is that we rarely have the complete picture and may not be in a position to assess the situation. Consequently, we end up with a wrong and even dangerous diagnosis.

Similarly, the life sciences and health care industry could be injurious for investors who are unfamiliar with its multifarious subsectors. And we certainly do not want that. As such, we are donning our white coats and readying our stethoscopes to help guide you through the life sciences and health care maze.

Given the broad range of firms operating in this sector, we will keep things simple and refer to life sciences and health care as health care throughout this piece. The sector can be divided into three categories:
1. Drug producers
2. Medical equipment and supplies manufacturers
3. Health care providers

We kick off with topical issues affecting the sector. Thereafter, we drill down into each pertinent area and provide suggestions for the type of questions you should ask when analysing individual companies.

THE COST OF PAIN

Health care is a relatively non-discretionary industry. Unless we choose to suffer in silence, then we must spend to mend. Moreover, our aversion to pain is reflected in the data: A recent World Health Organization report revealed that global expenditure on health care is 10% of global gross domestic product. It is also snowballing, particularly in the developing world where per capita incomes have been on the rise. Country and geographical factors are something you should bear in mind when assessing the growth potential of health care businesses.

IT'S CONTAGIOUS

We wish to highlight the different industry stakeholders whose lives are interconnected in what can, at times, be a never-ending game theory application where the actions of one party affect the decisions made by others and vice versa.

Stakeholders include producers who compete to deliver the most efficient service; consumers who are better educated and increasingly empowered with Google at their fingertips; and governments that must strike a delicate balance between overregulation and the free market, including choosing the country's health care model. When, for example, the hospitalization coverage extends from 70 to 80 years of age, we expect demand for geriatric services would rise. Hospitals would plan for more physiotherapists and nurses.

GOVERNMENT BIOPSY

Governments are expected to play a bigger role in the years ahead. The average country sees the state pick up 51% of total costs of health care services; but once we strip out the contribution made by insurers and employer-sponsored schemes, the consumers shoulder a not insignificant 35% of the bill.

However, evidence points to consumers struggling to foot major medical bills, especially the lower- and lower-middleincome group. These categories of households are susceptible to falling into poverty and thus putting a cap on consumption growth. Governments may then inevitably be forced to absorb a bigger proportion of the health care tab. An eventual consequence to higher government expenditure on health care could be a keener interest in the activity of producers, which may manifest itself in tighter or new regulation to ensure lower government procurement costs. It also will not be surprising if the decibel measurement spikes up in annual general meetings as health care companies come under greater government scrutiny.

CONTRIBUTORY FACTORS

What makes a study of this sector interesting are the numerous fundamental long-term drivers and megatrends affecting the industry. The trends and drivers below are intended to provide you with a flavor of the key developments (and mitigating factors) that could have a significant influence on the performance of the companies you analyse:

MEGATRENDS: THE THREE CS

We must contend with several emerging megatrends that will further alter the landscape of the health care industry.

Consolidation – Merger and acquisition activity has been growing steadily over the past decade. Press releases from merging participants would have us believe that the new combined entity will deliver improved care at a lower price. However, as investors, you need to be aware that reduced competition has a habit of pushing prices up to the detriment of other stakeholders.

Cover – The insurance industry faces its biggest shake-up yet. We are in the age of risk segregation, which means that the health of a person can be more accurately assessed and the premiums adjusted accordingly. This approach is fair, as it curtails the collective burden on policyholders and helps insurance companies to price their products accordingly.

Change – In Europe and the United States, the emergence of what commentators are calling "populism" could spell a revision of health policies. If members of the electorate feel that they are paying too much in taxes but not receiving adequate levels of service (which always seems to be the case) and somehow discover they have a powerful voice, we may see some radical changes in health care policies.

LONG-TERM DRIVERS: THE THREE DS

Demographics – if we use Singapore as an example, the country's rapidly ageing population is already placing unprecedented demand on the government's budget and prompting the authorities to devise solutions that are effective, affordable, and sustainable. Singapore has always placed personal responsibility as a central tenet in numerous areas, including health care. Residents save for the inevitable major medical expenditure. Health care costs are also kept low with co-payments, whereby patients pay part of the bills; this encourages patients to avoid extending stay and treatment in hospitals unless absolutely needed. Nevertheless, with the percentage of residents aged 65 and above rising rapidly, new measures to slow rising health care expenditure are needed. Instead of full-fledged government restructured hospitals, community hospitals are utilized for step-down care after patients undergo primary treatment or surgery. The government has also acknowledged the benefit of social support in healing patients and has moved to allocate resources to expand social networks within the community setting. This, one hopes, will translate to better quality of care and lower growth in health care expenditure.

Disease – Diabetes, heart attack, stroke, and cancer, all are on the rise, and each can be treated if the causes are nipped in the bud. People also need to be aware of how their lifestyles contribute to these conditions. In Singapore, a programme of coordinated care, which sees ongoing contact between patients and health workers, has been proved to slash readmission rates by 60%. This is complemented by concerted efforts amongst various government agencies to encourage us to forgo sugary food and take a daily 10,000-step or more walk!

Development – Technology is more than state-of-the-art scanners; it is also data. With stacks and stacks of medical files, there are bound to be processing inefficiencies and sometimes costly mistakes. Using a computerised system, doctors, clinics, and insurance companies can quickly share relevant data and pertinent information.

COST OF DRUGS

The big pharmaceutical companies have always maintained a firm grip on pricing. But with tighter health care budgets, we could witness a shift towards value-based pricing (VBP). If drug users can't afford to pay what the pharmaceutical companies charge, then something must give. Under VBP, drug companies would be rewarded according to the effectiveness of their products. How this might work in practice is still being debated because measuring and attributing the efficacy of a drug can be difficult. However, the very fact that the concept is being considered may point to possible changes in the near future.

DRILLING DOWN INTO PERTINENT AREAS

On that note, let's move on to explain how we think you should systematically analyse the companies in the sector. We mentioned earlier keeping things simple; hence we will begin by examining the lines of enquiry that are common to health care companies.

UNIVERSAL TREATMENT FOR HEALTHCARE COMPANIES

First, establish the level of demand for the company's products and services and be mindful of future growth potential, for sometimes an obscure offering could well become the industry's next "big thing." Follow this up by assessing the company's position in its business segment: Is the company a dominant player, and are there barriers to market entry for new operators? What are its core competencies relative to its peers? Does the company have an edge over the competition?

It is also important to determine expected product development costs and how these compare with groups offering similar services. Question the company's track record in converting R&D efforts into patentable drugs or products.

Once you are satisfied that a company has the potential to be included in your portfolio of investments, scrutinize its financial performance. Examples could consist of current operating and net margins, as well as the ratio of operating income to free cash flow. Are there adequate financial resources to undertake relevant and, most often, extended trials for drugs or devices? Last, but certainly not least, has the company ever recalled any of its drugs or devices? If so, determine the damage to the finances and reputation of the company.

You should also be reasonably knowledgeable about environmental, social, and governance issues. Learn more about the investments that a company has made or that will be directed towards ensuring, for example, that medicines have been thoroughly tested and are compliant. Look too at the staff, especially at support staff – care workers, radiologists, nurses, and cleaners – are they well treated and paid fairly? Ask if ethical behavior is a foreign practice or is stressed by a company's management.

UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF LIFE SCIENCES AND HEALTHCARE (PART TWO)

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA; and Guruprasad Jambunathan, CFA, FRM

IN THE first part of this sector analysis published on Business Times dated April 27, we explored topical issues such as demographics, government policies and cost of drugs that can influence the performance of businesses operating in the life sciences and healthcare sector. Our analysis went on to touch on four elements affecting individual companies – level of demand, market structure, corporate performance, and track record – and environmental, social, and governance issues.

In this second part, we will examine the different types of health care companies and provide suggested lines of enquiry to follow when considering a business for inclusion in an investment portfolio. As before, we will refer to life sciences and health care as the health care sector.

THE MEDICAL CORPS

We have divided the health care sector into three categories for ease of analysis. They are

- drug producers,
- medical equipment and supplies manufacturers, and
- health care providers.

DRUG PRODUCERS

Our desire to live is as strong as a drug company's appetite for profits. We suggest that you initiate your assessment by examining the pipeline of drugs under development. In particular, focus on the various approvals that need to be obtained and establish how successful the firm has been in converting pipeline drugs into approved treatments. Keep a tab on costs as well.

Nothing lasts forever. Inspect the company's patent portfolio and the exclusivity period of its current drugs, especially the most profitable lines. Does the company have a strategy to deal with patent expirations and associated challenges?

Consider the competition. What benefits do the company's drugs offer above and beyond those sold by other groups? Is the company aware of peers that have pipeline drugs in latestage development, which could well pose a threat to those currently being marketed or developed by itself?

Consider the government of the day. Are there any regulatory developments that could affect the company's ongoing business? Similarly, check if political or consumer headwinds might impact drug prices in the firm's markets. In the United States, for example, there are proposals under consideration that would change the way drugs are priced in the Medicare system.

Lastly, not all drug companies develop new products. Some specialise in the manufacture of generic treatments such as paracetamol. Therefore, your analysis should target specific areas of these businesses, such as the scale of operations, manufacturing practices, and the costs associated with introducing new drugs.

Health care isn't all about prescription drugs. We also use a vast array of other treatments that are purchased over the counter. These include skin creams, lotions, and powders. Some are manufactured by the same companies that develop prescription drugs, while specialist firms make others.

In this case, the brand is sometimes as crucial as the product itself. Think of baby powder, and Johnson & Johnson immediately comes to mind. Part of your research here should be to explore market share and name recognition. Do look at geographic reach and distribution methods in your research journey.

MEDICAL EQUIPMENT AND SUPPLIES MANUFACTURERS

We move on to the hardware section of the health care industry. It makes sense to split this topic into two subsections: equipment and supplies manufacturers. We refer to equipment as everything from high-tech scanners to the tools used in the operating theatre, clinics, and wards. These items are generally durable. Screen the company's product portfolio and determine how diversified the product offering is. This information will help you to gauge key-product risk. It also makes sense to determine whether the device and equipment the company manufactures are deemed essential regardless of technological advances or are liable to be defunct in the next few years. With regards to technological change, determine whether the company is seen as an innovator or a follower.

Age demographics in a country matters in analyzing health care companies. Are the products manufactured geared towards geriatric wards (body scanners or mobility aids) or across all age groups (surgical equipment)? With an ageing population across the globe, there will be growth potential for businesses that manufacture equipment used primarily by the elderly.

If we consider the medical supplies market, then this tends to be at the more consumable end of the chain – bandages, syringes, gloves, and swabs, for example. Determine the medical procedures that use these items: The more frequent the occurrence, the higher the potential sales. Similarly, it's also worth your while to determine the disposable nature of these items. Single-use supplies have higher replacement levels.

From a competition perspective, does the business dominate the market, or are others producing similar product offerings? Moreover, it helps if a firm has a long-term contract with a medical facility or health board. If it does, determine the quality of this association and learn if it is reviewed periodically.

HEALTHCARE PROVIDERS

The third category of the sector is occupied by the health care providers – hospitals, specialist facilities, hospices, and drop-in centres. This area is where health care budgets and population mix have significant influences over care providers. Ascertain the factors affecting health care spending in key markets and the share of expenditure by different types of payers (government, insurance, individual out-of-pocket). Determine the dynamics governing demand from each. Do also establish the availability and acceptance of alternative medical treatment centres.

Asia is also experiencing rapid growth in health care tourism, which is being underpinned by portable insurance policies, inexpensive travel, and greater awareness among consumers of the services available out of their home territories. Bear this in mind when examining a particular business and check out how much income it generates from overseas patients. Does it have a strategy in place to develop this cash stream further? Or are medical tourists in the region favouring Thailand over Singapore hospitals for certain procedures?

Reputation is also vital. You will want to know if the facility or company employs world-class professionals at all levels and provides the best possible treatment. Fortunately, for investors, this isn't too difficult to check, with hospital league tables freely available and review sites awash with patient comments.

Finally, take time to look at the health insurers and weigh up factors such as the medical loss ratio. This measure gauges the amount of premium income allocated to health care claims as opposed to admininstrative costs or profit. The Medical Care Act in the United States requires many insurers to apportion a minimum of 80% of their income to claims.


HEALTHCARE
A step-by-step guide to analyzing the healthcare industry
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COMMON TO THE SECTOR

1. WHAT IS THE DEGREE OF NON-DISCRETIONARY DEMAND FOR THE COMPANY'S PRODUCTS AND SERVICES?

a. What kind of drugs and devices does the company make? Which diseases and therapeutic areas are targeted?
b. Do the drugs and devices treat critical/life threating or chronic or aesthetic problems?
c. What choices does a patient have in terms of delaying his/her treatment?
d. Are the company's drugs and devices perceived to be best in class with superior benefits? Do they have cheaper substitutes with comparable benefits?

2. HOW DOMINANT ARE COMPANIES THAT OPERATE IN CHOSEN BUSINESS SEGMENTS? HOW EASY IS IT FOR NEW PLAYERS TO ENTER AND COMPETE?

a. What is the company's core competency relative to its competitors? Does it enjoy any advantages, which allow it to dominate in specific segments or markets?
b. How long does it take to obtain approvals for novel drugs or devices or generic drugs or similar devices?
c. How expensive and time-consuming it is to conduct different trials for regulatory approval?
d. Are any special marketing arrangements in place resulting in a competitive edge in specific segments or markets?

3. WHAT ARE THE LONG-TERM DEMOGRAPHIC TRENDS IN KEY MARKETS?

a. What is the distribution of the company's sales by country?
b. What is the current population and per capita income level in those countries?
c. What is the expected population and income growth in those countries?
d. How much of the total GDP is spent on healthcare in key markets? How is this expected to evolve?
e. What are the household income levels in key markets? What proportion of that income is spent on health care? How is this expected to evolve?

4. WHAT ARE THE COMPANY'S TYPICAL PRODUCT DEVELOPMENT COSTS? HOW DO THESE COMPARE WITH PEERS? TO WHAT EXTENT ARE PRODUCT DEVELOPMENT COSTS EXPECTED TO CHANGE IN FUTURE?

a. How much does the company spend on research & development (R&D) as a percentage of sales?
b. How does the company measure efficiency in converting R&D expenses into patentable molecules, drug and product approvals?
c. How do these compare to pharmaceutical and biotech drugs?

5. HOW IS THE COMPANY PERFORMING FROM A FINANCIAL PERSPECTIVE? HOW DO KEY FINANCIAL METRICS COMPARE TO PEERS?

a. What is the correlation between the company's cash flows and return on capital with revenues?
b. What is the company's sales, general and administrative (SG&A) expense ratio?
c. What are the current operating and net margins?
d. What is the current ratio of operating income to free cash flow?
e. Does the company have sufficient cash to conduct relevant trials for drugs or devices? If not, how will future trials be funded?

6. WHAT IS THE EXTENT OF THE COMPANY'S LIABILITIES CONCERNING ITS PRODUCTS AND SERVICES?

a. Has the company faced any regulatory or legal penalties in the past? How significant were those penalties relative to revenues?
b. What class action suits and regulatory investigations are currently faced?
c. Has the company recalled any of its drugs/devices in the past? If so, what were the reasons for these recalls? What was the financial and reputational impact?

PRESCRIPTION DRUG COMPANIES

7. WHAT IS THE POTENTIAL MARKET SIZE AND THE POTENTIAL DURATION OF USAGE PER CUSTOMER OF THE COMPANY'S CURRENT AND PIPELINE DRUG PORTFOLIO?

a. What are the prevalence and incidence rates of the diseases and conditions treated by the company's suite of drugs?
b. What treatment options are currently available for these diseases and conditions?
c. How frequently, at what dosage and for how long should patients use these drugs?
d. How does this translate into market size?
e. What benefits do the company's drugs offer compared to options currently available to patients, for example, higher efficacy, shorter duration, reduced side effects, cheaper cost, or other benefits?
f. If the company's drugs are for diseases and conditions for which there is no treatment currently available, what other companies are concurrently developing drugs for these diseases and conditions?
g. Is the company aware of peers that have pipeline drugs in late-stage development, which could pose a threat to those currently being marketed or which are in the development pipeline?

8. WHAT IS THE SHAPE OF THE COMPANY'S PATENT PORTFOLIO AND THE EXCLUSIVITY PERIOD OF CURRENT DRUGS?

a. How many patents are held and what are their expiration schedules?
b. How much revenue is derived from these drugs?
c. What is the company's strategy in dealing with patent expirations and associated challenges?
d. How long is the typical exclusivity period for new drugs? How does this vary for pharma and biotech drugs?
e. What patent and exclusivity related litigation challenges are currently faced?
f. How much cost is incurred defending patents and exclusivity periods for the company's drugs?

9. DOES THE COMPANY HAVE A PIPELINE OF DRUGS UNDER DEVELOPMENT?

a. How many drugs/molecules are currently under development?
b. What stages of development are these drugs currently in?
c. What therapeutic areas are these molecules targeted at?
d. When are the various approvals expected to be granted?
e. What is the company's past success rate in converting pipeline drugs into approved treatments?
f. Are any of the company's late-stage pipeline drugs facing roadblocks during the approval process? If so, when are these roadblocks expected to be cleared?
g. How long does it typically take to develop, test, obtain approvals and launch drugs into the market?
h. What is the expected schedule for launching various drugs currently under development?
i. What costs are typically incurred in developing, testing and obtaining required approvals for new drugs?
j. How are development costs expected to evolve? How useful is technology in reducing development costs?
k. What is the current mix of drugs in the company's development pipeline, in terms of therapies that require critical care or chronic care or aesthetic use?

10. HOW SIGNIFICANT ARE SALES AND MARKETING EFFORTS IN DRIVING THE COMPANY'S REVENUE?

a. How important is the sales role in determining which drugs are prescribed by physicians to patients?
b. How capable is the company's sales team and how influential are they with physicians?
c. How are the effectiveness of the sales force and the return on marketing expenditure measured?
d. How does the company expect sales costs to evolve? How do the company's sales costs compare with peers, if known?
e. Does the company intend to expand or restructure its sales team? If so, what are the reasons behind this?
f. Is any expansion of the sales force planned to support new drug launches?

11. WHO DETERMINES DEMAND AND PAYS FOR DRUGS IN KEY MARKETS AND SEGMENTS?

a. What proportion of medical costs are paid by any form of insurance and how much do patients pay out of their pocket?
b. Are there any gatekeepers of demand such as Pharma Benefit Managers (PBMs), which influence demand and pricing? If so, please discuss the extent of their presence and influence.
c. How much pressure on pricing is faced face due to aggregation and intermediation of demand by PBMs?

12. ARE ANY REGULATORY DEVELOPMENTS ANTICIPATED THAT ARE LIKELY TO AFFECT THE COMPANY'S ONGOING BUSINESS?

a. Are any changes in the drug approval process/ guidelines expected from regulatory agencies (FDA, EMA etc) that might affect future drug launches?
b. Are any political / consumer headwinds for drug prices faced in key markets?
c. Are there any moves to reduce spending in markets where the government is the major spender?
d. Are there any other developments with potential downside risk for drug prices.

GENERIC DRUG COMPANIES

13. WHAT IS THE COMPANY'S STRATEGY FOR IDENTIFYING AND LAUNCHING DRUGS AND ASSOCIATED RISKS?

a. Are there any specific therapeutic areas the company focuses on? If so, how are these identified?
b. What is the strategy to identify which drugs to target?
c. How quickly is the company able to launch generic versions of drugs coming off patents?
d. What is the scale of liabilities faced relating to at-risk launches?

14. WHAT IS THE SCALE OF THE COMPANY'S CURRENT OPERATIONS?

a. What is the company's manufacturing approach? Are facilities owned or are contract manufacturing agreements in place?
b. How many different drugs can be manufactured within owned facilities?
c. What would be the incremental cost of scaling up the production of key drugs?
d. What would be the additional cost of commencing production of new drugs?
e. What competitive advantages are derived from the scale of the company's operations/production?
f. What is the cost structure of key drugs at different production levels? How does profitability at lower volumes compare with that at higher volumes?
g. What are the different factors currently driving costs? What other factors are expected to become relevant in future?
h. How well is the company able to maintain costs? How are costs expected to evolve and how does this compare with peers, if known?
i. If contract manufacturing is utilized, how does the company ensure quality standards are maintained?
j. How well has the company (or contractors) been able to adhere to good manufacturing practices?
k. How have the company's (or contractors') facilities typically fared during regulatory inspections?

OVER-THE-COUNTER & CONSUMER PRODUCTS

15. WHAT IS THE SHAPE OF THE COMPANY'S CURRENT OFFPRESCRIPTION PRODUCT PORTFOLIO?

a. What are the company's over-the-counter (OTC) and consumer products?
b. How many of these are drugs versus non-drugs?
c. Can these products be used across age groups?

16. WHAT PURPOSE ARE THESE PRODUCTS USED FOR?

a. What conditions do these products treat?
b. How frequently do these conditions occur among the population in the company's key markets?
c. How many of these conditions occur seasonally? During what time of year do the conditions occur and for how long?
d. What is the typical duration and dosage of use of these products?
e. How long have these products have been off-prescription?

17. DOES THE COMPANY HAVE PRODUCTS IN THE HEALTH FOODS AND NUTRACEUTICALS SEGMENT?

a. Which products are available in this segment of the company's portfolio?
b. Are these products for regular consumption? If so, at what frequency?
c. How aware are consumers in key markets about health issues and how is this evolving?
d. What impact on its products does the company anticipate as awareness of health issues increases?
e. What is the sugar content of the company's products? What is the likely extent of demand changes due to the increasingly negative perception of sugar?
f. How are consumption habits changing in key markets? What is the resulting impact on the company's products?

18. HOW STRONG ARE THE COMPANY'S BRANDS PERCEIVED TO BE IN THIS SEGMENT?

a. What is the market share of the company's brands in their respective segments?
b. Has the company been able to grow and maintain its market share?
c. Does the company have any brands with dominant market shares in their respective segments?
d. What is the positioning and value proposition of the company's brands?
e. Has the company attempted to extend the brand range into related categories? If so, how successful have these efforts been?
f. What is the size and geographic spread of the company's distribution network?

19. PLEASE DESCRIBE THE COMPANY'S OPERATIONAL AND FINANCIAL PERFORMANCE? HOW DO KEY METRICS COMPARE TO PEERS?

a. What is the company's current accounts receivable turnover in terms of numbers of days?
b. How much of the company's revenue growth is attributable to organic expansion?
c. How effectively have costs been controlled? What is the current cost of goods sold ratio?
d. What percentage of sales is spent on advertising and brand promotion?

MEDICAL DEVICE COMPANIES

20. HOW MUCH NON-DISCRETIONARY DEMAND DO THE COMPANY'S PRODUCTS HAVE?

a. How many of the company's products can be classified as critical or life-saving versus for aesthetic use?
b. What alternatives to the company's products do patients have? How long can customers postpone using the company's products?

21. WHAT ARE THE LONG-TERM TRENDS RELATING TO AGEING AND LIFE EXPECTANCY IN KEY MARKETS?

a. How are ageing and changing life expectancies expected to translate to structural demand for the company's products?
b. What kind of devices are likely to see increased demand as a result of these trends?
c. What are the implications of these trends for the company's current product portfolio?
d. How does the company intend to leverage these trends?

22. THE COMPANY'S PRODUCT PORTFOLIO.

a. How diversified is the current product portfolio?
b. What is the pace of evolution in the company's product segments? Does this occur organically over time, or through rapid advancements?
c. How does the company's product development strategy tie in with structural trends outlined earlier?
d. How do product development costs compare with those of peers, if known?

23. HOW EFFECTIVE IS THE SALES TEAM AND HOW INFLUENTIAL ARE THEY WITH SURGEONS?

a. How much impact does the sales force have in determining what drugs physicians prescribe to patients?
b. How effective is the sales team and how influential are they with surgeons?
c. How are the effectiveness of the sales force and the return on spending measured?
d. Does the company plan on expanding or restructuring its sales team? If so, for what reasons?
e. Is any expansion of the sales team planned to support new-drug launches?

HEALTHCARE EQUIPMENT PROVIDERS

24. DETAILS OF THE CURRENT PRODUCT PORTFOLIO.

a. How many of the company's products are used to perform diagnosis?
b. How many and what therapeutic areas/conditions / diseases are these products used to diagnose?
c. How many of the company's products are used to provide or support treatments and clinical procedures?
d. How many and what therapeutic areas/conditions / diseases are these products used to treat?
e. What is the company's estimate of the number of times these procedures are performed in a given period?
f. How is the demand for these procedures expected to evolve?
g. Are these procedures typically performed on older patients, or across all age groups?
h. Are any consumables used while performing these procedures? If so, what are those and in what quantities are they used?
i. Does the company have a dominant market share in any/all of its equipment types? How easy is it for new entrants to venture into this space?
j. Are cheaper substitutes available for these equipment types?
k. What differentiates the company's offerings from competing products and cheaper substitutes?

25. THE LIFECYCLE AND TECHNOLOGY ASPECTS OF THE COMPANY'S PRODUCTS.

a. What has been the typical lifetime of these products before they have to be replaced or upgraded? How does the company expect this to evolve in the future?
b. How fast is the technology associated with these diagnostic/therapeutic products evolving?
c. Does the firm intend to utilize emerging technologies, such as Artificial Intelligence? If so, what benefits are envisaged?

26. HOW ARE THE COMPANY'S PRODUCTS MARKETED?

a. What different sales models are employed – outright sale versus financing versus lease versus rental? What is the current mix?
b. Does the company provide financing/lease / rental agreements directly, or through third parties?
c. How does the company evaluate the credit profile of buyers?
d. How are credit terms determined?
e. Does the company provide service contracts? If so, what are the terms of these contracts?
f. What is the revenue mix from equipment, supplies and service? How do the margins from each segment compare?

MEDICAL SUPPLIES PROVIDERS

27. WHAT PRODUCTS FORM PART OF THE COMPANY'S CURRENT PORTFOLIO?

a. Which of the company's products are used during diagnosis compared with during treatment?
b. During which diagnostic or therapeutic procedures are the company's products used?
c. How frequently are these procedures performed? Is this expected to remain constant, or are any changes anticipated?
d. Which of the company's products can be described as consumables (e.g. bandages) versus non-consumables (e.g.surgical instruments)?
e. Which of the company's products are single use (e.g. disposable syringed) versus reusable (e.g. waist belts)?
f. Does the company have any products with no known direct substitutes in the market?
g. Does the company have powerful brands in any of the supplies produced?
h. Which of the company's products have cheaper substitutes available in the market? How are the company's products differentiated from these alternatives?

28. THE COMPANY'S OPERATIONAL AND FINANCIAL PERFORMANCE – HOW DO KEY METRICS COMPARE WITH PEERS?

a. What is the size and geographic spread of the company's distribution network?
b. Does the firm have long-term contracts to supply major diagnostic/hospital chains?
c. What organic volume growth has been achieved?
d. What is the company's accounts receivable turnover in terms of numbers of days?
e. How well are costs able to be controlled? What is the company's Cost Of Goods Sold ratio?

MANAGED CARE PROVIDERS

29. WHAT ARE THE FACTORS AFFECTING HEALTHCARE SPENDING IN KEY MARKETS?

a. What is the share of healthcare spending by different type of payers (government, insurance, out of pocket)?
b. What dynamics govern demand from each of these payers?
c. Which is the most and least price-sensitive payer category?

30. IS THE COMPANY'S HOSPITAL THE ONLY FACILITY IN THE AREA?

a. What is the company's population coverage in key markets? What alternative treatment centres are available to these populations?
b. Does the company offer any specialized treatment or therapy that is not available elsewhere?
c. If the company operates a chain of hospitals, please provide details of major centres.

31. WHAT AGEING AND LIFE EXPECTANCY TRENDS EXIST IN KEY MARKETS

a. How does the company expect ageing and changing life expectancies to affect demand for its services?
b. How does the company expect the market to evolve in terms of demand for in-hospital treatment versus at-home treatment?
c. If the population in key markets is getting older, how strong are the company's capabilities and offerings in geriatric care?

32. THE COMPANY'S COST STRUCTURE.

a. What is the medical loss ratio (MLR) incurred? How does this compare relative to peers, if known?
b. Is there a mandatory floor on MLR?
c. What is the company's current SG&A expense ratio? How does this compare with that of peers, if known?

FOOD PRODUCERS

"PLEASE, SIR, I WANT SOME MORE" – UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF FOOD PRODUCERS

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA; and Guruprasad Jambunathan, CFA, FRM

It is the essential thing that magnetically pulls us from our desks at midday, soothes family disagreements, or keeps us happy while watching a box-set at the weekend. We are talking about food. Behind all those sweet and savoury pleasures lies a peculiar and sometimes complex industry – food producers.

While most sectors are affected by a finite number of factors, food production faces a broader range of issues. At its heart is non-discretionary demand – namely, the need for us to eat. However, it is not quite so straightforward. As we radiate from the centre, the picture becomes more complicated, and it is this sinuosity that we want to help you understand.

It might be helpful to think of this framework in terms of packaging. The steady and reliable non-discretionary core (the food itself) is encased in several layers (factors) that deserve further examination.

A CHANGING PALATE

Such wrappings include the changing tastes of the developing world, where traditional staples are declining in popularity as households develop an appetite for, among other things, wheat-based products, meat, or dairy. Simultaneously, some in the developed world are renouncing their steaks and ice cream in favour of lower-fat poultry and fresh fruit. Tied to this is the expansion of the organic food movement, which registered sales in the United States of almost US$50 billion in 2017. This growth was six times faster than that of the broader food market and is being led by millennials, who now make up 52% of organic consumers. If you want a glimpse of future trends, then it's worth paying attention to the eating habits of different generations across different countries.

BUMPER HARVEST?

The problem of food wastage is spreading from the United States and Europe to Asia; Singapore alone discards around 800,000 tonnes yearly. From an environmental perspective, it's worth contemplating the amount of energy required to produce all this discarded food: The industry is highly resourceintensive. In addition, we have a habit of burying unwanted food, which decomposes and releases methane into the atmosphere.

That said, we may simultaneously face a future in which demand outpaces supply from production hampered by a combination of change in climate, economics, and demographics. Global warming could affect water and energy supplies. In terms of economics, it may no longer be profitable to produce certain crops if the numbers don't add up. Also, the global population is expected to exceed 10 billion before the end of the 21st century, with the increase coming mainly from developing countries.

Interestingly, there are investment avenues to be explored with both over- and underproduction. The waste technology industry, although still relatively small, is growing in importance as startups seek ways to recycle unused food, for example as by-products for the agricultural sector. Meanwhile, many companies are finding innovative ways to increase output and tackle production shortfalls.

INGREDIENTS IN THE MIX

Food production is undoubtedly a multidimensional stakeholder sector, with criss-crossing relationships a driving force behind innovation. Producers work with processors, who in turn liaise with distributors and, finally, retailers. Consumer power and views matter. The last thing this industry needs is a food scandal. Meanwhile, as these strands interlace, the regulators are keeping a watchful eye on developments. More recently, the role of non-governmental agencies has been added to the mix, as regulators monitor how companies operate in the developing world.

GRAB THE RHINO, SOUND THE HORN

In such a seemingly self-aware industry, there are still a few potential grey rhinos – the creeping megatrends that industry stakeholders may not fully understand. One such development is food delivery: the men and women on motorbikes who tear around our cities. Food Panda, Deliveroo, and GrabFood (which has already gobbled up Uber Eats) are becoming ubiquitous as we appear increasingly willing to tolerate tepid food to avoid venturing out. Fresh-food delivery is also on the rise, with supermarkets offering a minimum-spend for door-to-door service. Lastly, the arguments over genetically modified food could justify a report of their own.

CHEAP AS CHIPS?

How, then, do we analyse the business viability of a food producer?

Let's start by examining demand. This involves finding out how much of a company's product portfolio can be classified as fully non-discretionary or moderately discretionary and asking about the mix of volumes and revenues between these categories. How do these compare, and have any shifts in demand been identified or predicted? From here, we can go on to explore the impact of price changes on the company's offerings. Does unit demand alter when prices alter, and how does this affect different products in various markets?

Of course, the retail channels play a vital role in influencing the desire for a particular foodstuff. We have all seen large displays of dry foods in the middle of supermarket aisles. How much do these arrangements cost? In tandem, does the producer have a say about how its products are positioned and packaged by leading retail chains? Increasingly, it is also important to examine the producer's hold in the virtual world: Does it operate its own e-commerce channel or relies on third-party platforms to manage sales?

Look ahead as well. Investigate the issues or events that will drive structural demand growth. How saturated is per capita consumption of the company's products in its markets? Screen the anticipated incremental need for the goods it sells and discover which goods are expected to remain popular among customers. In addition, review the firm's business plan to see if the firm intends to enter new markets and understands the challenges it may face.

FOOD FADS

With a deeper understanding of the business, delve into the structure of the market(s) within which it operates. How much competition does the company face? What are the barriers to market entry? What is the company's overall share of the market? And how significant is the threat from private labels?

Next, find out what the firm's customers think about its brands and products. Have their opinions been influenced by product recalls or controversies relating to health scares? Indeed, has the company ever faced regulatory action for violating any food safety practices?

Innovation is another aspect to assess. Consider new product launches and their frequency and study the steps that are taken to ensure that these do not cannibalise existing volumes. Lastly, think about the health of the consumer and inquire about sugar- and fat-related regulations. Do they exist in the company's markets? If not, are there plans to introduce them?

IS IT BAKED TO PERFECTION?

We have examined competition, so now look at the company's books to see how it has performed against its peers. What are its margins and expense ratios? And do remember cash flows.

Have organic volume growth rates been achieved? Furthermore, check out the company's investment strategy and the extent to which input cost increases can be passed on to customers. It is good to know if the company's supply chain is vulnerable to external disruptions, such as geopolitical issues or natural disasters.

Given the energy-intensive nature of food production, we must pay particular attention to environmental, social, and governance issues. Screen any investment that the firm has made in recycling programmes or raising consumer awareness about food wastage. Does the firm put profit first or make an effort to treat its suppliers fairly? What's more, how much money is spent on minimising the release of pollutants?

Ultimately, any company that can manage the multiple stakeholder relationships, recognise changing customer tastes, and keep an eye on the future will thrive. We hope that the items on today's menu have whetted your appetite for a more in-depth study of the food production industry and help you to decide if the business model of a company is sustainable.


FOOD PRODUCERS
A step-by-step guide to analyzing the food production industry
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Impact of price changes
Price spectrum
Presence and control of retail channel
Ecommerce presence
Stock Keeping Unit strategy
Current food attitudes
Marketing strategy
Customer perception
02 MARKET POSITION
Market concentration levels
Competitor market share
Strength of Private labels
Barriers to entry
Pricing power compared to scale
Retail network concentration and pricing pressures
Food labelling regulations
Product testing and approval regulations
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03 STRUCTURAL INFLUENCES
Saturation of per-capita consumption and demand
Anticipated incremental demand
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04 GAUGING PERFORMANCE
Supply chain risk
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Product portfolio diversity
Pricing power
Accounts receivable days
Development and marketing costs
Gross, operating, and net margins
Retail channel costs
Amount of input cost passthrough
Product lifecycle management strategy
Margin sensitivity to commodity prices and FX
Organic volume growth
Hedging strategies
New product launch track record
05 ESG FACTORS
Health and nutrition product strategy
Sustainable supply practices
Environmental initiatives and practices
Emissions and consumption reduction initiatives
Fair treatment of suppliers

COMMON TO THE SECTOR

1. WHAT IMPACT DO PRICE CHANGES HAVE ON THE COMPANY'S PRODUCTS?

a. How does unit demand alter when prices change, and how does this affect different products in various markets?
b. How effectively can the company pass cost increases on without impacting demand for its products?
c. How much does demand increase in response to price reductions? Are additional volumes sufficient to cover lower revenue per unit due to the price reduction?
d. Does the company offer products across the price spectrum in the same category or sub-category?
e. What is the company's stock keeping unit (SKU) strategy? How many different package sizes are typically offered in each product?
f. How does the company ensure smaller SKUs do not cannibalize larger SKUs?
g. Does the company actively try to persuade customers to downtrade or up-trade to avoid losing share of their total spending? If so, how successful have these efforts been in the past?

2. WHAT PROPORTION OF THE COMPANY'S PRODUCTS COULD BE DESCRIBED AS DISCRETIONARY?

a. How much of the product portfolio can be classified as fully nondiscretionary versus moderately discretionary?
b. What is the mix of volumes and revenues between these categories? How do the margins compare?
c. Are customers reducing product consumption in any category or sub-category where the company has a presence?
d. If so, what are these sub-categories? What products are customers buying instead? Does the company offer products in the replacement sub-category?
e. How are these demand shifts identified or predicted?

3. WHAT IS THE ROLE OF THE RETAIL CHANNEL IN INFLUENCING DEMAND FOR THE COMPANY'S PRODUCTS?

a. How extensive is the company's presence in the retail channel in its key markets?
b. How much presence do the company's products have on the shelves of leading retail chains?
c. How much increase in demand is observed from rises in shelf space presence?
d. What is the impact of a reduction in shelf space presence?
e. How much control/influence does the company have on the size and positioning of shelf space? Are some retailers more favorably inclined to the company than others? If so, what costs are associated with these favors?

4. WHAT FACTORS ARE EXPECTED TO DRIVE STRUCTURAL DEMAND GROWTH?

a. How saturated are per-capita consumption and demand for the company's products in markets in which it operates?
b. How much incremental demand does the company anticipate due to increases in consumer expenditure?
c. What products are likely to continue to see per-capita demand growth?
d. What new product types are expected to see strong demand?
e. How does the company propose to drive structural growth? Does the company intend entering new markets or product segments? If so, what challenges are anticipated?

5. HOW ARE THE CULINARY PREFERENCES OF CUSTOMERS IN KEY MARKETS EVOLVING?

a. Are significant changes occurring in customer culinary preferences?
b. If so, what are these changes? What is the impact on the market and to the company's product portfolio?
c. How does the company intend to leverage these opportunities?

6. WHAT IS THE IMPACT OF CHANGES IN CUSTOMERS' FOOD ATTITUDES?

a. From a health perspective, what are consumers' perceptions towards packaged and processed food?
b. How are these trends evolving? How important is the perception of convenience in softening the impact from any negative attitudes?
c. What kind of foods do customers consider healthy? Has the company observed a significant increase in demand for fresh, natural and organic foods?
d. How is the company's product portfolio being affected by these trends?
e. How does the company intend to manage potential impacts? Are any measures being implemented to leverage these opportunities?

7. WHAT IS THE IMPACT OF PRIVATE LABEL PRODUCTS?

a. What is the market share of private labels in key product offerings? How is this trend evolving?
b. How much brand power does the company have to help compete against private labels?
c. How is this affecting relationships with retailers?
d. How much impact is anticipated from the proliferation of private label products? How does the company plan on managing this?

8. WHAT IS THE IMPACT OF E-COMMERCE GROWTH?

a. What is the share of e-commerce in the food and grocery segment in key markets?
b. How does the company expect this to evolve in future? What challenges are being presented as a result of this evolution?
c. In general, how much pressure are retailers facing as a result of e-commerce? How is this impacting the company specifically?
d. Does the company have a presence in e-commerce channels? Also, does it sell directly or through third-party e-commerce platforms?
e. What strategies are in place to leverage opportunities arising from the increased use of e-commerce?

9. COMPETITION LEVELS AND ENTRY BARRIERS IN THE INDUSTRY.

a. How concentrated is the market in general and, specifically, in categories and sub-categories in which the company operates?
b. What is the company's market share in categories and subcategories in which it operates?
c. How much negotiating and pricing power does the company's scale allow?
d. How easy or difficult is it for new players to enter the market? What factors affect the entry of new players?

10. PERCEPTIONS ABOUT THE COMPANY'S BRANDS AND PRODUCTS.

a. How do consumers perceive the company's brands and products?
b. Are there any controversies surrounding brands, considering factors such as labelling, use of preservatives, use of GMO ingredients, potential health risks from ingredients, etc.?
c. Have there been any instances where the company has had to recall products?
d. What has been the company's track record with respect to quality control at production facilities?
e. Has the company ever been penalized, warned or faced regulatory action for violating any food safety norms?
f. Is the company facing, or has it faced in the past, litigation regarding any aspect of its products?
g. Has the company ever faced adverse media coverage for any reason? If so, please provide details and a summary of remedial measures undertaken.

11. RELATIONSHIPS WITH RETAILERS.

a. How fragmented or concentrated is the retail network in the company's key markets?
b. How concentrated or diversified is the company's sales exposure to different retailers?
c. Who are the top-three and top-five retailers in the company's market and what proportion of the company's sales emanates from these retailers?
d. How much pricing pressure comes exposure to large retailers? How does the company expect this trend to evolve?
e. In this context, what is the anticipated impact of the shift towards e-commerce? How much channel de-risking is expected?
f. Do retailers charge slotting fees in key markets? If so, how much cost is incurred?

12. WHAT IS THE COMPANY'S PRODUCT INNOVATION STRATEGY? WHAT HAS BEEN ITS TRACK RECORD IN NEW PRODUCT DEVELOPMENT/ LAUNCHES?

a. How frequently does the company launch new products?
b. How are new products or variants typically differentiated?
c. What steps are taken to ensure that new product launches do not cannibalize existing product volumes?
d. How much of the company's revenue is typically derived from new products?
e. What is the company's strategy for managing the product life cycle?
f. How much cost is typically incurred in the development and marketing of new products?

13. WHAT IS THE EXTENT OF DETAIL REQUIRED ON FOOD LABELS?

a. How detailed are food labelling requirements in key markets? Are these likely to get more stringent?
b. Could customer perception of the company's products be affected by information about the goods that appears on labels?
c. What requirements exist relating to labelling information about sugar and fat presence in food products?
d. Are these requirements becoming more stringent? How is this trend likely to evolve and what is the impact envisaged?
e. How much negative perception regarding sugar and fat currently exists in key markets? How is this evolving?
f. How much total and added sugar is present in the company's products?
g. How much total, saturated and unsaturated fat is present in the company's products?

14. HOW ARE REGULATIONS RELATING TO SUGAR AND FAT EVOLVING?

a. Do any sugar and/or fat taxes exist in key markets?
b. If not, how likely is it that these will be introduced? What would be the likely impact on sales and customer perception of the company's products?
c. How common is it for institutions to ban or restrict food products perceived to be high in sugar and/or fat from their canteens?

15. THE REGULATORY ENVIRONMENT AND ITS IMPACT ON THE COMPANY.

a. Typically, how time consuming for the company are testing requirements?
b. How much cost is incurred in the product testing and approval process?
c. Does the company face any issues relating to water availability and effluent disposal?

16. HOW HAS THE COMPANY PERFORMED OPERATIONALLY? HOW DO KEY METRICS COMPARE TO PEERS?

a. What organic volume growth rates have been achieved?
b. What level of price increase has been realized?
c. What is the company's price investment strategy? To what extent can input cost increases be passed on to customers?
d. How is the company placed on accounts receivable in terms of number of days?
e. Is the company's supply chain vulnerable to any disruptions due to external factors, such as geopolitical issues and natural disasters?
f. What has been the impact of commodity price changes on input costs? How sensitive are margins to changes in commodity prices?
g. Does the company employ any hedging strategies to manage the impact of input cost volatility?

17. HOW HAS THE COMPANY PERFORMED FINANCIALLY? HOW DO KEY METRICS COMPARE TO PEERS?

a. What is the current SG&A expense ratio?
b. On average, how much does the company spend on marketing and brand promotion?
c. What are the company's current gross, operating and net margins?
d. How much of the company's revenues are denominated in foreign currencies? How are foreign exchange risks mitigated?

18. PLEASE PROVIDE DETAILS OF THE COMPANY'S ESG PRINCIPLES, PRACTICES AND TRACK RECORD?

a. What is the company's strategy to address concerns relating to the health and nutritional aspects of its products? What programs are in place to address these concerns?
b. What is the emission, energy, water consumption and pollutant release intensity of the company's products and manufacturing processes? What steps are taken to improve performance on these fronts?
c. How much palm oil is used? Does the company practice source tracing of its palm oil supplies?
d. Does the company use (or has it used in the past) palm oil sourced from suppliers accused of the destruction of rainforests and wildlife habitats?
e. What measures are in place to ensure palm oil supplies are sourced in a sustainable manner?
f. How much packaging material is used per unit of SKUs in different product types? Does the company intend to reduce packaging or increase the use of biodegradable or recycled material, without compromising on safety/quality?
g. How much wastage occurs during the sourcing, processing, packaging and distribution of the company's products?
h. What proportion of the company's products are discarded as unsold past their best use date? Are there any composting or recycling programs in place for discarded products?
i. Does the company have any programs to increase customer awareness of food wastage, helping to promote responsible consumption?
j. How does the company ensure fair treatment of crop, dairy and animal farmers, small suppliers and the rural communities from which products are sourced?

ENVIRONMENTAL SERVICES

UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF THE ENVIRONMENTAL SERVICES SECTOR

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA; and Guruprasad Jambunathan, CFA, FRM

What do tackling climate change and succeeding in investing in risk assets over a longer term have in common? The answer: Our brains haven't evolved to deal with either. We are hardwired to be short-term thinkers. Our hominid minds remain the same as those of our ancestors. Primed to be alert for imminent threats, we don't have the fully refined instincts to respond to dangers looming in the future (maybe check back in a few million years).

Then there's the emotional factor. Spotting a wolf pacing around the edge of the forest triggered a rush of fear so intense that our forefathers sprinted away. No higher-level prefrontal cortex thinking was required. Our emotions are best adapted for life as once lived.

Our technological and societal progress has since raced past our evolutionary environment, and we haven't had time to catch up. The pitfalls of our biological tendency towards short-term thinking and emotional are well-known in the investment community – a common trait being missing out on gains from long-term investing.

Such parallels can easily be seen in how we think about climate change and environmental issues in general.

AN IMPORTANT YET UNINSPIRING ISSUE

Despite the doubtless passion of activists like Greta Thunberg, who protested outside the Swedish parliament at the age of 15 and started the international "school strike for climate" movement, the fact is, change in weather patterns does not trigger strong emotions. As we have observed, any long-term scenario won't necessarily spark immediate emotions in our brains.

Fortunately, however, our awareness is increasing, with 97% of climate scientists agreeing that temperatures are moving higher. Governments and corporations are increasingly taking measures to help preserve the environment. Perhaps there is hope for us yet.

STUDYING THE INVESTMENT CLIMATE

However, we are not here to preach from a pulpit. You see, this growing awareness of climate change and environmental issues also creates corresponding investment opportunities.

Consider the two subsectors we will focus on: solid waste management and recovery/recycling. Solid waste management is the traditional staple of the broader sector – a must for the modern metropolis. In 2017, the industry was worth US$330 billion. By 2025, this figure is estimated to reach US$530 billion. In recent years, the proper disposal of pollutants has come to the fore. Indeed, the recycling market was valued at around US$265 billion in 2017, and is forecast to reach US$377 billion by 2024.

Taken together, that's close to a trillion-dollar industry in under a decade. It might seem surprisingly high until you consider that the world's cities generated over 2 billion tonnes of solid waste in 2016, a figure expected to hit almost 3.5 billion tonnes by 2050.

So, rather than be overly pious, we will instead give you a systematic framework for analysing this valuable, growing, and indispensable sector.

We will begin by helping you to understand how the industry is defined.

DEFINING AND CATEGORISING THE INDUSTRY

Unlike the previous industries we have explored, there is no clear consensus on the boundaries of what are environmental services. Depending on who you ask, subsets like pollution control, water treatment, and environmental services engineering may also be included.

Whatever these confines are, both solid waste management and recovery and recycling are well within them, which is why they form the centrepiece of our sector analysis.

The first step is to categorise these two subsectors. Within the solid waste management segment, determine the type of waste a company handles. It might be municipal solid waste (MSW), better known as rubbish/trash/ garbage – industrial, hazardous, agricultural, biomedical, or a combination of these. Remember that regulations vary by type of solid waste. On the service level, research what the company offers: Does it cover the full spectrum of collection, aggregation, transfer, storage, and disposal, or just part of it?

If a company is in the recovery and recycling space, again, look at the type of excess it deals with – for example, plastics, construction debris, e-waste, or organic waste. You should payparticular attention if it handles e-waste or hazardous materials, as it typically means heavier regulatory scrutiny.

Within such assessments, establish the firm's end customers for each of its services. Also, keep in mind that since solid waste management and recovery and recycling can be linked in a single end-to-end process, you may find some companies which straddle both these areas. Because of this possible interlinking, both subsectors have many demand drivers in common.

THE DEMAND EQUATION

The top-line demand equation is simple: The more waste generated, the higher the need for environmental services. While the drivers may be similar across markets, there might be different growth factors for the various types of excess. Study what may be causing an upturn in waste generation in a company's markets split by category. Then, examine how they would affect the demand for a firm's specific services.

Beyond the amount of waste created in an individual market, you must also take population and regulatory sentiment into account. What is the general public's view on environmental issues? Do they take personal responsibility, or do attitudes lean more towards relegating responsibility solely to the government?

On the political and regulatory side, examine where the company's operating facilities are located and what jurisdictions they cover. Investigate whether each relevant government prioritises sustainable waste generation and management. See if it has enacted policies such as mandatory disclosure on emissions, and environmental, healthy, and safety (EHS) spending. Remember, talk is cheap. What matters is if a country's politicians have the will to implement and enforce long-term plans that may inconvenience the populace in the short run.

GRASPING MARKET STRUCTURE

Market structure also varies. Starting with the regulatory landscape, find out what kind of controls apply to the industry. Since we're talking about solid waste and recycling, look up the rules on landfill, importation, and transportation. With regard to landfill, review aspects such as closure and post-closure requirements as well as capacity rules.

From a competitive perspective, assess how regulations could turn a market's barriers to entry. Is it difficult, expensive, or time-consuming to obtain the necessary approvals and permits? Capital requirements are another roadblock, so measure the amount of investment typically required.

Then there's the competition. Ascertain the market share of the top three or five players in the industry. Are you looking at an oligopolistic market, or is it more competitive? In such a capitalintensive and regulation-heavy industry, large and entrenched competition may prove an insurmountable barrier.

FINANCIAL AND OPERATIONAL MEASURES

Moving on, start with the standard financial inquiries. Review revenue growth and gross, operating, and net margins, as well as free cash flow metrics, not forgetting to benchmark these against peers. Split these metrics according to the waste profile and type of services offered by the company for a more detailed picture of its financial performance. For instance, solid waste managers may use several disposal methods – incineration, recycling, and third-party removal, among others. How much revenue and profit does each method generate?

Operational metrics differ depending on the company's subsector. For solid waste management businesses, learn about growth trends in the number of customers served and volume of waste managed. For recycling and recovery firms, look at growth trends in recycled materials, the recovery rate of recyclates, as well as unit prices. For both types of companies, probe into whether they have any advantage, whether technological, regulatory, or otherwise, that may give them an edge over their competition.

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE FACTORS

In many ways, environmental, social, and governance (ESG) initiatives by firms in other sectors are the environmental services industry's rice bowl. The growing trend of stricter ESG regulations around the world as a result of increasing environmental awareness is thus a boon.

This does not mean the sector itself is spared from ESG scrutiny. In fact, environmentally focused companies should come under heavier inspection (and they usually are). First, gauge the footprint of the business: What is its track record in reducing energy and emissions intensity? Given the nature of the industry, this is likely directly linked to its operating model (i.e., its primary disposal methods).

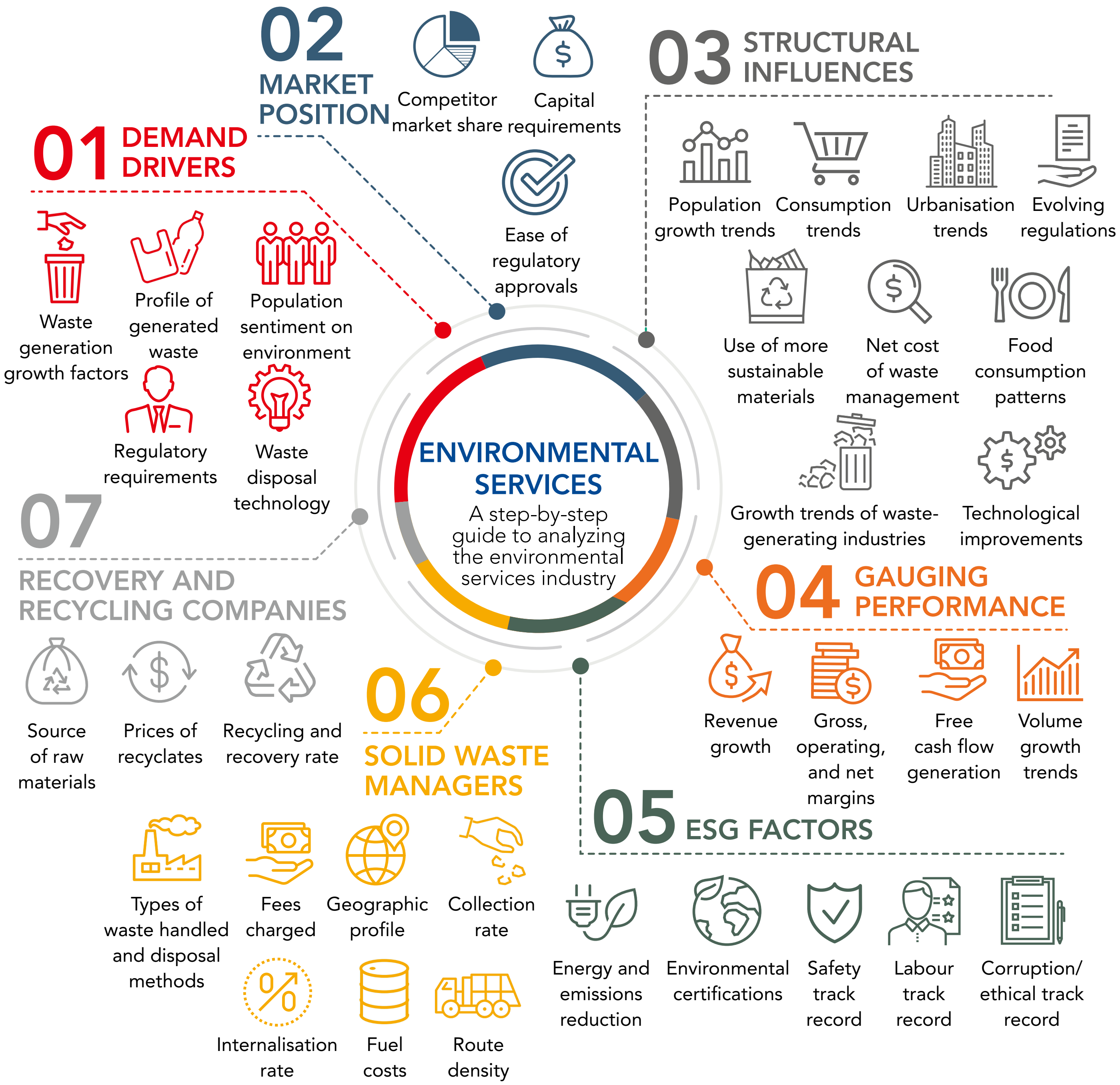
Have there been any incidents of leakages or accidents resulting in environmental damage? What about corruption and kickbacks in winning projects and measures in preventing such practices (recall that in the United States, the mob was once heavily involved in the garbage collection business)? Don't forget to explore the company's track record on the fair treatment and safety of its workers.

THE LONG-TERM DEMAND CLIMATE

Given that people tend to falsely conflate the weather (shortterm) with the climate (long-term), we cannot afford to neglect the bigger picture when analysing this industry. On a general level, survey population growth, consumption, and urbanisation trends to visualise the future. Study per capita waste generation figures and the correlation between economic growth and waste generation in individual markets.

Zooming in a little, inspect the GDP share of industries which generate a high volume of waste. This includes manufacturing, agriculture, thermal power generation, and mining. What are their projected growth trends? Finally, bear in mind the impact of technology – size up how clean production technologies might evolve and the effects they might have.

In terms of glamour, a study of solid waste management and recycling companies can't be compared to a review of, say, the luxury goods sector, but it is a necessary and growing space with real investment opportunities. So, eschew your city shoes, don a pair of rubber boots, and get stuck in!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COMMON TO THE SECTOR

1. DD: WHAT ARE THE SERVICES PROVIDED BY THE COMPANY?

a. What are the various services provided by the company: waste collection, aggregation, transportation, disposal, recovery, recycling, waste to energy, safe storage etc.?
b. What are the types of waste dealt with, by potential for environmental impact: municipal solid waste (MSW), hazardous waste, non-hazardous, biomedical waste, E-waste etc.?
c. What are the services provided by the company, by method of disposal: composting, recycling, incineration, compacting, dumping in landfills, safe storage etc.?
d. Does the company handle both organic and inorganic waste?
e. Which are the end markets served, by the originator of waste: household, commercial, municipal governmental, industrial, biomedical etc.?
f. Does the company offer clean production solutions aimed at waste reduction and pollution control?
g. Does the company provide environmental protection and remediation services?

2. DD: WHAT ARE THE DRIVERS OF DEMAND FOR ENVIRONMENTAL SERVICES?

a. What are the factors causing growth in waste generation?
b. How is the profile of waste generated evolving: proportion of organic waste is increasing, more non-biodegradable waste is generated, more hazardous waste is generated etc.?
c. How aware, sensitive and active is the population about environmental issues in general?
d. How does the population view the impact of unsustainable waste generation and management practices?
e. How do differences in technology (between methods of disposal, between countries, and over time) influence the supply conditions in the industry?

3. DD: WHAT IS THE PROFILE OF CONSUMERS?

a. Who are the consumers for the various services?
b. What is the mix of revenues and profits by various services and consumer types?

4. DD: WHAT ARE THE REGULATORY FACTORS DRIVING DEMAND FOR ENVIRONMENTAL SERVICES?

a. What are the details of emissions and waste generation that businesses and industries are required to disclose about with their operations?
b. Are there any mandates or disclosure requirements on EHS spending by businesses and industries?
c. What is the extent of Environmental, health and safety (EHS) spending by households, businesses, industries and the government?
d. How strong is the enforcement of various regulations governing waste management?

5. SI: WHAT ARE THE STRUCTURAL FACTORS INFLUENCING DEMAND IN THE COMPANY'S KEY MARKETS?

a. What are the trends in population growth, consumption and urbanization?
b. How many mega cities exist in the company's key markets? How many are expected to be there in future?
c. What is the per capita generation of different types of waste?
d. What is the correlation between economic growth and waste generation intensity?
e. How does the net cost (after recovering useful material and energy) of waste management compare with the per capita GDP and income levels?

6. SI: WHAT ARE THE CHANGES IN PATTERNS OF FOOD CONSUMPTION THAT DRIVE INCREASE IN GENERATION OF PACKAGING WASTE?

a. Is the share of processed, packaged, ready to cook and ready to eat foods in the total food consumption increasing?
b. How does the growth in meal take-away and delivery services compare with the growth in total food consumption?
c. Which materials are used for food packaging currently? Is there a shift to using more biodegradable or recyclable material?
d. What is the share of food waste in the total amount of waste generated?

7. SI: WHAT ARE THE CULTURAL AND BEHAVIOURAL FACTORS INFLUENCING THE BUSINESS?

a. How does the population view the issues of cleanliness and waste management?
b. Do people consider waste management as a shared responsibility or as the responsibility of government/ civic bodies or private entities?
c. Do practices of source segregation and decentralised management of waste get support from consumers?
d. How strong is the Not In My Backyard sentiment? Do the communities near existing or proposed waste management facilities and landfills strongly oppose locating such facilities close to their neighbourhoods?
e. Are there informal networks of waste collectors and handlers? What are the details of efforts made at professionalising and formalising those networks? Are there moves to partner them for the larger goal of responsible and sustainable waste management?

8. SI: WHAT IS THE ROLE OF TECHNOLOGY IN THE WASTE MANAGEMENT BUSINESS?

a. Which parts of the waste management ecosystem does the company see significant role for technology-enabled solutions (waste reduction, collection, sorting, processing etc.)?
b. What are the details of any initiatives the company has taken to leverage technology in its operations?

9. MP: WHAT IS THE LEVEL OF MARKET CONCENTRATION AND BARRIERS TO ENTRY?

a. What is the market share of Top 3 / Top 5 waste management service providers?
b. How difficult, expensive and time consuming is it to get the requisite approvals and permits?
c. What is the typical capital investments needed to serve a certain size of customers?
d. Does the company possess any unique technology or processes that gives it an edge over competition?

10. MP: WHAT ARE THE ENVIRONMENTAL, PUBLIC HEALTH AND SAFETY RELATED CHALLENGES AND REGULATIONS RELATED WITH LANDFILLS AND OTHER WASTE MANAGEMENT FACILITIES?

a. How does the current capacity of landfills compare with current and future requirements?
b. What are the legal and regulatory requirements governing the siting and running of landfills?
c. What are the liner and leachate collection and removal requirements governing landfills and other facilities?
d. What are the requirements regarding monitoring of groundwater near landfills and other facilities?
e. What are the closure and post-closure requirements?
f. What are the hazards posed by natural disasters such as cyclones, earthquakes, floods and earthquakes?

11. MP: WHERE ARE THE COMPANY'S WASTE MANAGEMENT FACILITIES LOCATED? WHAT ARE THE GEOGRAPHICAL RESTRICTIONS ON THE MOVEMENT OF WASTE?

a. How we are the company's facilities connected to the transportation infrastructure necessary to receive waste collected and despatched from the generating points?
b. Do the company's facilities treat waste collected from generators in the same jurisdiction (region or country) or from foreign jurisdictions?
c. How much of the waste managed by the company is imported from other jurisdictions?
d. What is the legal, political and public perception of such import of waste? Are there any proposals under consideration to restrict or prohibit such imports?
e. What are the various restrictions and regulations governing transportation and transfer of solid waste?

12. PM: HOW HAS BEEN THE COMPANY'S PERFORMANCE ON FINANCIAL MEASURES? HOW DOES THAT COMPARE WITH PEERS AND EXPECTED TO EVOLVE?

a. What has been the revenue growth of the company?
b. What has been the gross, operating and net margins?
c. How much free cash flow the company generates, as a percentage of revenues?

SOLID WASTE MANAGERS

13. DD: WHAT ARE THE VARIOUS TYPES OF MSW HANDLED BY THE COMPANY?

a. What is the mix of amount waste handled by different types: hazardous vs non-hazardous, municipal vs industrial vs biomedical, organic vs inorganic, corrosive, toxic, radioactive etc.?
b. What are the various services offered by the company: collection, aggregation, transfer, storage, disposal?

14. DD: WHAT ARE THE DETAILS OF MSW HANDLED BY THE COMPANY?

a. Does the company offer end-to-end services or operates in parts of the chain?
b. What is the geographic profile of the markets served by the company: urban, semi-urban or rural?
c. What is the collection rate (waste collected as a percentage of waste generated) in the areas where the company operates?

15. DD: WHAT ARE VARIOUS DISPOSAL METHODS OF MSW USED BY THE COMPANY? HOW MUCH REVENUE IS GENERATED FROM EACH METHOD?

a. What proportion of the waste collected is disposed in different ways: compacted and dumped in landfills, composted, recycled, incinerated or sold to third parties for further processing?
b. What is the fee charged by the company for waste collection, aggregation and transfer, per unit of waste?
c. What is the rate of tipping / gate fee charged by the company at its landfills?

16. DD: WHAT ARE THE DETAILS OF INDUSTRIAL SOLID WASTE HANDLED BY THE COMPANY?

a. What are the different types of industrial waste handled by the company: organic vs inorganic, hazardous vs non-hazardous etc.?
b. What is the profile of the hazardous waste: toxic, flammable, corrosive, radioactive, explosive etc.?
c. How is the waste material collected?
d. Which are the industries the generators of solid waste operate in: oil & gas, chemicals, farm inputs, metals and mining, pharma etc.?
e. What are the disposal methods used: underground injection, landfill and treatment, incineration, composting, dumping and incineration at sea?

17. SI: WHAT ARE THE STRUCTURAL FACTORS INFLUENCING THE SOLID WASTE MANAGEMENT BUSINESS?

a. What is the share of process and manufacturing industries in the GDP of countries where the company operates? How is this evolving?
b. What is the current state and prospects of industries such as nuclear power generation, electronic manufacturing, solar panel manufacturing, chemicals, pharma etc., that generate high levels of hazardous solid waste?
c. What are the growth trends of industries such as agriculture, thermal power generation, mining, quarrying etc. that generate high levels of non-hazardous solid waste?
d. How are clean production technologies evolving? How is that likely to affect waste generation intensity?

18. MP: WHAT IS THE REGULATORY STRUCTURE OF THE SOLID WASTE MANAGEMENT INDUSTRY?

a. Which agency regulates the activity?
b. How many licences / contracts are granted in each area for MSW collection and handling?
c. How are the licences / contracts granted and for how long?
d. What is the typical duration of the contracts that the company holds?
e. In case of multiple licences, how many service providers does the company compete with? Is there overlap in areas served?
f. Does the company have exclusive licences / contracts in any areas?
g. What is the revenue sharing arrangement with the contracting agencies?
h. Does the company own the landfill sites or depends on others?
i. What are the regulations governing charging of tipping / gate fee? How is it determined?

19. PM: HOW HAS BEEN THE COMPANY'S PERFORMANCE ON OPERATIONAL MEASURES? HOW DOES THAT COMPARE WITH PEERS AND EXPECTED TO EVOLVE?

a. What has been growth trends in the number of customers served and volume of waste managed?
b. How close to each other are the waste generators located?
c. What is the route density (tonnes of waste collected per km of collection route) of the company's collection operations?
d. What has been the internalization rate (percentage of waste disposed in own landfills) of the company?
e. How has average waste handling charges per unit evolved?
f. What is the share of fuel costs as a percentage of total costs and revenues?

RECOVERY AND RECYCLING SERVICES

20. DD: WHAT ARE THE DETAILS OF INDUSTRIAL SOLID WASTE HANDLED BY THE COMPANY?

a. What are the different types of waste from which the company recovers material or recycles: plastics, construction debris, e-waste, organic and food waste etc.?
b. Does the company recycle both hazardous and non-hazardous waste?
c. Where, how and in what quantities are these wastes generated?
d. How is the raw waste material sourced? Is it sourced locally, domestically or imported from foreign countries? Does the company collect them directly from generators or buys from other companies which collect from generators?

21. DD: WHAT ARE THE FACTORS INFLUENCING SUPPLY OF RAW MATERIAL FOR RECYCLING AND RECOVERY?

a. What are the trends in generation of different materials that the company uses as raw material for recycling and recovery?
b. What are the regulatory, consumption or technology driven factors affecting generation of waste used by the company?
c. How are technological advancements like single- and dualstream recycling, co-mingled recycling and all-in-one mixedwaste processing driving demand by reducing need for segregation at source by the generator of waste?
d. What is the likely result of increasing adoption of sustainable building materials and reduction of waste at construction site, driven by the Leadership in Energy and Environmental Design (LEED) framework of the United States Green Building Council (USGBC)?

22. DD: WHAT ARE THE FACTORS DRIVING DEMAND FOR MATERIAL RECOVERY RECYCLING SERVICES?

a. What are the legislative, regulatory or voluntarily adopted mandates for use of material such as recycled paper and packaging and post-consumer plastics?
b. What are the regulations governing recovery or reuse of demolition and construction debris?
c. What are the evolving consumer preferences that are driving demand for recycling services?

23. DD: WHAT ARE THE FACTORS DRIVING DEMAND FOR WASTE TO ENERGY GENERATION SERVICES?

a. What is the share of biogenic (food and farm waste) waste in the total waste generated?
b. What is the heat content of the typical kinds of non-biogenic (e.g. plastics and metals) waste generated?
c. What drives demand for waste to energy services: paucity of suitable land fill sites due to growing waste volumes and competing land uses, sustainability issues surrounding landfilling, leakage from landfills and resultant impact on the environment, methane gas emissions from landfills etc.?

24. DD: DOES THE COMPANY HANDLES E-WASTE?

a. What factors drives availability and collection of e-waste? Are there mandates for electronic device makers to offer collection services to end users?
b. What is the impact of the increasing penetration and shortening upgrade cycles of electronic gadgets on generation of e-waste?
c. How does the company sources e-waste?
d. Does the company refurbishes previously used electronic equipment and resells them?
e. How does the company ensure all user data in the devices are erased before reselling?
f. Where refurbishing is not feasible, what are the various material does the company recovers?

25. DD: WHAT ARE THE PRICES OF RECYCLATES?

a. How does the price of energy generated from waste compares with energy from various other sources?
b. What are the prices realised for various recyclates (such as fuel and polyester yarn from plastic waste, precious metals from e-waste etc.) produced by the company?
c. How much prices do refurbished electronic devices command?

26. SI: WHAT IS THE RECYCLING AND RECOVERY RATE IN THE COMPANY'S KEY MARKETS?

a. What proportion of different types of waste are recycled / recovered (recycling rate)?
b. How does the recycling rate in the areas where the company operates compare with national, regional and global trends?
c. How does the company expect the recycling rate to evolve?

27. PM: HOW HAS BEEN THE COMPANY'S PERFORMANCE ON OPERATIONAL MEASURES? HOW DOES THAT COMPARE WITH PEERS AND EXPECTED TO EVOLVE?

a. What has been growth trends in the volume of material recycled by the company?
b. What has been the recovery rate of recyclates from raw waste, for different types of waste?
c. How have the unit prices of recyclates and energy evolved?

ENVIRONMENTAL, SOCIETY AND GOVERNANCE

28. WHAT ARE THE COMPANY'S ESG PRINCIPLES, PRACTICE AND TRACK RECORD?

a. What is the company's strategy, practices and track record in reducing the energy intensity, water intensity, emissions intensity, waste generation and overall environmental and ecological footprint of the services and operations?
b. What are the steps taken by the company to promote sustainable practices by waste generators?
c. What proportion of the sites operated by the company have environmental management certification such as ISO 14001?
d. How many incidents of leakages or other accidents resulting in damage to the environment has the company faced? What are the details and consequences of such incidents?
e. What is the proportion of total work sub-contracted or outsourced? What is proportion of total number of personnel employed and revenue generated?
f. How has been the company's track record regarding the safety and fair treatment of labourers involved in its projects? What is the total number of fatalities, days lost and injuries in relation to total number of personnel employed?
g. How much is the typical spend on maintenance and safety at the company's offices and project sites?
h. Has the company faced accusations of indulging in corruption and offering kickbacks to win projects?
i. What measures does the company undertakes to prevent corruption and bribery in the context of contracting with public organisations and governments?
j. What is the company's policy and track record relating to political donations?

ENGINEERING & CONSTRUCTION

BUILDING BLOCKS – UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF CONSTRUCTION AND ENGINEERING

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA; and Guruprasad Jambunathan, CFA, FRM

Construction and engineering are almost certainly the oldest industry we will explore in our investment frameworks series, as it goes back to our fundamental need for shelter. In 4850 BC, our Neolithic ancestors constructed the Cairn of Barnenez, the world's oldest-surviving building. This prehistoric Parthenon is 72 metres long, 25 metres wide, and over 8 metres high – an impressive size considering it took another 1,350 years to invent the wheel.

Jump to the present, and the industry is being revolutionised by technological advancement, albeit in a more subtle way than the progression from wooden hovels to steel skyscrapers.

This shift, termed "Industry 4.0," is more akin to the changes already happening in the finance and insurance space (fintech and insurtech). As such, elements of this guide may seem familiar, though definitely different in application. We will first examine the changes taking place in the industry, as these will lay the foundation for company analysis.

IT'S ALL ABOUT DATA

Construction and engineering companies are quickly realising they can enhance product and service delivery through data-based services. This is taking a couple of forms. First, data-based services allow automated yet closer interaction with end users. This enables the archiving of massive databanks at affordable cost. Second, drone surveillance technologies permit improved data collection abilities, leading to closer-at-heart project planning, design, and execution. Or put simply, better decision-making from more objective data. This combination lets companies monitor real estate over their entire life cycle instead of just the construction phase, while also generating a wealth of useful analytics for future projects.

JOINING THE INTERNET OF THINGS

The Internet of Things (IoT) revolution is very new and has only recently become part of the modern lexicon. With the development of advanced gadgets, such as built-in sensors and smart home devices, the industry can now, for the first time, join the IoT revolution. One example is how the capability for full and seamless integration with energy, waste, and water management leads to reduced costs and sped-up project timelines.

TYING IT TOGETHER WITH PREDICTIVE ANALYTICS

Most analytics are descriptive, making past data actionable. This is insightful but of little use in forecasting. For that, we turn to predictive analytics, which attempts to make robust forecasts using techniques including statistical modelling and machine learning.

In construction and engineering, this has several applications. One example is customised solutions to clients, while another is enhanced 3D-modelling capabilities for housing developments, permitting crystal-clear communication with residents and investors.

There is also Building Information Monitoring (BIM), which enables more effective deployment of modular design. With this, specific building components can be constructed offsite in safer and more cost-effective environments. Lastly, there's waste minimisation stemming from the continuous feedback loops from all aspects of the project.

FUNDAMENTALS AMID A CHANGING LANDSCAPE

This technological evolution will create more efficient, lower-cost companies. Those unwilling or unable to leverage on this may soon find themselves in the Darwinian scrapheap. The changes happening in the sector, particularly its strong interlinking with the IoT revolution, might pose a challenge for investors seeking a clearer picture. However, there remains a systematic way of analysing the industry – after all, it is still very much a bricks-and-mortar business.

CATEGORISING BY SERVICES AND MARKETS

With so many different subcategories within the sector, step one is determining the type of services a company offers and which market it serves. Is it a residential or non-residential construction company or an engineering services company? Keep in mind many firms are involved in a combination of two or more.

After identifying the firm's end markets, assess their structure, starting with the market share of the top providers split by services and end markets. Given its capital-intensive nature, construction typically has high barriers to entry, which could be even higher depending on local regulations.

MATCHING MARKETS TO DEMAND DRIVERS

Demand drivers within the industry will also be varied. While some factors like capacity utilisation rates, gross fixed capital formation rates, and demand cyclicality cut across all markets, each type of market has its own specific demand drivers. For instance, in the residential market, there will be factors like house prices and income levels, home ownership rates, consumer confidence, and ease of home financing.

For commercial markets, explore office vacancy rates and corporate infrastructure spending trends. Government demand is heavily influenced by economic policy, so study government spending statistics and legislative mandates on infrastructure spending. In Singapore, for example, the public sector has, in recent years, made up the lion's share of industry demand.

THE FINANCIAL FOUNDATIONS

Construction industry margins are notoriously low, making cost structure paramount. As such, you must closely inspect a company's books. Identify its main contract types – for example, are they cost plus, fixed price, or target price – and learn the benefits and drawbacks of each.

Next, consider the firm's top and bottom lines. Examine the revenue and profit split between services, markets, and regions, and look for variations in margins. For cost structure, investigate the major cost components and benchmark them against peers. Furthermore, see if any of the technologies discussed here are being used to enhance cost efficiency.

Don't forget the currency mix – forex volatility can wreak havoc on already thin margins. Also, scrutinise billing practices, things like how revenue is tied to percentage completion or costs incurred versus costs remaining.

THE OPERATION OF THE MACHINE

Revenue and profits don't tell the whole story. Proper working capital management is crucial to surviving in this industry. Research how a company raises its working capital and its weighted average cost. Are these costs expected to increase? How sensitive are they to interest and forex rate volatility?

A company's order book is as critical as its financials. Find out its size, and how much of it is backlogged. Again, the mix between services, markets, regions, and currency must be studied, with the added aspect of completion schedules as well. Get a picture of the future order book by looking at the pipeline that feeds into it: What percentage historically converts into concrete orders?

A simple look at historical performance can reveal a lot. Vet its track record: Has the company generally delivered its projects on schedule? If not, review the significance of the overruns and their implications.

ENVIRONMENTAL, SOCIAL AND GOVERNANCE FACTORS

According to the International Energy Agency, the construction industry accounts for 36% of global energy consumption and 40% of total CO2 emissions. Concrete, the foundation of the industry, is the most widely used material in the world with adverse environmental impacts. As such, ESG factors will increasingly play a critical role in influencing company's reputation.

Analysing ESG factors comes down to a few key areas. Has the company taken any initiatives in improving energy efficiency? Has it implemented any environmentally sustainable practices and encouraged its clients and suppliers to do the same? On the social front, see if it has undertaken any community service initiatives.

Also determine if staff safety and welfare is emphasised. Were there efforts to improve gender diversity? Finally, establish if there have been any accusations of corruption or kickbacks, and if processes like proper procurement procedures and robust tender procedures are present.

LONG-TERM SUSTAINABILITY

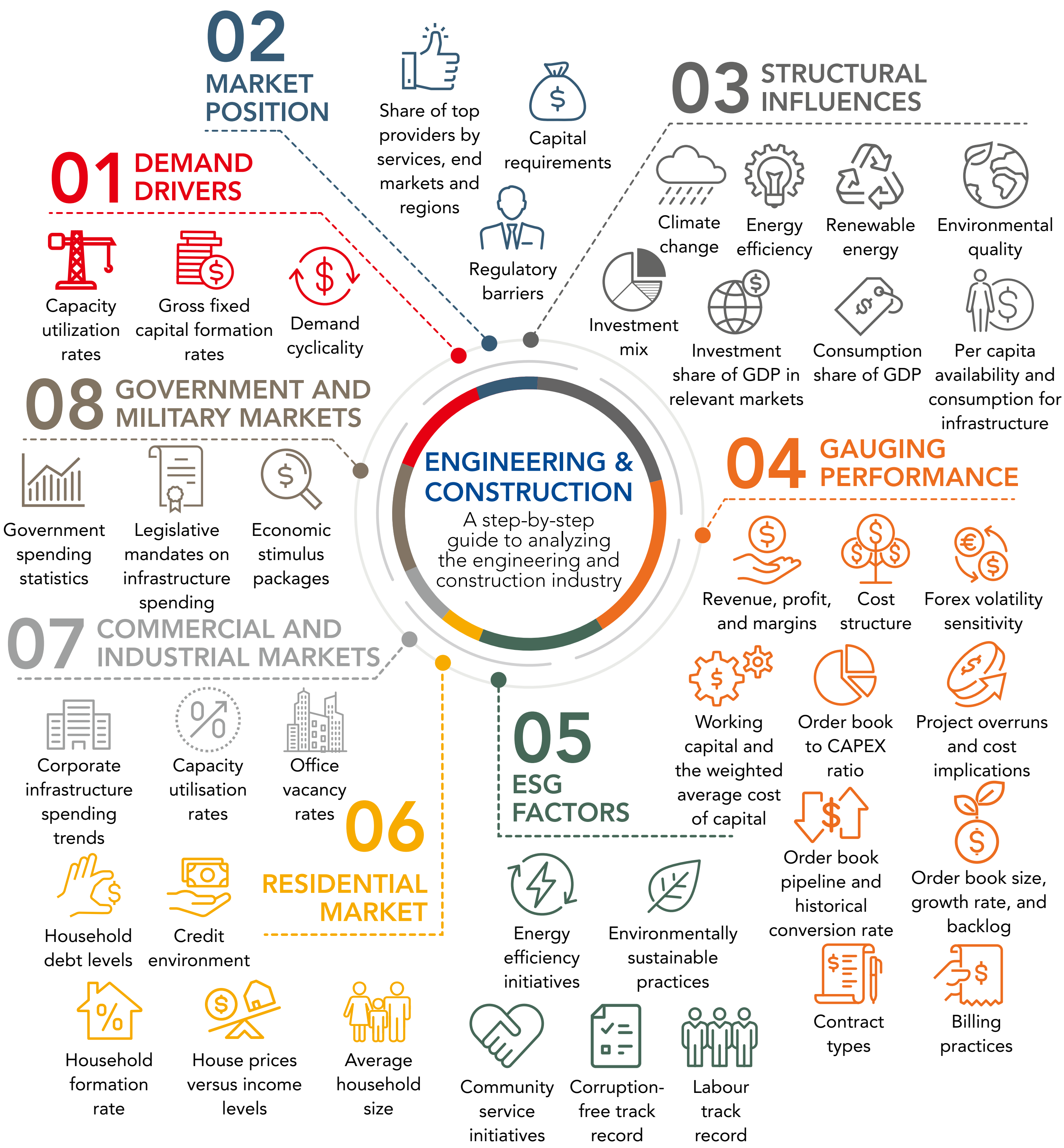
Last, consider long-term demand drivers, because these structural demand drivers will influence the shorter- term ones. We can split these into three categories: investment-driven, consumption-driven, and regulation- driven.

Investment-driven factors encompass metrics such as the investment share of GDP in the relevant markets and the investment mix among the various sectors. Among these sectors, assess where future growth is expected to be derived.

For consumption-driven factors, look at the consumption share of GDP. Research the per capita availability and consumption of the various infrastructure facilities and services. Examples are the transportation, energy, and housing sectors. Again, study which ones are most likely to drive future growth.

Finally, we have regulation-driven factors, which are highly affected by themes. These include climate change, energy efficiency, renewable energy, and environmental quality. All these could trigger legislative and regulatory mandates, so determine whether such mandates would be positive or negative for a company.

This framework is intended to give you the building blocks for analysing the construction and engineering sector. Keep building upon it, and you will soon be sufficiently equipped to construct your own portfolio.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Capacity utilisation rates
Office vacancy rates
08 GOVERNMENT AND MILITARY MARKETS
Government spending statistics
Legislative mandates on infrastructure spending
Economic stimulus packages

COMMON TO THE SECTOR

1. WHAT ARE THE SERVICES PROVIDED BY THE COMPANY?

a. What services does the company provide: engineering services (planning, design, programme management, operations, maintenance etc.), residential construction and non-residential construction)?
b. Which are the end markets: housing, offices, academic facilities, social and recreational, healthcare, oil & gas, transportation, power generation, utilities, mining, environmental services, industrial infrastructure, military infrastructure, non- military government infrastructure etc.?

2. WHAT FACTORS DRIVE DEMAND FOR THE COMPANY'S SERVICES?

a. What are the capacity utilisation rates in various end markets?
b. What is the Gross Fixed Capital Formation rate?
c. What are the consumption and investment shares of GDP? How is the mix evolving?
d. What is the extent of cyclicality and seasonality in demand for the company's services?

3. WHAT ARE THE DEMAND DRIVERS FOR THE COMPANY'S SERVICES TO THE RESIDENTIAL MARKET?

a. What is the average household size and household formation rate in the company's key markets?
b. What are the urbanisation, immigration and home ownership rates in the key markets?
c. How do house prices compare with income levels?
d. What are the household debt levels? What proportion of this is from residential mortgages?
e. How favourable is the regulatory environment for growth of the housing finance market?
f. How prevalent is housing finance and how easy is it to obtain home loans?
g. How stringent are the down payment requirements and credit assessment norms?
h. Are there any tax benefits to investors, builders and funders of housing?
i. What are the trends in building permit issuances, housing starts and home inventories?
j. How correlated are consumer confidence and employment conditions with building permit issuances, housing starts and inventories?

4. WHAT ARE THE DEMAND DRIVERS FOR SERVICES TO THE COMMERCIAL AND INDUSTRIAL MARKETS?

a. What are the office vacancy rates?
b. What are the trends in discretionary corporate spending on buildings and other infrastructural facilities?
c. How do the current levels of capacity utilisation rate and capex spending compare with historical trends in different industries?

5. WHAT ARE THE DEMAND DRIVERS FOR SERVICES TO THE GOVERNMENT AND MILITARY MARKETS?

a. How much is the government spending on infrastructure, as a percentage of GDP?
b. Are there any economic or sector stimulus packages currently in operation or expected in near future?
c. What are the existing or upcoming legislative mandates on infrastructure spending?
d. Are there any plans to increase deployments or expand logistics by the military?

6. WHAT FACTORS DETERMINING PRICING AND BILLING RATES OF YOUR SERVICES?

a. What is the mix by different contract types: Cost Plus, Fixed Price, Target Price, Time and Materials?
b. What are the relative benefits and drawbacks of the different contract types?
c. Based on services provided and end markets served, which contract types are more beneficial?

7. WHAT IS THE MIX OF REVENUE AND PROFITS?

a. What is the mix of revenue and profits by services, end markets and regions?
b. How do the margins vary by services, end markets and regions?
c. What is the extent of risk the company is exposed to, by different services, end markets and regions?
d. What is the currency mix of revenue and profits?

8. WHAT ARE THE DETAILS OF THE COMPANY'S BOOK OF BUSINESS?

a. What is the size of order book and backlog?
b. What is the mix of the order book by type of services, end markets and regions, currency and by completion schedule?
c. What is the size and details of option years held?
d. What is the size of the company's pipeline by type of services, end market and regions, currency and by completion schedule? What has been the pipeline to order conversion rate historically?

9. WHAT ARE THE LONG-TERM DRIVERS OF THE COMPANY'S BUSINESS?

a. What are the themes (such as infrastructure development, renewable energy, nuclear power, natural gas, environmental and climate change legislation) that are expected to drive business for the company's services in the long term, in different end markets and regions?
b. What is the extent of structural growth expected from different services and end markets across regions?
c. What is the company's strategy to leverage new-age technologies such as 5D building information modelling, reality mesh, digital high definition surveying, Internet of Things and smart sensors?
d. To what extent is the company using, or planning to use, new age building materials?

10. WHAT ARE THE INVESTMENT-DRIVEN FACTORS EXPECTED TO INFLUENCE STRUCTURAL DEMAND?

a. What is the investment share of GDP in the key markets?
b. What is the sectoral (industry, transportation, energy etc.) mix of investments?
c. Which are the sectors expected to drive future growth?

11. WHAT ARE THE CONSUMPTION-DRIVEN FACTORS EXPECTED TO INFLUENCE STRUCTURAL DEMAND?

a. How much is the consumption share of GDP in the key markets?
b. What is the per capita availability and consumption of various infrastructure facilities and services (such as transportation, energy, utilities, healthcare, housing and recreation) in the key markets?
c. Which of these consumption factors are expected to drive growth in future?

12. WHAT ARE THE REGULATION-DRIVEN FACTORS EXPECTED TO INFLUENCE STRUCTURAL DEMAND?

a. What are the existing, upcoming or expected legislative and regulatory mandates on themes such as inclusive development, universal coverage, sustainability, climate change, energy efficiency, renewable energy and environmental quality?
b. Which are the company's services that are likely to benefit from these mandates?
c. How does the company's current business and capability profile compare with what will be in demand?

13. WHAT IS THE EXTENT OF MARKET CONCENTRATION? WHAT ARE THE KEY BARRIERS TO ENTRY?

a. What is the share of top 3 and top 5 providers by services, end markets and regions?
b. What are the factors facilitating or impeding entry of new players?
c. What are the approvals and licences required? What is the ease and cost of getting these?
d. How easy is it to get a skilled management team and engineering and technical staff?
e. Do any existing or proposed labour or immigration regulations affect the company's ability to bid, win or execute projects in specific geographies?

14. 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 growth rate of company's order book? What are the details by type of services, end markets, regions and contract types?
b. What are the major components of cost of services?
c. How much is the employee and labour cost as a percentage of total cost and revenue?
d. What is the revenue and profits per employee?
e. Which services and end markets are the most profitable?
f. What is the share of fixed-price contracts in the company's order book, revenue and profits?
g. What has been the extent of time overruns of the company's projects across services, end markets and regions?
h. What has been the financial implications of the overruns?

15. HOW DOES THE COMPANY MANAGE ITS WORKING CAPITAL (WC) REQUIREMENTS?

a. What is the preferred mode of raising WC?
b. What is the currency mix of the company's WC?
c. What has been the company's weighted average cost of WC?
d. How are the currency mix and cost of the WC expected to evolve?
e. What is the impact of interest rate changes and exchange rate volatility on the company's WC cost and margins thereupon?
f. Do some services, regions and contract types require higher levels of working capital than others?

16. HOW HAVE THE CAPACITY UTILISATION RATES BEEN?

a. How has the book-to-bill ratio trended?
b. What has been the order book to capex ratio?
c. What is the capex budget and spending plan for the next few years? What is the underlying strategy?
d. Has the cash burn rate been consistent with billing schedules?
e. Are there specific end markets or regions where there are significant delays between the time expenses are incurred and payments are received from clients?

17. HOW IS THE CREDIT WORTHINESS OF CLIENTS ASSESSED?

a. What is the credit profile of the clientele? What are the details of the exposure of order book by end markets and regions?
b. How are delayed, partial and non-payments from clients managed?

18. HOW HAS THE COMPANY PERFORMED ON FINANCIAL MEASURES? HOW DO THESE COMPARE WITH PEERS? HOW ARE THESE EXPECTED TO EVOLVE?

a. How has been the revenue growth? What is the breakdown by services, end markets, regions, contract types and currency movements?
b. How much of the revenue is tied to the percentage completion billing arrangement?
c. How much of the revenue is billed on the costs incurred relative to the costs remaining basis?
d. In case of fixed price contracts, typically how much of the project related out-of-pocket expenses are reimbursed by clients?
e. What has been the company's gross, operating and net margins?
f. What is the sensitivity of revenue and margins to forex volatility?

ENVIRONMENTAL, SOCIETY AND GOVERNANCE

19. WHAT ARE THE DETAILS OF THE COMPANY'S ESG PRINCIPLES, PRACTICE AND TRACK RECORD?

a. What is the company's strategy, practices and track record in reducing the energy intensity, water intensity, emissions intensity, material consumption, waste generation and overall environmental and ecological footprint during execution of projects?
b. How does the energy consumption, emission, water use and waste generation intensity during the normal functioning of the buildings and other infrastructure compare with industry benchmarks? What are the initiatives taken to reduce these?
c. Does the company actively encourage and supports clients to adopt sustainable practices during normal use of buildings and other facilities constructed by it?
d. When the projects entail demolition of built structures, how much of the material is typically recovered? What is the procedure for handling recoveries and debris arising from the demolition?
e. Where possible, are features suited to the local climate incorporated in projects?
f. How much recycled, eco-friendly and locally sourced material are used in constructing buildings?
g. Is the effect on biodiversity of projects located near protected areas and areas of High Conservation Value (HCV) assessed prior to project execution?
h. Has the company been involved in protection or restoration of any habitat critical for endangered species or of HCV?
i. What has been the level of involvement in environmental or biological remediation projects as part of the company's sustainability initiatives?
j. As part of community-service initiatives, what are the details of any investments, services and sharing of expertise provided for public benefit?
k. How has been the company's track record regarding the safety and fair treatment of labourers involved in its projects? What is the total number of fatalities, days lost and injuries in relation to total number of personnel employed?
l. What is the proportion of total work sub-contracted or outsourced? What is proportion of total number of personnel employed and revenue generated?
m. How much is the typical spend on maintenance and safety at the company's offices and project sites?
n. Has the company faced accusations of indulging in corruption and offering kickbacks to win projects?
o. What is the company's policy and track record relating to political donations?

INSURANCE

UNDERCOVER ANALYSIS: ASSESSING COMPANIES IN THE INSURANCE SECTOR

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

Insurance is a curious sector. In years gone by, it was regarded as something of a cash cow, with the likes of Warren Buffett treating the float as a source of money to be invested elsewhere. Insurance companies were also seen as sclerotic, with time-consuming processes that often placed the customer last. It's not because these firms didn't care. Instead, the characterisation reflected an ingrained culture that didn't quite know how to change.

With the arrival of technology, the forces of disruption were quick to spot the inherent opportunities in the sector, and the attention of digital suitors now envelops insurance firms. These suitors include cloud computing, big data analytics, artificial intelligence, the blockchain, drones, and the internet of things.

The reshaping of the industry is taking place in several domains:

- **Customer acquisition and marketing:** the emergence of a more targeted approach when identifying customer groups
- **Claims:** a rise in automated handling with on-demand case information
- **Underwriting and product pricing:** with a deeper well of customer information to hand, costs are becoming fairer and more accurate

How should we analyse insurance counters?

DEMAND DRIVERS

Insurance is an umbrella term that covers various types of product offerings, so begin by finding out what the company you are analysing sells. Is it household policies or corporate cover? In which markets does it specialise (e.g., institutional or industrial)? Is its customer base in developed territories or those still emerging?

With this product information in hand, establish which macroeconomic factors are affecting the demand for insurance. Examine changes in income levels, business activity, and GDP growth, bearing in mind that, when times are tough, insurance can get pushed down the priority list and customers may fail to renew their policies or avoid cover altogether until the climate improves.

Affordability is a critical aspect to note. Compare the cost of the company's products with the average income levels of its target markets. People are more willing to expose themselves to risk if the cost of a policy is at odds with the cover provided, so look as well at how prices are evolving. Is pricing in sync with changes in personal income?

How do levels of competition affect the prices the company charges for its products? To answer this question, learn about the company's market share in terms of the number of policies sold and premiums earned. Find out where it sits relative to its peers (e.g., Is it a top-three or a top-five player?). Also, try to establish if any factors will help or hinder the arrival of new entrants: Will the market become saturated or will it remain static?

COMPANY ACTIVITY

Turn your attention to the company's specifics and study its track record in investing premiums. This analysis is important, as it will determine the health of the aforementioned float (i.e., the difference between claims paid and premiums collected).

From an expansion perspective, assess the company's businesses strategy and track record in launching new products and its ability to attract clients to those products. Consider whether the company treats new customers fairly once it has attracted them. Helpful benchmarks are the company's claims settlement ratio and grievance ratio.

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE

We closed the previous section by touching on the treatment of customers, which is an integral part of an insurance company's approach to environmental, social, and governance factors. Among other things, establish the total amount of claims that are currently under dispute and if the firm is presently facing any litigation or legal proceedings. Also, how does the company protect the privacy of its clients and ensure the safety of the data it holds?

MARKET STRUCTURE

Assess the current structure of the insurance market and the long-term factors that are expected to drive its growth. What type of policies dominate the market and how are they being sold—directly via online platforms or offline through brokers or bancassurance channels? Are there specific products market leaders and how will they evolve? For example, travel, home, and vehicle insurance are well-established as online offerings; however, specialist business insurance is likely to be purchased offline through a broker.

An understanding of market maturity is another useful tool, so screen the penetration levels of different products in the company's operating sphere in relation to overall economic maturity. How are these levels expected to evolve and which products will benefit (or lose out) from these changes?

THE RACE TO INNOVATE

Earlier, we noted the innovative disruptors that are transforming the insurance sector. In concluding this sector analysis, we highlight a crucial factor that will dictate the future direction of the industry: the receptiveness of a new breed of consumers to on-demand products. Insurance companies that can reshape their business models to accommodate the click-andbuy generation will be the leaders of tomorrow.

Moreover, as smart-home sensors become a standard part of our residences, wearable health sensors become inseparable from our wrists, and cost-effective drones assess building damage, insurance firms will find they have an efficient and accurate big-data platform to help them to filter out high-risk groups. Pricing will be fairer as honest customers will be less exposed to the activities of fraudulent claimants.


INSURANCE
Infographic showing the step-by-step process of analyzing the Insurance industry
01 PRODUCT AND MARKET SEGMENTATION
What type of insurance product do they sell
What market segment do they specialize in
Customer base
Affordability
02 STRUCTURAL INFLUENCES
Macroeconomic factors
Penetration levels and protection gap
Barriers to entry
Brand reputation
Market concentration
03 BUSINESS OPERATIONS
Sales channels
Client acquisition performance
Track record in launching new products
Overall business strategy
04 GAUGING PERFORMANCE
Investment management
Net premiums written and earned
Policy retention rate
Claims ratio, expense ratio and combined ratio (CoR)
Underwriting margin and new business margin
Process efficiency initiatives
05 RISK MANAGEMENT
Reserves to anticipated loss
Solvency levels
Asset-Liability mismatch
Risk mitigation policies and measures
06 ESG
Proportion of AUM in line with ESG principles
Number of claims in dispute
Protection of client privacy
Safety of customer data

COMMON TO THE SECTOR

1. WHAT ARE THE PRODUCTS OFFERED BY THE COMPANY?

a. What are the products offered: life, health, property and casualty?
b. Which customer segments does the company cater to: household, trade, corporate, institutional and industrial?
c. Which are the regions and countries the company operates in?

2. WHAT ARE THE MACROECONOMIC FACTORS AFFECTING DEMAND FOR INSURANCE?

a. How do changes in income levels, business activity and GDP growth affect demand?
b. How much of the demand is driven by tax breaks, if any, provided on insurance products?
c. Which other social and demographic factors affect demand?

3. HOW AFFORDABLE ARE DIFFERENT INSURANCE PRODUCTS AND SERVICES IN THE COMPANY'S KEY MARKETS?

a. How does the cost of different products compare with average income levels of the target demographic/ market segment?
b. How is affordability evolving? What will drive affordability – changing income levels or the cost of insurance?

4. WHAT IS THE LEVEL OF MARKET CONCENTRATION?

a. How much share do the Top 3 / Top 5 players have in the key markets?
b. What is the company's market share, in terms of number of policies sold, premium written, premium earned and SA?
c. How much market share does the company hold in different products and segments across geographies?

5. WHAT ARE THE FACTORS FACILITATING / IMPEDING ENTRY OF NEW PLAYERS?

a. What is the investment required?
b. How difficult is to get approvals and licence?
c. How easy is it to get the right skill sets and expertise?
d. How expensive is to build agent network and acquire customers?

6. WHAT IS THE STRUCTURE OF THE INSURANCE MARKET AND THE SALES CHANNELS? HOW ARE THESE EVOLVING?

a. Are there state-run insurers in the company's market? If yes, then how big and strong are they? How large is the private sector?
b. What is the mix of policies sold, Annual Premium Equivalent (APE) earned and SA through different sales channels: direct – offline, direct – online, agency, bancassurance, corporate agency/broker etc.? Are there specific products which are easy to sell through specific channels?
c. What is the mix of policies sold, APE earned and SA between individual and group policies?

7. WHAT ARE THE LONG-TERM FACTORS THAT ARE EXPECTED TO DRIVE GROWTH? HOW ARE THESE EXPECTED TO EVOLVE?

a. What are the penetration levels of different insurance products in the company's markets, in relation to the stage of economic development they are in?
b. How are penetration levels expected to evolve? Which products are likely to benefit or lose out from the changing penetration levels?
c. What is the sum assured (SA) and premium income as % of GDP?
d. What is the protection gap ratio (ratio of protection lacking/protection needed) and size of the coverage opportunity across different products and segments?
e. Does the company has a strategy to leverage emerging technologies such as Internet of Things and smart sensors to harvest usage and behaviour data to reduce claims and offer better products and cheaper prices to customers?

8. HOW HAS THE PERFORMANCE BEEN ON OPERATIONAL MEASURES? HOW DO THESE COMPARE WITH THAT OF PEERS AND HOW ARE THESE EXPECTED TO EVOLVE?

a. What are the growth trends in new policies sold, APE and SA?
b. What is the split of new policies sold, APE and SA between existing products (products in existence for more than a year) and new products?
c. What is the growth rate of new policies sold, APE and SA for existing products?
d. What is the policy renewal/retention/persistency rate of various existing products?
e. What are the technology-enabled initiatives the company has implemented to improve process efficiencies in operations and claims administration?

9. WHAT IS THE COMPANY'S STRATEGY AND TRACK RECORD IN LAUNCHING NEW PRODUCTS?

a. How frequently are new products launched? How does the company decide what to launch when?
b. How do the number of policies sold, average APE and average SA compare to similar products in the company's existing portfolio and in the market?
c. How does the average APE and SA of new products compare with that of the existing products?
d. How does the acquisition cost of new products compare with that of similar existing products in the company's portfolio and in the industry?
e. Does the company use big data and prescriptive analytics to design new products and to price them?

10. HOW HAS BEEN THE COMPANY'S PERFORMANCE ON CLIENT ACQUISITION?

a. How many new clients are acquired through new products sales vs sale of existing products?
b. What is the split of number of policies, APE and SA between existing and new clients?
c. How does the average APE and SA of newly acquired clients compare with that of existing clients, for similar existing products in the company's portfolio and in the market?
d. How does the company's client acquisition costs compare with those of peers?

11. HOW HAS THE TRACK RECORD BEEN ON CUSTOMER SERVICE MEASURES?

a. What has been the claims settlement ratio and grievance ratio?
b. How does the company prevent mis-selling of its products? What are the regulations in place to protect customers from mis-selling? How has been the company's track record in this aspect?
c. What is the extent of cross-selling? How is this measured and tracked?
d. To what extent the company is using digital channels to provide customer service?
e. How useful are analytics in identifying customer needs and market products accordingly?

12. HOW HAS THE COMPANY'S PERFORMANCE BEEN ON FINANCIAL MEASURES? HOW DO THESE COMPARE WITH THAT OF PEERS AND HOW ARE THESE EXPECTED TO EVOLVE?

a. What is the growth rate of annual Net Premiums Earned (NPE) and Net Premiums Written (NPW)?
b. How has the NPW/NPE ratio trended over time?
c. What is the company's claims ratio, expense ratio and combined ratio (CoR)?
d. What are the company's underwriting margin and new business margin?

13. HOW WELL HAS BEEN THE COMPANY'S TRACK RECORD IN MANAGING INVESTMENTS?

a. What is the asset allocation strategy? What are the details for each fund type and asset class and region?
b. What is the currency mix of the investments?
c. What are the company's investment income and yields?
d. What is the sensitivity of investment income and yields to changes in interest rates and volatility in exchange rates? Does the company use hedging to manage these aspects?
e. What are the trends in the company's Assets Under Management (AUM) and Fee income?
f. What is the credit profile of investments in fixed income securities?

14. HOW STRONG IS THE COMPANY'S BALANCE SHEET? WHAT DO THE CAPITAL ADEQUACY RATIOS LOOK?

a. What is the size of investment assets, reserves, provisioning and subordinated debt?
b. What is the debt-to-total capitalisation ratio?
c. What is ratio of reserves to anticipated loss?
d. What is the average tenor of assets and liabilities?
e. What is the extent of the Asset-Liability Mismatch (ALM)?
f. How do solvency ratios compare with regulatory requirements and with industry standards?

15. WHAT ARE THE DETAILS OF THE COMPANY'S RISK MANAGEMENT STRATEGY?

a. How does the company maintain underwriting discipline?
b. How do the underwriting practices of the company compare with those of the peers?
c. How does the company measure performance on risk mitigation and underwriting discipline? How is the track record rated by the company in relation to that of the peers?
d. How do large unforeseen claims affect the business? What is the strategy to mitigate associated risk?
e. Does the company use technologies such as bit data analytics, machine learning to prevent, detect and mitigate fraud? Are there plans to deploy distributed ledger solutions to protect data and authenticate customers and contracts?

LIFE INSURANCE

16. WHAT ARE THE DETAILS OF THE COMPANY'S PRODUCT PORTFOLIO?

a. Does the company offer both protection and investment products?
b. What are the different types of investment products offered: whole life, universal life, variable life, and retirement products?
c. What is the mix of policies, APE and SA across different products? How is this evolving?
d. What is the mix of policies, APE and SA between linked vs non-linked and participating vs non-participating products?

17. WHAT IS THE STRUCTURE OF THE LIFE INSURANCE MARKET AND HOW IT IS EVOLVING?

a. What is the mix of protection and investment products in the industry and for the company?
b. What is the share of insurance products in household savings?

18. WHAT ARE THE LONG-TERM FACTORS THAT ARE EXPECTED TO DRIVE GROWTH? HOW ARE THESE EVOLVING?

a. a. What is the birth rate and population growth rate in the company's markets?
b. What is the size of working age population? How is the dependency ratio expected to evolve?
c. How do trends in average life expectancy in the company's markets affect demand for life insurance?
d. How is life insurance perceived by the populace in the company's markets: as a risk cover, an investment vehicle or a tax-saving instrument? How is this evolving?
e. What is the level of household savings? How much of this is invested in financial assets?

19. WHAT ARE THE RISKS TO THE COMPANY'S ASSUMPTIONS ON MORTALITY/LONGEVITY? WHAT IS THE STRATEGY TO MANAGE ANY ADVERSE IMPACT?

HEALTH INSURANCE

20. WHAT IS THE STRUCTURE OF HEALTHCARE SERVICES IN THE COMPANY'S KEY MARKETS?

a. Do the residents have access to universal healthcare? If not, are there proposals under consideration?
b. If there is no universal healthcare, what proportion of the total healthcare expenditure do the residents spend out of their pocket?
c. How common is employer-provided health cover? Is it mandatory for employers to provide this benefit?
d. Is the healthcare sector public, private or mixed? If it is mixed, what is the share of each?
e. What is the company's target segment for selling health cover: individual, institutional, government or mixed? What is the mix in terms of number of policies, APE and SA?

21. WHAT ARE THE LONG-TERM FACTORS THAT ARE EXPECTED TO DRIVE GROWTH?

a. How do trends in average life expectancy in the company's markets affect demand for health cover?
b. How are healthcare costs evolving in relation to income levels?
c. Does the company rewards, or has plans to reward, healthy behaviour (eg. not using tobacco products) of customers by offering lower prices? How does the company intend to implement this?

PROPERTY & CASUALTY INSURANCE

22. WHAT ARE THE LONG-TERM FACTORS EXPECTED TO DRIVE GROWTH? HOW ARE THESE EXPECTED TO EVOLVE?

a. What are the trends in macroeconomic growth and property ownership in these markets?
b. What are the trends in private automobile ownership and accidents involving them?
c. Does the company rewards, or has plans to reward, disciplined behaviour (eg. responsible driving) of customers by offering lower prices? How does the company intend to implement this?
d. Does the company's product mix include cyber insurance?

23. WHAT ARE THE LIKELY IMPLICATIONS OF THE SHIFT FROM OWNERSHIP TO ACCESS-BASED CONSUMPTION MODELS?

a. How does the company view the advent of ride-hailing services, car subscription services and autonomous driving? How are these likely to affect the motor insurance market?

24. WHAT IS THE COMPANY STRATEGY TO DEAL WITH INCREASING UNCERTAINTY OF NATURAL PHENOMENA ARISING OUT OF CLIMATE CHANGE? DOES THE COMPANY BELIEVE THE FREQUENCY OF OCCURRENCE OF EXTREME WEATHER EVENTS IS ON AN UPWARD CLIP?

ENVIRONMENTAL, SOCIETY AND GOVERNANCE

25. WHAT ARE THE DETAILS OF THE COMPANY'S ESG PRINCIPLES, PRACTICE AND TRACK RECORD?

a. What proportion of the company's own AUMs and those held for clients is managed in accordance with ESG principles?
b. What is the proportion of financial instruments and investment property is held in accordance with ESG principles?
c. What is the value and proportion of customers protected by, and total revenue generated from, microinsurance products?
d. Is the company currently facing any litigation or legal proceedings? What are the details?
e. What is the total amount of claims that are currently under dispute?
f. What are the company's investments and programmes in research and technology to develop or acquire new ways of identifying, assessing and managing risk and improving investment performance?
g. How does the company protect the privacy of clients and ensure the safety of client and business data?

LOGISTICS

A SUPPLY CHAIN OF TOOLS: MAKING THE RIGHT INVESTMENT MOVES WITH LOGISTIC SERVICE PROVIDERS

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

Logistics is the backbone of today's supply-chain ecosystem, ensuring that people and goods are transported efficiently from one point to another, on time, in good condition, and at competitive prices. The sector is evolving rapidly, as advances in technology respond to distribution demands from e-commerce firms. Furthermore, disruptive forces are in play as new entrants create services that we suddenly cannot live without.

Logistics is also a labyrinthine industry that includes a multitude of stakeholders, ranging from governments to warehouse operators, freight specialists, port authorities, transport companies, and ultimately, the end-user.

In the logistics industry, finding two firms that are entirely alike is difficult. Thus, establishing a complete picture of a company's portfolio of services to gain insights into the logic of its business model is vital. For example, does the company cater to the retail or industrial markets? Armed with that information, you will have a roadmap to help drill into the demand factors in each division of the logistics company's business.

As in any other industry, demand is fundamental in logistics. Find out where in the world the company's demand originates, paying attention to the different services offered by the company and the types of cargo moving from one point to another. Volume is another crucial factor—how many packages are regularly in transit and at which times of the year?

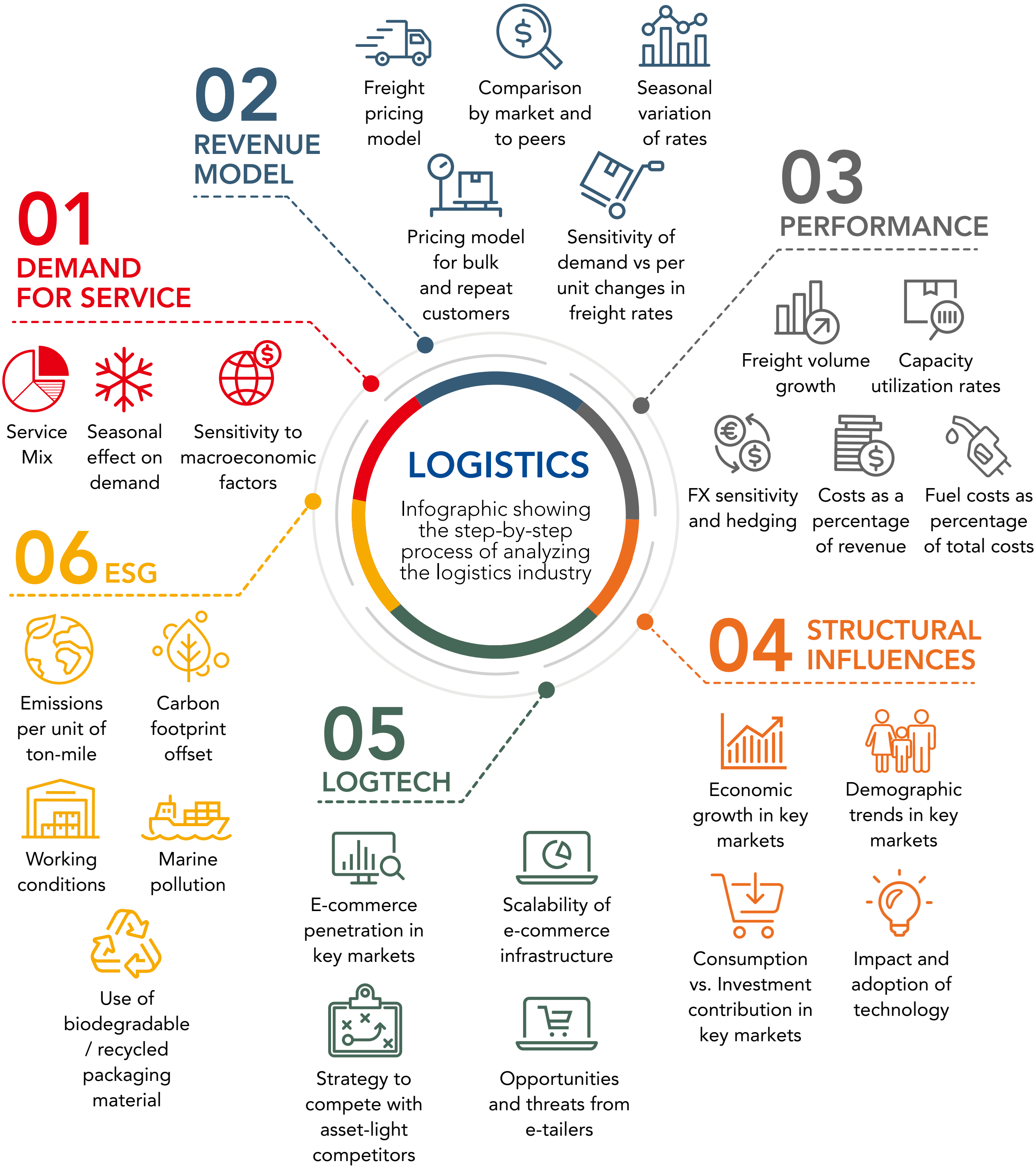
The logistics industry is relatively sensitive to unpredictable external events, so don't lose sight of macroeconomic factors. Gauge the sensitivity of the business to changes in the economic conditions and levels of consumption in the regions in which it operates. Firms that specialise in home delivery could flourish in territories where there is a burgeoning middle class, but are also vulnerable to downturns in established markets. Indeed, the home delivery functions of logistics players, which have until now been buoyed by the growth of e-commerce, could be threatened by the so-called e-tailers— Alibaba and Amazon, among others—who are looking to forward integrate into distribution.

With a basic understanding of the various demand drivers that impact each arm of the company's portfolio of services, examine the company's pricing model by comparing it with that of its peers within the same industry. Logistics firms do not have much wriggle room when it comes to pricing. For example, if we take two broadly similar businesses transporting good from Kuala Lumpur (KL) to Singapore by road, we see they both face the same fuel prices and distance covered, yet will undoubtedly offer different freight rates, discounts, and pricing models. To find out how they do this, research (among other things) the firm's transport planning. Is it efficient? A good measure to examine is its load-to-truck ratio—a lower ratio translates into cheaper freight rates. What is its vehicle mix? Is it flexible enough to adapt to changes in demand? Does the company own its trucks or just lease them? Also, consider whether a bias exists toward contract drivers or full-time employees.

From an environmental, social, and governance perspective, the logistics industry offers a certain amount of clarity to help you formulate your research. The global transport of goods consumes large amounts of fossil fuel, so take stock of the emissions intensity of the company's operations and the steps it takes to offset its carbon footprint. Packaging is another angle to contemplate—think of all those small online purchases that arrive in large boxes! Therefore, enquire whether the company is seeking to reduce packaging and use biodegradable or recycled material.

Another aspect to inspect is the operational performance of the company and how its key metrics, such as margins and costs, compare with its competitors. What impact do changes in freight rates, fuel costs, and exchange rates have on these metrics? As we know, past performance is no guide to the future, so look at how the long-term megatrends—macroeconomic conditions, exchange rate movements, technology, and demographics—affect the company's logistics business model. These will be the key differentiating factors that separate a top-performing logistic player from its peers.

If we return to our two trucking businesses plying the KL/ Singapore route, you should get to know how they are utilising technology in their different functions. For example, have they automated their warehouse operations and eliminated the need for forklift truck drivers? As e-commerce continues to evolve and competition increases, automation is unavoidable. In a similar vein to what has happened in the financial industry, the logistics space is heavily influenced by the development of cutting- edge technology. If the phrase has not already been coined, we can call this evolution logtech.


LOGISTICS
Infographic showing the step-by-step process of analyzing the logistics industry
01 DEMAND FOR SERVICE
Service Mix
Seasonal effect on demand
Sensitivity to macroeconomic factors
02 REVENUE MODEL
Freight pricing model
Comparison by market and to peers
Seasonal variation of rates
Pricing model for bulk and repeat customers
Sensitivity of demand vs per unit changes in freight rates
03 PERFORMANCE
Freight volume growth
Capacity utilization rates
FX sensitivity and hedging
Costs as a percentage of revenue
Fuel costs as percentage of total costs
04 STRUCTURAL INFLUENCES
Economic growth in key markets
Demographic trends in key markets
Consumption vs. Investment contribution in key markets
Impact and adoption of technology
05 LOGTECH
E-commerce penetration in key markets
Scalability of e-commerce infrastructure
Strategy to compete with asset-light competitors
Opportunities and threats from e-tailers
06 ESG
Emissions per unit of ton-mile
Carbon footprint offset
Working conditions
Marine pollution
Use of biodegradable / recycled packaging material

COMMON TO THE SECTOR

1. PLEASE PROVIDE DETAILS OF THE COMPANY'S PORTFOLIO OF SERVICES.

a. What are the different services provided: surface transportation, air cargo, marine shipping, forwarding?
b. Which market segments are catered for: retail, commodities, industrial?
c. What type of cargo is handled: bulk, raw material, finished goods?
d. Which regions are currently being served?

2. WHAT ARE THE VARIOUS FACTORS AFFECTING DEMAND FOR THE COMPANY'S SERVICES?

a. What is the mix of demand from different services, market segments, cargo types and regions?
b. How is the demand mix in terms of number of packages, volume of cargo and freight tariff charged?
c. What are the seasonal variations in this demand mix?
d. How have the demand mix and seasonality been historically and how are these trends evolving?

3. WHAT IS THE IMPACT OF MACROECONOMIC FACTORS ON DEMAND?

a. How sensitive is demand to economic conditions and consumption in regions in which the company operates?

4. WHAT ARE THE COMPANY'S FREIGHT RATES, DISCOUNTS AND PRICING MODEL?

a. What freight rates are charged for different services and cargo types?
b. How do these rates vary by market segment and by region?
c. How do the company's rates compare with those charged by peers?
d. On what basis are rates determined?
e. What pricing model is adopted for bulk and repeat users?
f. Are there any seasonal variations in the rates charged?
g. How sensitive is demand to per unit changes in freight rates?

5. WHAT ARE THE LONG-TERM FACTORS EXPECTED TO DRIVE GROWTH? HOW DOES THE COMPANY EXPECT THESE TO EVOLVE?

a. What are the demographic and macroeconomic growth trends in key markets?
b. What is the mix of consumption share versus investment share of the economy in markets where the company operates? How is this evolving? Is the firm's operating model geared to align with these trends?
c. What is the likely impact of an expected shift from ownership based (buy and use) to access-based (rent/share and use) consumption models?
d. To what extent is the impact of technologies such as autonomous driving, robotics and drones impacting the company's operations?

6. WHAT IS THE LEVEL OF MARKET CONCENTRATION AND ENTRY BARRIERS?

a. What is the market share of the top-three and top-five players? What is the company's current market share?
b. What are the significant barriers for new players to enter the industry?
c. To what extent does technology facilitate the entry of new entrants?

7. TO WHAT EXTENT IS TECHNOLOGY UTILIZED IN DIFFERENT FUNCTIONS?

a. Does the company have an integrated platform for cargo handling and tracking?
b. Does the firm use technology-driven solutions to prevent loss of packages?
c. Are automated updates provided to customers about the movement of their packages?
d. How much technology is utilized in forecasting demand and optimizing resources?
e. Are software solutions utilized to optimize deliveries?

8. HOW HAS THE COMPANY PERFORMED OPERATIONALLY? HOW DO KEY METRICS COMPARE WITH PEERS AND HOW ARE TRENDS EXPECTED TO EVOLVE?

a. What freight volume growth trends exist in terms of number of packages, tonnage and ton-miles carried?
b. How have the company's capacity utilization rates evolved? Is there any seasonality in utilization rates?
c. How much have freight rates changed in the past five years?
d. What are the company's costs as a percentage of revenue?
e. What is the company's fuel cost as a percentage of total costs?

9. HOW HAS THE COMPANY PERFORMED FINANCIALLY? HOW DO KEY METRICS COMPARE TO PEERS AND HOW ARE TRENDS EXPECTED TO EVOLVE?

a. What is the currency mix of the company's revenue and cost base?
b. What are the company's gross, operating and net margins?
c. How sensitive are revenues and margins to per unit changes in freight rates?
d. How sensitive are margins to per unit changes in fuel costs?
e. What is the sensitivity of revenues and margins to changes in exchange rates?
f. What is the firm's hedging strategy to manage volatility in fuel costs and exchange rates?

LOGISTICS PROVIDERS

10. HOW WILL THE EVOLUTION OF E-COMMERCE LIKELY AFFECT THE COMPANY'S OPERATIONS?

a. What is the share of e-commerce in key markets and across product categories?
b. How mature is the payments infrastructure required to support the growth of e-commerce?
c. How does the company view the trend of large e-commerce retailers, such as Amazon setting up their own logistics operations?
d. What is the company's strategy to leverage opportunities arising from the rise of e-commerce?

11. HOW MUCH COMPETITION IS EXPECTED DUE TO NEW BUSINESS MODELS?

a. What is the company's view on the evolution of asset-light models, such as Postmates and Amazon Flex?

MARINE SHIPPING

12. WHAT FACTORS AFFECT DEMAND FOR SHIPPING SERVICES?

a. How sensitive is shipping demand to changes in global trade growth and mix?
b. To what extent has new capacity been added to the industry? How has this impacted demand and price realization?
c. How does the company foresee capacity addition evolving in future?

13. WHAT IS THE IMPACT OF MACROECONOMIC FACTORS ON DEMAND?

a. How does the company view the impact of manufacturing moving back to developed countries from developing countries, driven by industrial automation and 3D printing?

14. WHAT FACTORS FACILITATE/IMPEDE THE ENTRY OF NEW PLAYERS?

a. What different licenses and approvals need to be obtained for a company to operate shipping services?
b. How difficult is it to obtain these and what are the typical costs involved?
c. How vulnerable to piracy are the routes the company operates in? How much additional cost is incurred in minimizing the risk of piracy?

15. HOW HAS THE COMPANY PERFORMED OPERATIONALLY? HOW DO KEY METRICS COMPARE WITH PEERS AND HOW ARE TRENDS EXPECTED TO EVOLVE?

a. What proportion of the company's freight ships are owned and leased?
b. How does the company decide whether to own or lease vessels? What are the implications for the balance sheet and margins?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE

16. THE COMPANY'S ESG PRINCIPLES, PRACTICES AND TRACK RECORD.

a. What is the emissions intensity of the company's operations? What emissions are generated per unit of ton-mile handled?
b. Are customers offered the option of offsetting the carbon footprint of their consignments?
c. Does the firm encourage customers to reduce packaging and use biodegradable or recycled material, and facilitate such choices? Do plant-based packaging materials sourced from suppliers adhere to recognized forest certification schemes?
d. What proportion of the company's facilities are certified for / practice measures to save energy, water and reduce emissions?
e. What is the company's track record relating to working conditions for employees and contractors?
f. What measures are implemented in the company's facilities, fleet and other operations to ensure the health and safety of personnel? What is the company's track record in terms of fatalities, injury rates and lost time incident rates?
g. What is the company's track record with respect to marine pollution (discharge of black and grey water)? What measures have been implemented to minimize environmental impacts?

EDUCATION

BEST IN CLASS: THE INVESTMENT FUNDAMENTALS OF THE EDUCATION SECTOR

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

Citius, altius, fortius—faster, higher, stronger—may be the Olympic motto, but it also reflects a basic human desire to improve on what we have already achieved. This is precisely the case with education, where parents—be they millionaires or daily wage earners—instinctively want their children to transcend the achievements of previous generations. This desire is particularly evident in emerging markets.

Fortunately, education is no longer the preserve of the privileged few and is accepted as a fundamental right, with children in nearly all parts of the world required rather than expected to attend school. Viewed in investment terms, education is a nondiscretionary service, or to be more precise, the education industry is emotionally nondiscretionary. This is particularly true in countries where the gap between the demand for education and its supply is significant. Typically, these are economies where the median age of the population is young and the public education system is inadequate. Parents in these countries, therefore, strive to give their children at least a secondary, if not a tertiary education.

What does this mean in terms of sector analysis? First, we need to separate education into two groups: 1) taxpayerfunded public institutions, and 2) private, fee-paying establishments run by local or multinational institutes. We examine these latter, investible entities in this paper.

This framework is not a definitive guide to the sector, but is intended as a starting point that invites and encourages you to study the sector's investment factors in greater depth.

THE LOCAL MARKET AND ECONOMY

Let's begin by examining employment conditions in a company's domestic market and how those conditions affect the demand for education.

- First, assess the level of importance employers and students place on educational qualifications. As an economy becomes more knowledge oriented, it will require more specialised skills; the demand for more sophisticated and higher levels of education is, therefore, likely to rise.
- Second, gauge the effect of unemployment rates on student enrolments. Demand for basic education could be noncyclical while demand for higher education could actually be countercyclical: contracting economies will often lead to a rise in the number of student opting for higher studies, as job vacancies are limited and determined parents will somehow find the money to pay for college fees. Of course, you should also attempt to predict how these trends will evolve.
- Third, note the broad economic mix in the company's markets. How is the economy split between the agriculture, manufacturing, and services sector, and which of these areas employs the most people? Activity in the services sector—an excellent barometer of the health of an economy—and the growth prospects for knowledgebased industries are increasingly vital determinants of employability and the nature of courses that the education systems need to offer.

DO THE COURSES WORK?

Having established an outline of the economic conditions in the target company's domestic market, appraise the portfolio of services offered by the company. Are the services relevant to the company's customer base and is its revenue model scalable?

Services can cover everything from grammar schools, colleges, and universities, to private tuition, vocational training, and test preparation. Build a picture of how these services are broken down and look at the types of courses on offer. In developing countries with tourist appeal, you should see more institutions offering hospitality studies. Conversely, advanced markets will focus on business, arts, science, and engineering.

Because education is a service industry, how well the company delivers its services is another crucial factor. Screen the number of outlets or centres the company operates and see how many students are enrolled. At the same time, size up the revenue and operating profit per student in each of these facilities. Does the company offer its full range of courses across all outlets? This will help you to judge the strength of the business, as broad exposure doesn't always translate into deep market penetration.

We would be remiss if we provided a framework for analysing this sector without mentioning how technology is disrupting the education space. The distance learning market is booming, particularly in Asia where, among other things, a shortage of qualified teachers in various fields is forcing students to seek online solutions. Find out if a company's key markets have easy access to inexpensive, high-speed internet connectivity. Determine the company's mix of student enrolments and revenue between on-campus and virtual delivery and how that ratio compares with that of the company's competitors.

From a revenue perspective, try to determine how the company makes its money. Is it from components such as tuition fees, books, or fees? Follow up by observing how quickly the company expects these segments to grow in the next three to five years. Does the firm intend to expand its operations and offer courses in any new fields of study? These determinations can also apply geographically, so inspect any plans by the company to open institutions elsewhere.

PUBLIC VERSUS PRIVATE

The education sector faces competition not only from firms offering similar products but also from public institutions. Attitudes toward private education differ from country to country, with some viewing it as an essential service that helps to compensate for a weak public system while others class it as a luxury item. Either way, you must understand the strength of the state-run school system in the company's markets. Examine the infrastructure and share of enrolments within the different segments and understand why students may prefer a public institution over the equivalent private operation. What do employers think? For example, do they treat privately educated students more favourably?

COMPARE AND CONTRAST

Having obtained a general understanding of both companyspecific and environmental factors, carry out some comparison work on costs. We encourage you to set the per-capita income levels in the company's key markets against average annual tuition fees to see how they measure up. Furthermore, learn about the impact that scholarships and financing have on enrolment rates and check out the proportion of students who fund their studies through these means.

Another factor to be aware of is the proportion of overseas students using the company's facilities. From a financial perspective, these students provide an additional income stream—in some cases, foreign student fees are higher—and give an institution the distinction of being an "international centre of learning."

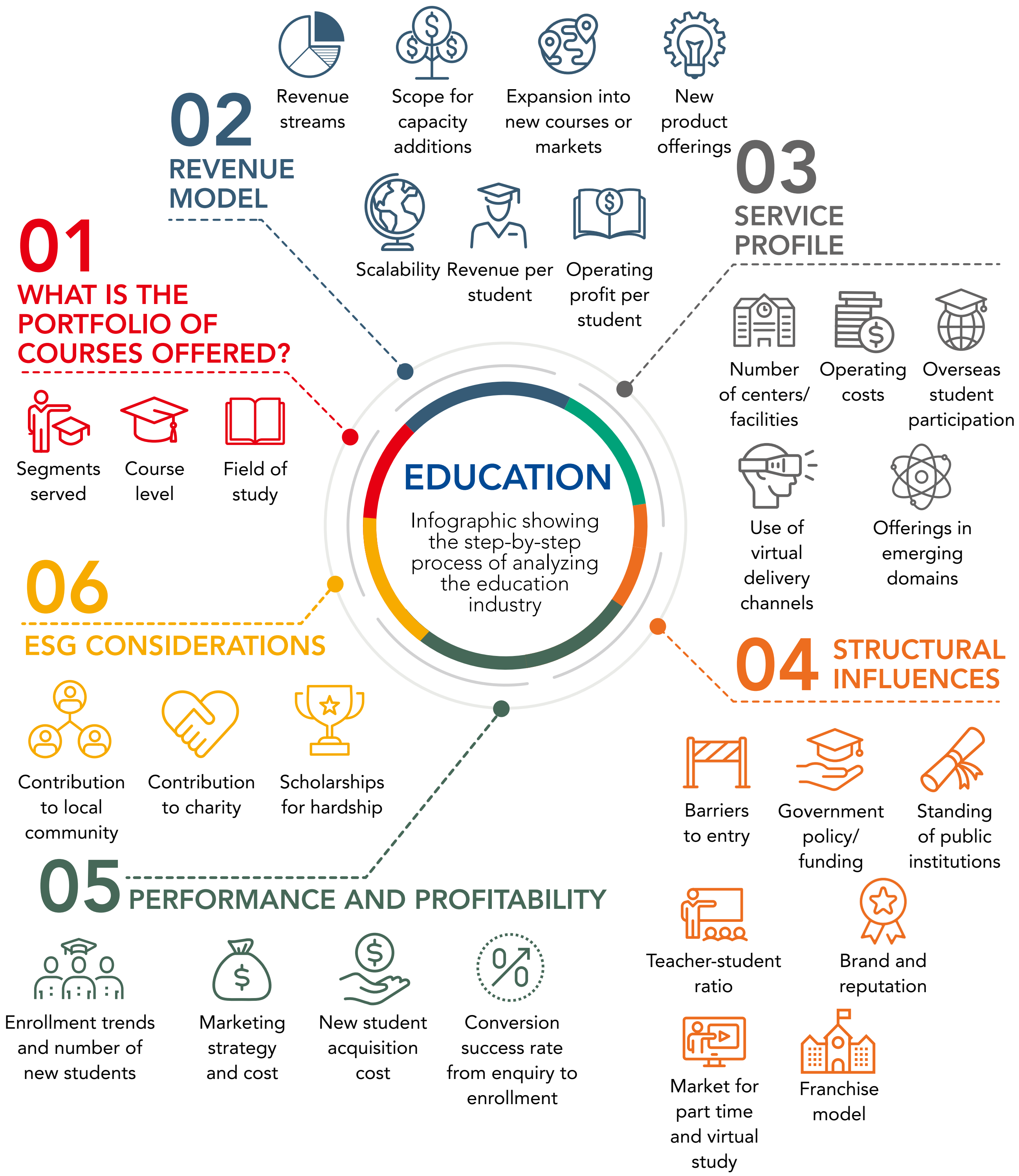
SCHOOL RULES

Take a moment to explore the regulatory side of the education sector, paying attention to education policies in the company's markets and the prevailing attitudes toward private providers. This could include the licensing system in each market. Moreover, learn about the challenges that education companies may face—could any legislation in the pipeline affect their operations, either favourably or unfavourably?

ESG INTELLIGENCE

Whether you work in finance or are an investor, awareness of environmental, social, and governance (ESG) issues has become a necessity in the investment world. During your investigations, assess whether the company you are analysing understands and is responding to ESG-related risks. For example, is the firm aware of how its fee structure is viewed and that a negative opinion will result in reputational damage? Similarly, does it support people from disadvantaged communities or contribute to charitable causes by leveraging the expertise and research efforts of its teachers and students?

On that note, the school bell has just sounded. Today's lesson gives you a sense of how education companies operate and whether the business model of each is sustainable—we urge you to do your homework, as there are many more granular questions that you should ask.


EDUCATION
Infographic showing the step-by-step process of analyzing the education industry
01
WHAT IS THE PORTFOLIO OF COURSES OFFERED?
Segments served
Course level
Field of study
02
REVENUE MODEL
Revenue streams
Scope for capacity additions
Expansion into new courses or markets
New product offerings
Scalability
Revenue per student
Operating profit per student
03
SERVICE PROFILE
Number of centers/ facilities
Operating costs
Overseas student participation
Use of virtual delivery channels
Offerings in emerging domains
04
STRUCTURAL INFLUENCES
Barriers to entry
Government policy/ funding
Standing of public institutions
Teacher-student ratio
Brand and reputation
Market for part time and virtual study
Franchise model
05
PERFORMANCE AND PROFITABILITY
Enrollment trends and number of new students
Marketing strategy and cost
New student acquisition cost
Conversion success rate from enquiry to enrollment
06
ESG CONSIDERATIONS
Contribution to local community
Contribution to charity
Scholarships for hardship

COMMON TO THE SECTOR

1. HOW DO EMPLOYMENT CONDITIONS IMPACT DEMAND FOR EDUCATION IN THE COMPANY'S KEY MARKETS?

a. How much importance do employers place on educational qualifications as a criterion for employment?
b. How useful do students and employees perceive educational qualifications to be in the employment market?
c. How are these trends evolving and how are they expected to change in future?
d. How much impact do unemployment rates have on student enrollments into higher education?

2. PORTFOLIO OF COURSES OFFERED.

a. What are different segments (test preparation, grammar schools, private tuitions, regular schools, vocational training, colleges, universities) does the company offer? What is the breakdown of all institutions in each segment?
b. At what different levels (non-formal, school, college, university, undergraduate, post-graduate, doctorate) are study courses offered?
c. In which fields of study (Arts, Business, Hospitality, Humanities, Life Sciences, Science, Technology, Engineering & Management) does the company offer courses?

3. WHAT IS THE COMPANY'S REVENUE MODEL AND HOW SCALABLE IS IT?

a. What is the company's revenue mix from components, such as tuition fees, books, study materials and testing fees?
b. How does the company envisage each of these segments growing in the coming years? Are any changes to the revenue mix anticipated in the next 3-5 years?
c. How does the company intend to expand its operations?
d. Does the company plan to offer courses in any new segments, levels or fields of study?
e. Are there any plans to expand capacity in courses currently offered?
f. Are there any plans to offer courses in new cities, or to add centers in cities where the company already has a presence?
g. Does the company plan to expand into new countries?
h. What efficiencies of scale or scope are envisaged from introducing new courses or new locations? Are these efficiencies likely to be easy to come by, or where are challenges anticipated?

4. THE COMPANY'S DELIVERY NETWORK.

a. How many outlets or centers does the company operated? In how many cities are these facilities based?
b. What is the enrolment capacity across the outlets?
c. On average, how many students are enrolled across these outlets?
d. What is the revenue and operating profit per student across the different outlets?
e. Are all courses offered across all outlets? If not, how does the company plan expand its offerings across different outlets?

5. ARE THE COMPANY'S COURSES AVAILABLE THROUGH VIRTUALDELIVERY CHANNELS?

a. Do the company's key markets have easy access to cheap, high-speed internet connectivity? How is the availability of these services evolving?
b. What proportion of courses are offered through virtual delivery channels?
c. Does the company expect to see increasing demand for specific courses online?
d. What is the mix of student enrolments and revenue between in-person and virtual delivery channels? How is the company placed relative to competitors?
e. How do course completion rates differ between the two channels?
f. Are margins more attractive in one channel rather than the other?
g. How is the mix between in-person and virtual delivery channels expected to evolve in the future?

6. WHAT IS THE DEMAND IMPACT OF CHANGES IN ECONOMIC CONDITIONS?

a. Is education demand counter-cyclical or non-cyclical in key markets?
b. How does this vary for different segments, levels and fields of study?
c. What fields of study are particularly popular currently?
d. How does the company's current course portfolio compare with this cyclicality and demand profile?

7. HOW DO EDUCATION FEES AND AFFORDABILITY COMPARE WITH INCOME LEVELS IN KEY MARKETS?

a. What are per-capita income levels in the company's key markets?
b. What is the average annual tuition fee charged? How does this compare with income levels?
c. How much impact does the availability of scholarships and financing have on enrolment rates?
d. What proportion of students fund their study out of their own pocket versus through financing?

8. WHAT PROPORTION OF PROSPECTIVE STUDENTS ARE FROM OVERSEAS?

a. How significant is the participation of international students in campuses in key markets?
b. What percentage of the company's current student population is from overseas?
c. From which countries do these students typically oiginate?
d. How friendly are immigration and visa regimes in countries where campuses are located?
e. How is the availability of higher education services expected to evolve in the home countries of international students? Is the number/quality of facilities in those countries expected to increase or decline? How are these trends expected to affect future enrolment of international students?

9. WHAT DEMOGRAPHIC AND MACROECONOMIC FACTORS IMPACT DEMAND?

a. What proportion of the population is in the age group 15-25 in key markets?
b. How is this forecasted to change in future? What could be the impact of immigration on this forecast?
c. What are the urbanization trends in key markets?
d. What percentage of GDP is spent on education in key markets?
e. What is the per capita spending on education in key markets?
f. What is the gross enrolment ratio at different stages of education? How is this expected to evolve?

10. WHAT IS THE SECTORAL MIX OF THE ECONOMY (AGRICULTURE, MANUFACTURING, SERVICES) IN THE COMPANY'S KEY MARKETS?

a. Which industries employ the most manpower?
b. Which fields of study are in high demand in these employment markets?
c. How rapidly is the services sector growing and expected to increase in the future?
d. What are the prospects of a transition to a knowledge-based economy in key markets?

11. WHAT ARE THE EVOLVING NEW FIELDS OF STUDY?

a. How does the company identify new fields of study that might interest students?
b. How does the company develop curriculum, acquire faculties and offer courses in new fields of study?
c. How often is the current course portfolio reviewed in light of market trends?

12. WHAT ARE THE ENTRY BARRIERS FOR NEW PLAYERS?

a. Is there space for new players to enter in key markets?
b. Are there specific segments and fields of study where demand requirements outnumber current supply? If so, what are the company's current and proposed offerings in these segments and fields?
c. Is there adequate availability of qualified teaching staff across different segments, levels and fields of study?
d. Is it easier for new entrants to break into particular segments, levels and fields of study, or are barriers to entry consistent across all of these?
e. Are courses currently offered in any areas with relatively low barriers to entry? If so, what are the unique characteristics of the company's courses in these areas?

13. WHAT ARE THE EDUCATION POLICIES IN THE COMPANY'S KEY MARKETS?

a. What are the government policies with respect to the role of the private sector in education?
b. What is the regulatory structure pertaining to different segments and levels of education?
c. What regulatory hurdles are faced by private education providers?
d. How easy is it to obtain required approvals?

14. WHAT IS THE EXTENT OF FINANCIAL ASSISTANCE AVAILABLE?

a. Does the company or its students receive subsidies, scholarships, concessions or other forms of financial/ nonfinancial assistance from the government or other sources?
b. How accessible are education loans for prospective students?
c. Does the company have partnerships in place to facilitate loans to prospective students?

15. CONSIDERING EXPANSION PLANS, WHAT CHALLENGES ARE EXPECTED TO BE FACED RELATING TO GOVERNMENT POLICIES AND REGULATIONS?

a. What kind of approvals must be obtained to implement expansion plans?
b. What legal and regulatory challenges is the company likely to face in scaling up its revenue model?
c. Are there any caps on tuition fee or other components?
d. In overseas markets that the company is planning to enter, are there any restrictions on investment and participation by foreign entities in the education sector?
e. Are there restrictions/regulations on any other aspects of the company's operations?

16. WHAT IS THE EDUCATIONAL INFRASTRUCTURE IN THE PUBLIC SECTOR OF THE COMPANY'S KEY MARKETS.

a. How strong are public institutions? What is their share of enrolments within different segments, levels and fields of study?
b. What is the preference of the student community between public and private institutions?
c. What is the perception of the market, employers, students and faculty about private institutions?

17. WHAT IS THE DEMAND-SUPPLY BALANCE IN KEY MARKETS AND FIELDS OF STUDY?

a. Is there a mismatch in demand and supply across different segments, levels and fields of study?
b. How do the company's offerings compare with courses that are in demand and which are offered by competitors?
c. How quickly can the company tailor its offerings according to changes in demand?
d. How are student preferences evolving with respect to study duration? Do students typically prefer longer or shorter courses?

18. WHERE DOES THE COMPANY STAND REGARDING BRAND VALUE AND REPUTATION IN KEY MARKETS?

a. How many of the company's campuses and colleges participate in national and/or international rankings of higher education institutions?
b. How do participating campuses and colleges fare in such rankings?
c. Does the company intend to increase participation and improve its standing in these ranking programs?
d. What are the various accreditations required and obtained by the company's various campuses and their associated courses of study?

19. COLLABORATIONS AND PARTNERSHIPS WITH INDUSTRY AND OTHER INSTITUTIONS.

a. Does the company collaborate with the respective industries for various courses of study?
b. How effectively is the company able to facilitate internships for students?
c. Does the company have any twinning programs with reputable domestic and overseas institutions?

20. HOW EASY IS IT TO ATTRACT QUALIFIED AND QUALITY TEACHING STAFF IN KEY MARKETS?

a. What is the average cost of the company's faculties?
b. How do faculty salaries compare with what non-academic employers offer to similarly qualified staff?
c. How difficult is it to retain qualified staff? How does the firm manage attrition among faculty members?
d. What is the teacher to student ratio and how does it compare with private sector peers and public institutions?
e. How does the company ensure faculty members are kept up to date with developments in their subject areas, market developments and teaching methodologies?
f. Do the company's faculties actively perform and participate in research and publishing?

21. HOW IS THE MARKET FOR PART-TIME AND VIRTUAL MODES OF STUDY EVOLVING?

a. How big is the market for these channels relative to full- time courses and how fast is it growing?
b. What is the acceptance level of these modes among employers and students?
c. Which fields of study have particularly high acceptance levels?
d. What is the company's strategy to leverage on these channels for expansion and growth?

22. DOES THE COMPANY EMPLOY A FRANCHISE MODEL?

a. What proportion of operations is run directly by the firm versus through franchisees?
b. If a franchisee model is employed, how is it structured?
c. Which elements are managed by the firm and which aspects by franchisee?
d. What proportion of investments are made by franchisees?
e. What is the basis and proportion of revenue, cost and profit sharing?

23. WHAT ARE THE CURRENT ENROLMENT TRENDS AND NEWSTUDENT STARTS?

a. What is the average duration of study for the courses that students enroll in?
b. How is this evolving? Is student preference turning towards shorter or longer duration courses?
c. What is the impact of course duration on the company's cost structure and margins?
d. How does the profitability of shorter duration courses compare with that of longer duration courses?

24. WHAT IS THE COMPANY'S MARKETING AND OUTREACH STRATEGY?

a. What is the company's marketing spend and how is it apportioned?
b. How does the company connect with potential students?
c. Which channels are used and which are the most effective and efficient?
d. What is the average cost of new student acquisitions? How does this differ by segment, level and field of study?

25. WHAT ARE THE COMPANY'S OPERATING EXPENSES, COSTS AND MARGINS? HOW DO THESE COMPARE WITH PEERS?

a. What is the firm's cost structure?
b. What is the ratio of teaching to non-teaching staff? How does the ratio compare to peers?
c. What are the company's overheads per student? How do these compare to peers?
d. How efficiently is the company able to leverage its classroom space? Is a day / evening / weekend course model employed to optimize the infrastructure?
e. What is the company's operating margin? How does this compare with local and global peers?

26. HOW ARE RELATIONSHIPS WITH GOVERNMENT AND REGULATORY AUTHORITIES MANAGED?

a. How many different government departments and agencies are dealt with in the company's operations?
b. How does the company ensure dealings with these agencies is fair and in accordance with applicable statutory, regulatory and governance requirements?
c. Do any promoters, major investors, affiliates, or executives have any family or business relationships with key politicians or government officials?
d. Has the company ever been investigated or alleged to have acted in an illegal or inappropriate manner while dealing with government and regulatory authorities?
e. Has the company faced accusations of bribery or paying 'kickbacks' to any politicians or government officials?
f. Does the firm donate to political parties? If so, please provide details.

ENVIRONMENTAL, SOCIETY AND GOVERNANCE

27. WHAT ARE THE COMPANY'S ESG PRINCIPLES, PRACTICES AND TRACK RECORD?

a. Does the company support students from disadvantaged communities?
b. Does the firm have programs to increase awareness of ESG and sustainability issues among students?
c. What is the company's understanding of the public perception about transparency and fairness in determining fees charged?
d. What steps are taken to ensure the environment for students and faculty in the company's campuses remains safe?
e. Does the company contribute to social, community and charitable causes by leveraging the expertise, skills and research efforts of faculties and students?

PALM OIL

A CLOSER LOOK AT THE INVESTMENT FUNDAMENTALS

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM With contributions from Clare Merlot and Eleanor Spencer

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-sellingprice 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 is a labourintensive sector, salary costs and wage inflation have a strong bearing on operations of a company in the sector. On a macro basis, sustainability related issues such as regulatory and reputational risk as well as climate changes also incur a lasting impact on long term profitability. These lasting impacts can come in the form of stranded assets and supply chain disruption. On a micro basis, pest management, fertiliser, and transportation cost, could also 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. Last but not least, 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. This is especially pertinent within the palm oil sector given that oil palm trees need warm and wet conditions to thrive which render them to be in tropical rainforests with biologically diverse fauna, some of which are endangered species.

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.

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. The palm oil industry is also 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, while new concessions in many countries, including in the Congo Basin, are potentially developed at the expense of High Conservation Value forests.

Amid growing health consciousness, we should point out that there are mixed views on the nutritional 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.
- social issues such as child labor and slavery are an increasing concern as well.

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, especially in Indonesia where there is an increasing demand for this usage at the moment. However, do bear in mind that this evolution could be stymied by the EU, which proposes to exclude palm oil from its Renewable Energy Directive (RED). As at March 2019, the European Commission classified most palm oil fuels as unsustainable. Indeed, biofuels as a whole has been the subject of ongoing trade disputes in many jurisdictions.

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 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 consider.

Traceability provides evidence of the journey taken by the raw material from plantation or mills to the buyer and end 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 members of the Consumer Goods Forum, which include giants such as Kellogg's and Unilever have vowed to improve their supply chains and bypass palm oil companies associated with deforestation. In October 2020, confectionery giant Mars announced that its supply chains were palm oil free after simplifying its supply chains, excluding non-ESG compliant suppliers in the process.

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.


PALM OIL
A step-by-step guide to analyzing the palm oil industry
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
Animal feed
03
REVENUE POTENTIAL
Position in value chain
Upstream (Plantation)
Midstream (Manufacturing)
Downstream (Trading and distribution)
SALE
04
DETERMINANTS OF PROFITABILITY
Costs
Management practices
Level of competition
05
KEY RISKS
Quantity and quality of land bank
Dependence on product types/ consumers/ geography
Sensitive to global stockpile
Yield sensitive to climate changes
Green movement
Health consciousness of consumers as well as social concerns
SALE
New supply of suitable land
Increased regulations
06
EVOLVING INDUSTRY DYNAMICS
Cost of business increasing
Consolidation amongst larger players
Standing differentiated by core competencies
07
ESG FACTORS
Sustainability policy
Palm oil traceability
Certification and reporting
Emission intensity
Land conflict affecting local and indigenous communities (tussle is a big understatement!)
Food versus fuel debate
Effluent management
Community & labor rights
Biodiversity loss
Deforestation and environmental damage

PALM OIL PRODUCERS

1. WHAT ARE THE DETAILS OF THE COMPANY'S PRODUCTS?

a. 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?
b. 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?
c. What is the split between bulk and specialty products?
d. What is the mix by saturated fatty acid content of the end products?
e. What proportion of the company's products are covered by the Roundtable on Sustainable Palm Oil (RSPO) certification regime?
f. What is the mix of the products by the four RSPO-defined sustainable palm oil supply chain options (Identity Preserved, Mass Balance and Segregated)?

2. WHICH END-USER MARKETS DOES THE COMPANY CATER TO?

a. How much of the products are sold in bulk vs in retail?
b. 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)?
c. Does the company supply packaged products to retail chains to be sold under their own private labels?
d. 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?

a. What is the demand for bulk vs specialty products?
b. 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?
c. How much is the per capita indirect consumption (processed and packaged foods) of edible fats?
d. What is the share of processed and packaged foods in the consumption platter?
e. What are the consumption levels of non-edible fats and oils (toiletries, cosmetics, animal feeds etc.)?

4. HOW MUCH DEMAND IS DRIVEN BY BIODIESEL USE?

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

5. WHAT IS THE GEOGRAPHIC PROFILE OF CONSUMPTION OF THE COMPANY'S PRODUCTS?

a. Which are the major markets for the company's different products in terms of current and future demand?
b. What is the split between developed markets and developing markets?
c. 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?

a. How much of the demand in each end market is met by palmbased fats vs fats from other sources?
b. At what rate is the consumption of fats and oils by each end market growing in the key markets?
c. How does growth in consumption of palm-based fats compare with that of fats from other sources?
d. 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?
e. 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?
f. Is there any seasonality in demand for the company's products?

7. WHICH FACTORS DETERMINE PRICING OF THE COMPANY'S PRODUCTS?

a. What is the price differential compared to other oils and sources of fat?
b. How do the prices of different products compare: CPO, PKO, RPO, edible oil and fats, biodiesel?
c. How does the fatty acid content in the end product affect prices?
d. What are the categories under which the products are classified based on the fatty acid content?

e. How do the perceptions of quality and health influence prices?
f. Which end-use markets provide better prices?
g. Are there any seasonal variations in pricing?

8. WHAT IS THE MIX OF REVENUE AND PROFITS?

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

9. WHAT ARE THE LONG-TERM DRIVERS FOR THE COMPANY'S BUSINESS?

a. 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?
b. 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?
c. Which markets, by end use and by geography, have higher sensitivity to sustainability issues surrounding oil palm-based products?
d. Are consumers in other geographies likely to become more sensitive to sustainability issues, as income and prosperity levels increase?
e. 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?

a. 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?
b. 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?
c. How will the changing perception of quality of different oils influence consumer preferences?
d. Is the rising sentiment against GMO likely to affect consumer choices?
e. 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?

a. What are the labelling requirements regarding the source of oil used, in different regions?
b. Are there any upcoming regulatory changes in this regard?
c. What are the changes and their effects on use of palm- based products?
d. What is the extent of challenges to oil palm demand from environmental activism?
e. How does the company intend to manage these challenges?
f. How might regulation targeted at addressing imported deforestation affect demand in certain geographies?

12. WHAT ARE THE POTENTIAL SUBSTITUTES TO PALM-BASED FATS IN DIFFERENT END MARKETS AND PRODUCTS?

a. What are the challenges associated with the substitutes? To what extent do those challenges work in favour of palm?
b. 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?

a. What is the share of top 3 and top 5 suppliers by products, end markets and regions?
b. What are the factors facilitating or impeding entry of new players?
c. Are there any mandated or voluntary moratorium on planting in new land?
d. How difficult will it be for a new entrant to compete, in the context of increased focus on sustainability?
e. 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?

14. WHAT IS THE SIZE AND QUALITY OF THE COMPANY'S LAND BANK?

a. What is the mix of land bank owned by the company vs managed by the company?
b. Where are the land parcels located and is any part of the company's land bank subject to flooding?
c. How close to legally protected areas, High Conservation Value Areas (HCVA) and High Carbon Stock Areas (HCSA) are the company's holdings situated? Are any of the company's concessions the object of land disputes or conflicts with local communities and indigenous people?
d. How conducive are the zoning and land use regulations governing plantations? How are these likely to evolve? Does the company foresee any potential challenges?
e. What are the restrictions on ownership of plantation land?
f. Is foreign ownership of plantation land permitted?
g. Are there any ceilings on the extent of land that can be owned by a single entity?
h. 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?

a. What is the ageing schedule of the company's fields?
b. What is the share of fields having plants that are younger than the harvestable age of 3 years?
c. What is the proportion of fields that have started yielding produce (age greater than 3 years)?
d. What is the extent of fields in the yield growth phase (age from 3 to 7 years)?
e. 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)?
f. How much of the fields are in the yield decline phase (age from 12 to 25 years)?
g. How much of the fields are close to end of productive lifespan (age greater than 25 years)?
h. What is the average distance from the fields to extraction mills and what kind of potential risks in surrounding sourcing landscape (For example, proximity to areas of HCV/national parks)?
i. Is any part of the company's undeveloped land bank stranded or at risk of becoming stranded due to the company's own nodeforestation commitments?

16. HOW IS THE INDUSTRY STRUCTURE EVOLVING?

a. Are key players likely to integrate vertically across the supply chain?
b. Which parts of the supply chain are likely to witness more integration?
c. 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?

a. 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.?
b. How easy or difficult is it to find workers with the necessary skills?
c. What is the share of local population in the company's workforce?
d. What is the extent of dependence on migrant workers from other regions or countries?
e. How has been the wage inflation? How is it expected to evolve?

18. WHAT ARE THE CROP MANAGEMENT PRACTICES EMPLOYED BY THE COMPANY?

a. What are the details of the company's cropping and plantation management practices?
b. How do these practices compare with those of peers? What distinguishes the company's practices?
c. What is the mix of crop by varieties of palm? How is the decision on to what variety to plant where made?
d. Is there any preferred variety of crop that is used extensively?
e. Are techniques such as grafting, tissue culture and cloning used to multiply preferred varieties and plants that produce highquality FFBs?
f. Does the company use hybrid and GMO varieties?
g. How much crop inputs such as fertilisers, herbicides and pesticides are used per hectare of plantation and per tonne of CPO and PKO produced?
h. 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?

a. What are the Kernel (KER) and Oil Extraction Rates (OER)?
b. How much yield is generated from a hectare of plantation?
c. 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?

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? Does the location of the plantation put them at risk of becoming water-logged from prolonged flooding?
c. What is the likelihood of government intervention from the perspective of competition, given the highly concentrated nature of the industry? Also, what is the degree of stranded assets risk due to climate change and regulation?
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?

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 High Conservation Value, High Carbon Stock forests or peatland? What does the company intend to do with the part of these land parcels which are not yet developed / planted?
b. Does the company abides by zero deforestation commitment? If so, 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 High Conservation Value and High Carbon Stock assessments and Social Impact Assessment (EIA/SIA) before clearance and planting?
e. Does the company have a commitment to conserve biodiversity and a biodiversity action plan for all of its 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 in accordance with the RSPO criteria and does the company implement Integrated Pest Management practices?
h. Does the company monitor the biodiversity and 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? Does the company have a commitment to obtain Free, Prior and Informed Consents from all relevant communities prior to any new development?
l. What has been the track record on worker safety and welfare?
m. What are the measures in place to avoid child and slave 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? Have the companies obtained any relevant certification? If any, what are the certifications obtained and is the company planning to achieve full certification?
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?

CASINO

WHEEL OF FORTUNE? THE ODDS ARE FIRMLY IN YOUR FAVOUR WITH A PROPER ANALYSIS OF GAMING COMPANIES

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

There is an old Chinese saying: "For every ten gamblers, nine will be losers." Typically, you might picture a down-at-luck gamer staring in shock at the card table. However, the casino itself may also not be on a winning streak.

Despite the deep-pile-carpet glamour and general hype about how profitable the casino business model potentially can be, gaming is actually a highly regulated and heavily taxed industry. After all, society expects to be compensated for absorbing the social costs that gambling engenders. As such, few public voices lobby against gaming levies.

Invariably, casinos and gaming facilities are accompanied by world-class accommodations and other high-end leisure amenities. This infrastructure is hugely capital intensive; it can take years of profitability before a facility can finally break even. On top of this, revenue cannibalisation from competitors operating in the same location is an ever-present risk, as is the threat of economic downturns. As you can see, running a casino has the potential to become a losing game.

Before you place your bets, look carefully at all the cards on the table. This framework is not a definitive guide to the sector, but is intended as a starting point that provide a systematic way of analysing a listed casino business model.

KNOW THE GAMING ENVIRONMENT

As with any sector review, asses all the relevant economic, geographic, and political factors.

- Look at where the company's properties are situated: Are they located in gaming hubs that offer choice and require little effort to reach, such as Macau, or are they one-off developments that gamers must be enticed to visit? Do they operate in politically stable regions?
- Examine tourism volumes, as these will tell you if a country or territory is falling in or out of favour. At the same time, compare visitor numbers alongside local patronage—are there enough home-grown gamers to sustain the company's operations?
- Turning to accommodation, does the company offer hotels at its facilities, and if so, can it meet current and future levels of demand? What is the quality of the hotel stock—are the rooms pristine and appealing or well-used and tired?
- Co-located tourist facilities and attractions are others factors worth exploring, especially for one-off developments. Other than the casino, what would persuade a gamer to visit the location? Does it have familyfriendly attractions that will keep a spouse and children occupied?

Follow your initial review of the above factors with an analysis of the company's operational details relative to its competitors. From a purely economic perspective, consider the long-term factors that will drive growth and how the company expects those factors to evolve. How much does a gamer spend during each visit? Are there any factors that may restrict spending, such as the number of available tables for impatient gamblers? Is the general environment inviting and well ventilated, or does it permit smoking in public places? Crucially, survey the minimum and maximum bet limits on each game and find out if gamers have easy access to cash from onsite ATMs.

As an aside, check the opening times of the facility, as casinos are a favourite haunt for people who finish work in the early hours of the morning. Moreover, a surprising number of people frequent casinos not to gamble but to eat, so review the food and beverage options available to guests.

CHINESE CONSUMER AUDIENCE

In recent years, the rise of the Chinese consumer has had a significant influence on a wide range of industries, such as property, retail, and tourism, in addition to casinos. With this in mind, ascertain the amount of business derived from Chinese customers. Simultaneously, how does the per-capita spend by customers from China compare with that of customers from other countries? From a broader perspective, try to identify any factors that could affect Chinese customer volumes. Examples here could be both economic and geopolitical in nature.

GAMBLING RULES

Governments love gambling revenues but are far more pious when it comes to the actual source of this cash. Consequently, any study of the industry must take into account the country's regulatory factors and how they might affect the business being analysed. Begin with the current license structure and what it means in terms of cost. Also, note that a relaxed license regime could result in greater competition in the firm's market. Find out if any regulations restrict customer entry to the gaming floor and whether governments place visa restrictions on their residents visiting countries where casino properties are located.

UNDERSTAND THE GAME

Earlier, we touched on competition in the company's market. It is worth delving deeper here to see how well a gaming business can manoeuvre in challenging operating waters. Key aspects you should note are the levels of competition concentration in any one market and whether the company is prepared to explore new territories where it can further develop its product. What factors facilitate or impede the entry of new players into this virgin territory? Moreover, how does the company expect its business model to evolve? Lastly, do not overlook the rise of online gaming—establish if the company has, or plans to develop, a digital presence.

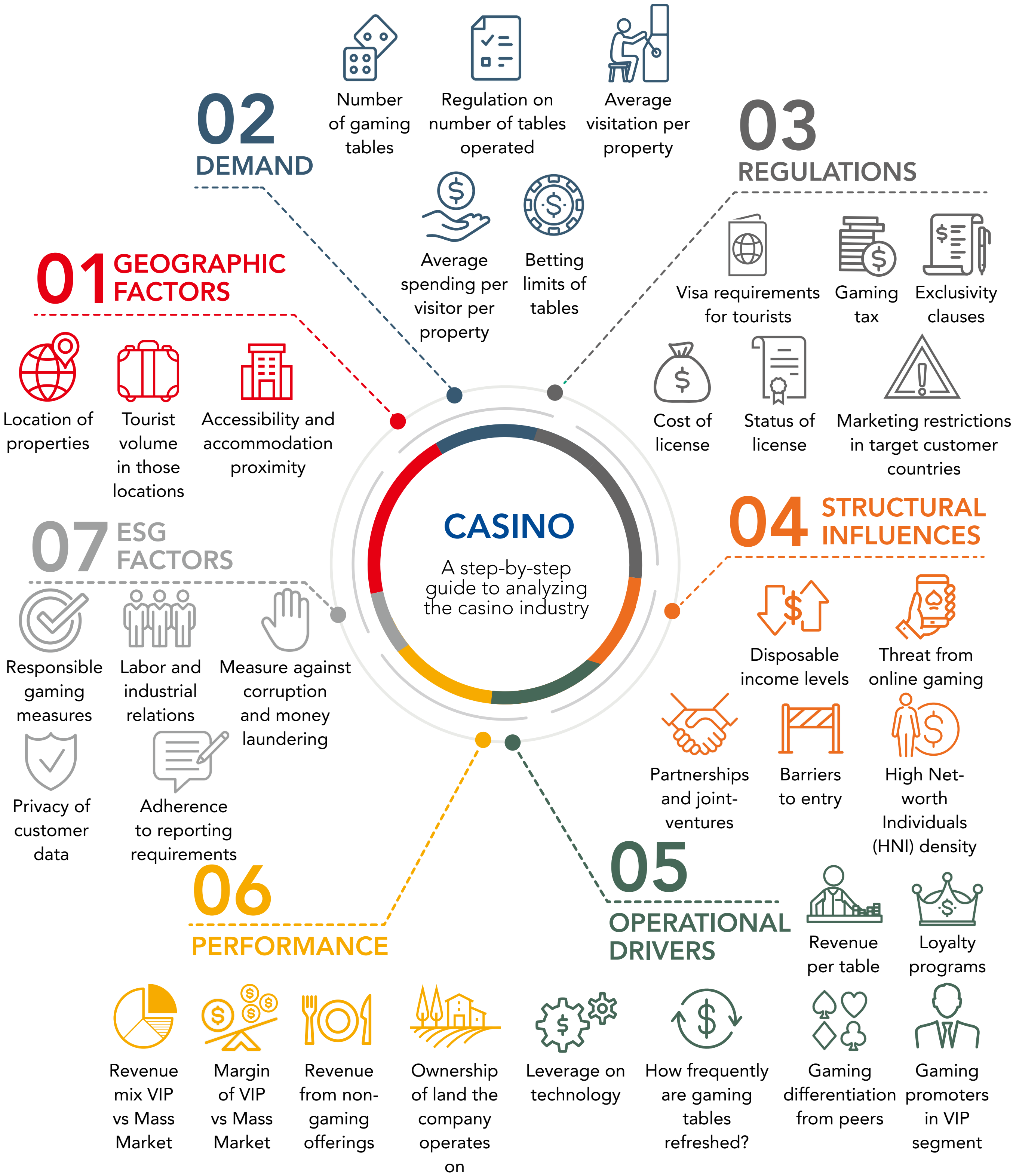
GAMBLE RESPONSIBLY

Whether you work in finance or are an investor, awareness of environmental, social, and governance (ESG) issues has become a necessity in the investment world. For the gaming industry in particular, ESG factors connect closely with the human spirit. Gambling is enjoyed by millions. For some, it is often nothing more than one of life's many amusements, but for others, it can morph into something less frivolous. Bear in mind the measures a company takes to ensure responsible betting. Simultaneously, look at the company's record on the prevention of corruption and money laundering. How does it treat its staff, many of whom are expected to work anti-social hours in a highpressure environment?

A WINNING STREAK

Finally, study the numerical metrics of the company, as you can rely on these to establish a feel for how well a company is doing. Try to size up how the business has performed operationally and look at its metrics in relation to its competitors. These metrics should include, but not limited to, profit margins, debt-to-equity ratio, and asset turnover ratio. Further down the line, how does the company expect industry trends to evolve? From a financial perspective, appraise the balance sheet and again look at those of the company's peers.

Do note that this article only provides a framework to help you analyse the casino business model, which, in actual operation, is usually bundled with the hospitality and business convention sectors. That said, good luck as you spin your wheel of research because, if you'll pardon a corny phrase, casino analysis is slots of fun!


CASINO
A step-by-step guide to analyzing the casino industry
01 GEOGRAPHIC FACTORS
Location of properties
Tourist volume in those locations
Accessibility and accommodation proximity
02 DEMAND
Number of gaming tables
Regulation on number of tables operated
Average visitation per property
Average spending per visitor per property
Betting limits of tables
03 REGULATIONS
Visa requirements for tourists
Gaming tax
Exclusivity clauses
Cost of license
Status of license
Marketing restrictions in target customer countries
04 STRUCTURAL INFLUENCES
Disposable income levels
Threat from online gaming
Partnerships and joint-ventures
Barriers to entry
High Net-worth Individuals (HNI) density
05 OPERATIONAL DRIVERS
Revenue per table
Loyalty programs
Leverage on technology
How frequently are gaming tables refreshed?
Gaming differentiation from peers
Gaming promoters in VIP segment
06 PERFORMANCE
Revenue mix VIP vs Mass Market
Margin of VIP vs Mass Market
Revenue from non-gaming offerings
Ownership of land the company operates on
07 ESG FACTORS
Responsible gaming measures
Labor and industrial relations
Measure against corruption and money laundering
Privacy of customer data
Adherence to reporting requirements

CASINOS

1. WHAT IS THE GEOGRAPHIC SPREAD OF THE COMPANY'S PROPERTIES?

a. In which countries and cities are properties currently located?
b. How well-visited are these locations? How appealing and popular are these locations as tourist destinations?
c. How well connected are these locations to key customer originating markets?

2. HOW LARGE ARE TOURIST VOLUMES IN LOCATIONS WHERE COMPANY'S PROPERTIES ARE LOCATED?

a. What is the level of inbound tourist traffic to locations where properties are located? How is this evolving?
b. What is the breakup of tourist traffic between domestic and foreign visitors?
c. What proportion of the company's customer base is estimated to be inbound tourist traffic versus the local population?
d. How much hotel accommodation is available in locations where the company operates properties?
e. What are the peak and average occupancy rates of hotels in those locations?
f. Are any potential additional visitors lost during peak holiday seasons due to the unavailability of accommodation?

3. KEY FACTORS IMPACTING DEMAND.

a. How many gaming terminals and tables does the company operate?
b. What regulations govern the number of terminals and tables that can be operated?
c. What are the annual visitation numbers and average spending per visitor in the each of properties operated?
d. What factors affect time spent by visitors on the gaming floor?
e. What are the minimum and maximum bet limits per game? Are there any regulations governing these limits?
f. Is smoking banned on the gaming floor?
g. Do regulations permit having ATMs on the gaming floor?

4. HOW MUCH BUSINESS IS DERIVED FROM CHINESE CUSTOMERS?

a. What proportion of the company's customers are from China? What percentage of revenue is derived from these customers?
b. How does per-capita spend by customers from China compared with that of customers from other countries?
c. Does the company foresee any factors that could affect the volume of Chinese customers visiting its properties?

5. WHAT IS THE IMPACT OF REGULATION ON THE BUSINESS?

a. Do any regulations exist that restrict customer entry to the gaming floor?
b. Are there restrictions on the amount of money that can be spent by gamers?
c. Do governments in customer-originating markets place restrictions on marketing the company's properties and services?
d. Do governments place any restrictions on foreign exchange that can be spent by their residents on gaming while visiting countries where the company operates properties?
e. Do governments place visa restrictions on their residents visiting countries where properties are located?

6. WHAT ARE THE LONG-TERM FACTORS THAT WILL DRIVE FUTURE GROWTH? HOW DOES THE COMPANY EXPECT THESE TO EVOLVE?

a. What are the disposable income levels in key markets?
b. How big is the population of high net-worth individuals (HNIs) in key markets?
c. Which new markets are expected to drive business growth in the future?
d. How much threat is anticipated from online gaming providers? What is the company's strategy to manage the impact from online gaming platforms?
e. Might an integration of online and offline gaming be possible in the long term?

7. HOW DOES THE COMPANY EXPECT ITS BUSINESS MODEL TO EVOLVE?

a. At what pace is the market expected to evolve from a pure casino model to an integrated resort model?
b. What proportion of revenue does the company expect to derive from non-gaming offerings five years from now?
c. What non-gaming offerings are expected to gain most traction and why?
d. What is the company's strategy to leverage these opportunities?

8. WHAT IS THE LEVEL OF MARKET CONCENTRATION?

a. How concentrated is the market? How much market share do the top-three and top-five players have in key markets?
b. What is the mix of customers between VIP and mass market? How does this vary by customers' country of origin?
c. What is the company's market share and standing in markets where it operates properties?
d. How prevalent is the partnership and joint venture route in key markets, given the limited number of licenses?

9. WHAT FACTORS FACILITATE OR IMPEDE THE ENTRY OF NEW PLAYERS?

a. What is the typical investment required to develop a property?
b. How many licenses are granted by regulators in key markets?
c. What is the typical duration of a license?
d. How straightforward is the renewal process? What are the risks of a company being unable to renew its required licenses?

10. THE CURRENT LICENSE STRUCTURES.

a. How many different countries or regions does the company operate in? How many properties are operated in each country or region?
b. What is the gaming tax rate in the jurisdictions in which the company operates?
c. How many licensees are in operation in each of the license areas where properties are operated?
d. When are the company's current licenses due to expire? When do peers' licenses expire, if known?
e. Do any current licenses have an exclusivity clause? If so, for how long are these valid?
f. When is the next round of license issuance or renewal in the areas in which the company operates? How many licenses will be available for issue or renewal at that time?
g. What was the cost of licenses when they were last obtained? How much are license costs expected to increase at the next renewal?

11. HOW HAS THE COMPANY PERFORMED OPERATIONALLY? HOW DO ITS KEY METRICS COMPARE WITH PEERS AND HOW DOES THE COMPANY EXPECT TRENDS TO EVOLVE?

a. How much revenue per terminal/table is generated every day in each property? What are growth rates are being observed? Has an increase in the number of terminals or units resulted in increased revenue and profitability?
b. Does the company run loyalty programs? If so, what operating costs are incurred and how much incremental revenue do these programs bring?
c. To what extent does the company utilize technology to drive business growth? Have all terminals been enabled for cashless gaming?
d. What is the current mix of old and new terminals on the gaming floor? How frequently is the gaming mix refreshed?
e. How are gaming offerings differentiated from peers?

12. HOW HAS THE COMPANY PERFORMED FROM A FINANCIAL PERSPECTIVE? HOW DO ITS KEY METRICS COMPARE WITH PEERS AND HOW DOES THE COMPANY EXPECT TRENDS TO EVOLVE?

a. What is the revenue mix between VIP and mass market? How do margins from these segments compare?
b. What is the normalized win rate for VIP gaming in properties operated? How are these rates calculated?
c. Does the company work with intermediaries such as gaming promoters in the VIP segment?
d. What revenue growth, on a normalized basis, has the company achieved?
e. What is the current normalized EBITDA margin?
f. How much revenue is derived from non-gaming offerings? How do margins on these offerings compare to gaming margins?
g. How much of the land on which the properties are situated does the company own?

13. ESG PRINCIPLES, PRACTICES AND TRACK RECORD.

a. What measures are taken to ensure customers practice responsible gaming?
b. Does the company contribute to efforts to prevent, minimize and eradicate human trafficking?
c. What is the company's track record concerning labor and industrial relations?
d. What are the company's current obligations regarding prevention of corruption and money laundering? What steps are undertaken to enforce these requirements?
e. How does the company ensure the privacy of its customers and the safety of customer data collected?
f. How does the company ensure adherence to various reporting requirements? How many different jurisdictions and agencies is the company required to report to?

AIRLINES

READY FOR TAKE OFF A CLOSER LOOK AT THE INVESTMENT FUNDAMENTALS OF THE AIRLINE INDUSTRY

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

Perhaps it's the thrill of voyaging to a far-flung, unfamiliar place. Maybe it's the teasing prospect of a seat or—even better—an earnings upgrade. Whatever our reasons, we remain seduced and frustrated by the airline industry.

In a 2007 letter to shareholders, Warren Buffett observed that:

The worst sort of business is one that grows rapidly, requires significant capital to engender the growth, then earns little or no money—think airlines. Here a durable competitive advantage has proven elusive ever since the days of the Wright Brothers. Indeed, if a farsighted capitalist had been present at Kitty Hawk, he would have done his successors a huge favor by shooting Orville down.

In the beginning, airlines were a must-have sovereign accessory, an essential strategic asset with monopoly powers that conferred national pride and international prestige. That said, packing a soft-power punch wasn't cheap, and the industry was replete with loss-making state-owned companies.

To the relief of investors (and taxpayers), economic sanity eventually prevailed and privatisation, together with the introduction of low-cost carriers (LCCs), helped to forge a more sensible trading environment.

Old habits die hard, though, and aspects of a state-owned past haunt the airline industry. Intergovernmental deals dictate which airlines can fly and where they can land, and despite cheaper alternatives, national airlines still locate their hubs on their home turf. Industry pricing is also quixotic: a flight with two stopovers may be 40% cheaper than a shorter, more fuel-efficient, direct journey.

INDUSTRY TURBULENCE

Today's airline industry is fiercely competitive, with LCCs and ambitious ultra LCCs challenging the market share of traditional full-service carriers (FSCs). Airlines are also vulnerable to "events," including disease outbreaks (e.g., SARs, bird flu), acts of terror, and fluctuations in the price of oil: fuel charges can be over a third of an airline company's cost structure.

Also worth mentioning is that FSCs are overly sensitive to changes in the economic cycle, as economic downturns affect the demand for premium-class seating. These long-established operators also have a proportionately higher number of unionised employees who are prepared to take disruptive industrial action.

Furthermore, airline companies have little or no bargaining power with the upstream airplane manufacturers, Boeing and Airbus, who operate as a duopoly.

SIT BACK AND RELAX

Despite the turbulence, calmer skies do exist. Asia Pacific, the world's most promising growth engine, is dominated by young and affluent customers with a taste for travel. Also, flying has become an affordable mode of transport, with low oil prices, better technology, and competitive LCCs supporting a decline in fares. The nondiscretionary nature of demand, predominantly from the business sector, helps prevent a hard landing during periods of rough weather.

However, even with recent advancements, the industry is still far from operating at its best. To garner efficiencies, airline companies need to look at addressing crucial stumbling blocks, including

- how to work more efficiently with intermediaries, such as online travel agencies and search engines, to reduce costs and provide a customised experience;
- ways by which technology can eliminate the need for intermediaries; and
- the simplification of airline/customer interactions, which are still cumbersome as compared with Amazon or Uber, for example.

MAPPING YOUR INVESTMENT ROUTES

In this section, we extract some important lines of enquiry from our sector analysis framework that will help to move your analysis forward. If you plan to invest in an airline company, consider these several factors before you make a final decision.

Leading airline operators usually offer several airline brands, which can be split into three groups: the traditional FSC carriers; the so-called hybrids, which have low-cost business strategies but still offer some full-service features; and the "pure" LCCs, which get passengers from A to B but provide little else. For this framework, we will classify the hybrids and the LCCs together.

To begin with, it is worth noting a company's route profile. Is the route profile dominated by low-cost brands or full-service operations? How does the company decide where to deploy each business model?

Having established the company's business model, figuratively look inside its aeroplanes and understand how seat demand reacts to changes in price. At a broad level, analyse if this differs according to passenger profile – leisure/business. If you would like to dig deeper, observe if price sensitivity varies with route type (e.g., short-haul versus medium or long haul; domestic versus international) and with the time of year.

Unless the company is a niche, single-country player, it will most likely offer a mixture of domestic and international routes. Study what these are and the number of passengers who travel for business compared with those who journey at their leisure. Does the airline plan to expand its route network or has it earmarked routes for closure?

NETWORKS AND FLEET MANAGEMENT

If your flights are always quiet or, conversely, constantly operating at full capacity, it may indicate that the company has capacity-related issues. Scrutinise which routes experience the most significant mismatch between supply and demand. What add-on services or promotions does the airline offer to increase the load factor, and do these have an impact on cost?

Not long ago, time spent at an airport was a reasonably enjoyable part of the flying experience. Now that time often feels like an endurance test. Airlines still need airports, however, so how do they decide which ones to use? Identify whether the airports an airline company is using are centrally located or situated many kilometres from the actual destination. Lastly, look at time slots and, where possible, gate numbers – this information can be quite revealing.

Old aeroplanes make passengers—and investors—nervous. Study the makeup of a company's fleet and determine its average age. Does it align with the operator's route profile (e.g., larger aircraft for long-haul routes; smaller planes for shorter trips)?

COMPETITION

Key routes, such as Singapore/Hong Kong, used to be the preserve of a select few FSC carriers. Fortunately, this arrangement has been disrupted by the LCCs, who introduced competition and sensible fare structures. Take time to look at the number of carriers on a company's key routes and determine how the market will evolve and the impact that evolution may have on demand and pricing.

Among the key quantitative metrics to track, ascertain the company's capacity growth expectations, measured in available seat kilometres (ASKs). Simultaneously, assess per-unit revenue expectations, also known as revenue passenger kilometres (RPKs).

TECHNOLOGY, EFFICIENCY, AND COST CUTTING

Earlier, we mentioned the statist mindset prevalent among airlines companies, which can influence attitudes toward technology. Consider how well an operator is embracing change. For example, does the airline offer web/mobile check-in, then follow through with automated bag-drop facilities? What about the use of robots in the baggage handling, cargo, supplies, cleaning, and refurbishment divisions?

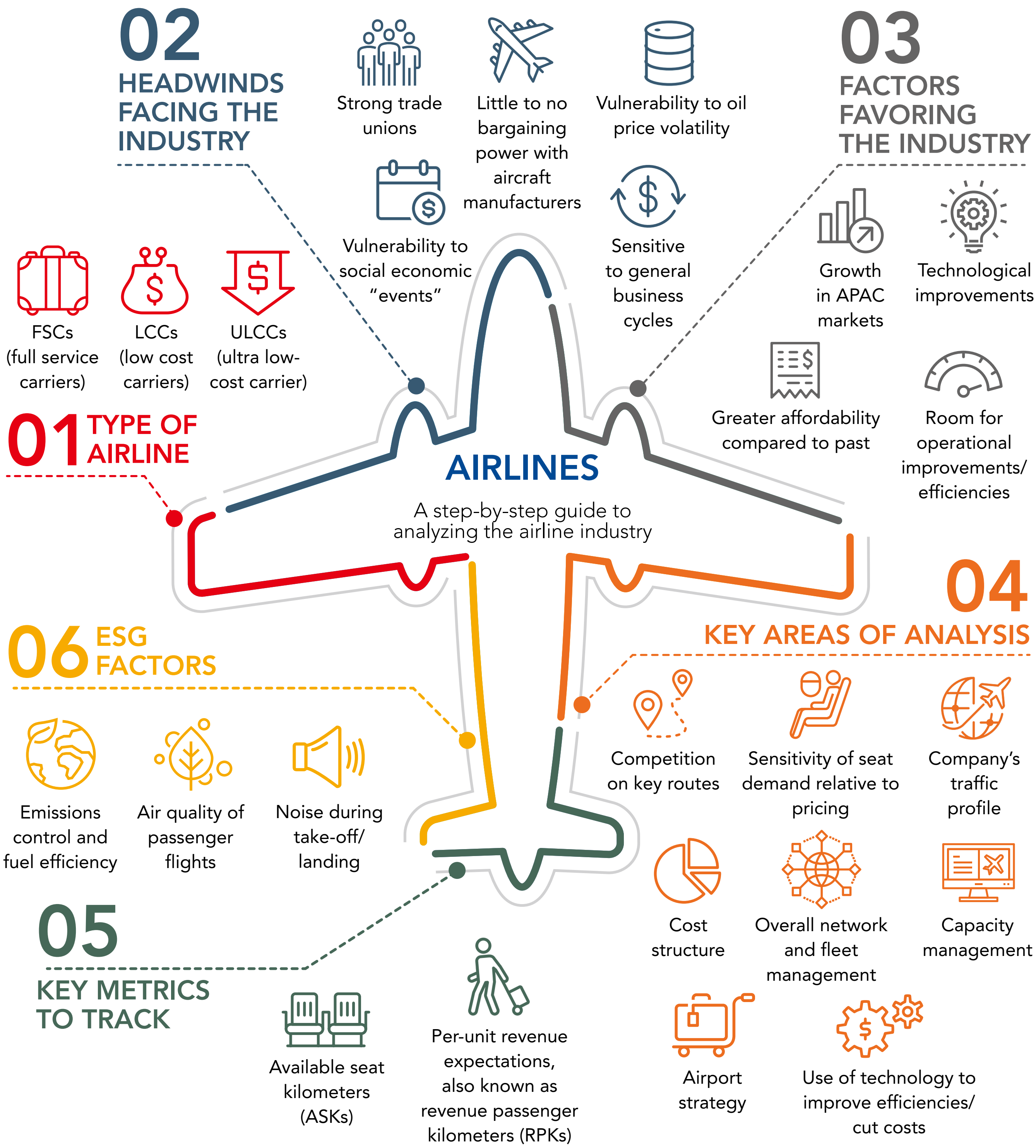
THE ENVIRONMENT AND CLIMATE CHANGE

Up to now, the airline industry has avoided intense environmental scrutiny, but that doesn't mean you shouldn't examine a company's plans to reduce emissions and become more fuel-efficient. Find out if the company monitors the cabin air quality of its passenger flights. Another line of enquiry could relate to the regulations governing noise produced by the company's aircraft during takeoff and landing.

PREPARE FOR LANDING

And finally, remember Warren Buffett and his gloomy view of the airline industry? Well in 2016, he spent more than USD1.3 billion accumulating stocks across four major US airlines: American Airlines, Delta, Southwest Airlines, and United Continental.

Changes of heart are, of course, free, but Buffet's actions serve to highlight the undulating dynamics of the airline business model: one minute it's a complete disaster and the next a heaven-sent opportunity. It also underscores why analysis is so enjoyable – you never know what you are going to discover.


AIRLINES
A step-by-step guide to analyzing the airline industry
01 TYPE OF AIRLINE
FSCs (full service carriers)
LCCs (low cost carriers)
ULCCs (ultra low-cost carrier)
02 HEADWINDS FACING THE INDUSTRY
Strong trade unions
Little to no bargaining power with aircraft manufacturers
Vulnerability to oil price volatility
Vulnerability to social economic "events"
Sensitive to general business cycles
03 FACTORS FAVORING THE INDUSTRY
Growth in APAC markets
Technological improvements
Greater affordability compared to past
Room for operational improvements/ efficiencies
04 KEY AREAS OF ANALYSIS
Competition on key routes
Sensitivity of seat demand relative to pricing
Company's traffic profile
Cost structure
Overall network and fleet management
Capacity management
Airport strategy
Use of technology to improve efficiencies/ cut costs
05 KEY METRICS TO TRACK
Available seat kilometers (ASKs)
Per-unit revenue expectations, also known as revenue passenger kilometers (RPKs)
06 ESG FACTORS
Emissions control and fuel efficiency
Air quality of passenger flights
Noise during take-off/ landing

AIRLINES

1. HOW SENSITIVE IS SEAT DEMAND TO CHANGES IN PRICING?

a. How does demand in the different travel classes (leisure/business) react to changes in price?
b. How does price sensitivity/demand vary with route type (short versus medium; long haul and domestic versus international)?
c. Is demand consistent across positive and negative price changes?
d. How does this behavior vary across different classes of travel?
e. How much seasonal variation in price sensitivity does the company experience? Are there specific periods or months where it can charge higher prices?

2. WHAT IS THE COMPANY'S TRAFFIC PROFILE?

a. What is the company's traffic mix between domestic and international routes?
b. What is the percentage split of the company's passengers who travel on business compared with those travel for leisure?
c. How does the company see this evolving? How does it intend to capitalize on those trends?
d. What are the company's route expansion plans? Are there specific routes where it has a focus?
e. Are there any routes that the company plans to shut soon? What are the reasons for doing so?

3. WHAT IS THE IMPACT OF SECURITY AND GEOPOLITICAL ISSUES ON DEMAND FOR AIR TRAVEL?

a. Does the company have an internal framework that identifies vulnerable routes?
b. Does the company believe that any of its routes are vulnerable?
c. How much will air traffic be disrupted by political and securityrelated issues? How frequently and for how long does the company expect these disruptions to occur?
d. How does the company intend to manage the impact of these disruptions?

4. WHAT IS THE CAPACITY TO DEMAND SCENARIO IN THE COMPANY'S KEY ROUTES? HOW EFFECTIVE HAS THE COMPANY'S NETWORK AND FLEET MANAGEMENT BEEN?

a. Which routes are experiencing the most mismatch? What factors are causing this mismatch?
b. How does the company expect this to evolve? How does it plan to manage its capacity in this light?
c. How does the company forecast future demand? How does it plan capacity deployment?
d. Does the company observe seasonal variations in demand? If so, in which routes and how much variation does it expect?
e. How does the company manage seasonality to achieve optimal load factors and yields?
f. Are there specific periods when the demand is unusually low? If so, how useful are price discounts or other promotions in reducing this impact?

5. THE COMPANY'S AIRPORT STRATEGY

a. How does the company decide which airports to fly from or to?
b. Does the company prefer the central or main airports or suburban airports?
c. Does the company have different strategies for the different routes it operates?
d. What are the airport and handling charges per passenger across different airports?
e. Are the main airports uniformly costlier to operate than their suburban counterparts?
f. How different are the traffic and yields between flights operating out of the two classes of airports?
g. How does the company expect this dynamic to develop in future?
h. What time slots does the company have in various airports in its markets? How many of these are in peak hours?

6. WHAT ARE THE MACROECONOMIC GROWTH TRENDS IN THE COMPANY'S KEY MARKETS?

a. What are the disposable income levels in the company's key markets of service? How are these evolving?
b. Where does the company expect to see structural growth come from?
c. How much impact would the above changes exert on the company's business models?
d. What is the company's strategy to leverage these opportunities?
e. How useful does the company believe consumer and business confidence indicators are in forecasting macro and industry outlook?

7. WHAT ARE THE TRENDS IN LEISURE TRAVEL IN THE COMPANY'S KEY MARKETS?

a. How favourable is the socio-cultural environment for sustained growth in leisure travel?
b. Which segment of the demographic is driving demand for leisure travel currently? How much of it is contributed by the younger age groups?
c. How does the company expect this to evolve and what impact will it have on nature of demand? How does it plan to adopt to and leverage from these trends?
d. What are customers' preferred destinations? How does this fit with its portfolio of routes? How does the company expect this to evolve?
e. Does the company currently offer or have plans to deliver packages to leisure travellers in partnership with other hospitality providers like hotels?

8. WHAT IS THE LEVEL OF MARKET CONCENTRATION AND COMPETITION IN THE COMPANY'S KEY ROUTES?

a. How many carriers does the company typically compete with on its key routes?
b. Can the company provide information on its brand value?
c. How does the company expect competition to evolve? Does it anticipate fewer or more carriers to operate in its key routes?
d. What impact will this have on demand and pricing?

9. HOW EASY IS IT FOR NEW PLAYERS TO ENTER THE INDUSTRY AND COMPETE? WHAT ARE THE ENTRY BARRIERS?

a. How easy or difficult is it to get a license from the civil aviation regulators?
b. Are there restrictions on foreign investments or ownership?
c. Can new players enter the market by partnering with existing carriers?
d. Are there underserved routes which a new player can target to gain entry?
e. Which of the company's routes are most vulnerable to competition?

10. DOES THE COMPANY OPERATE A HUB-AND-SPOKE MODEL?

a. Does the company have a primary or global hub? Where is this located? Does it have hubs in other regions?
b. How well connected are the company's hubs to critical routes and to the population centres they serve? How many flights (across all airlines) operate out of these airports in a typical week?
c. Do the airports that serve as the company's key hubs have space to support future growth in traffic?
d. When does the company expect its hubs to become saturated regarding traffic? Are these airports planning to expand capacity to keep pace with expected growth in traffic?

11. WHAT ARE THE COMPANY'S BUSINESS MODEL AND ROUTE STRATEGIES?

a. Does the company operate on a predominantly full-service or low-cost model or a hybrid?
b. What is the company's route profile in terms of low-cost flights vs full-service flights?
c. How does it decide where to deploy which model?
d. How different are the company's operating margins between the two models?

12. WHAT ARE THE COMPANY'S CODE-SHARING ARRANGEMENTS AND RELATED STRATEGIES?

a. What code-sharing agreements does the company have in place?
b. Which routes are the company planning to expand into by using code-sharing?
c. Which carriers does the company consider as potential partners? How does it choose its partners for this purpose?
d. How does the company decide to deploy code-sharing versus operating own flights? How frequently does it review this?

13. WHAT IS THE POTENTIAL FOR GROWTH FROM PROVIDING CONNECTIVITY TO LONG-HAUL HUBS?

a. Do such opportunities exist in the company's key markets?
b. How many of these does the company currently serve and expect to serve in future?
c. How much competition does the company face from other carriers/modes of transport in servicing these connecting routes?

14. HOW DOES THE EFFECTIVENESS OF THE COMPANY'S CAPACITY MANAGEMENT COMPARE WITH THAT OF ITS PEERS?

a. What are the company's load-factor spreads and how does this compare with peers?
b. Does the company offer add-on services or promotions to increase the load factor? What is the impact of these on costs?

15. WHAT IS THE PROFILE OF THE COMPANY'S AIRCRAFT FLEET?

a. What is the makeup of the company's fleet by aircraft type? What is the average age of its fleet?
b. Is the company's fleet profile aligned with its route profile (larger aircraft for long-haul routes; smaller aircraft for short and medium haul)?
c. How does the company's fleet's performance stack up on fuel efficiency? How much fuel is used per ASK (available seat kilometres) on average?

16. WHAT IS THE ROUTE PERFORMANCE OF THE COMPANY'S AIRCRAFT?

a. What is current turnaround time (TA) achieved by the company's flights?
b. What are the average TA times for short-haul and long- haul flights?
c. What are the company's targets for turnaround time?
d. What is the on-time operation record for the company's flights? What is the target?
e. How do the company's turnaround metrics compare to its competition?

17. WHAT HAS BEEN THE COMPANY'S SAFETY TRACK RECORD? HOW DOES THIS COMPARE WITH THAT OF ITS PEERS?

a. What are the various measures and practices the company follow to ensure flight safety?
b. What metrics does the company use to evaluate those and what are its targets? What has been the company's track record in achieving those targets?
c. What has been the fatality rate of the company's operations?
d. What were the causes of these – accidents versus securityrelated and on-flight versus ground incidents?
e. What has been the company's Flight Incident Report rates?
f. Does the company participate in the Operational Safety Audit of the International Air Transport Association or any such equivalent?
g. Have any of the company's aircraft ever been grounded due to safety concerns?

18. IN WHICH AREAS DOES THE COMPANY UTILIZE TECHNOLOGY TO IMPROVE EFFICIENCY AND CUT COSTS?

a. Does the company offer web/mobile check-in to passengers?
b. Does the company provide automated bag drop facilities to its passengers?
c. Does the company use robots in its operations? For example, baggage handling, cargo and supplies, cleaning and refurbishment?
d. Has the company fully computerized its route planning, flight scheduling and crew deployment?
e. Is the company exploring the use of artificial intelligence to improve other operations?
f. Has the company ever experienced computer downtime? If so, what were the causes?

19. HAS THE COMPANY MET ITS OPERATING MEASURES? HOW ARE THESE EVOLVING AND COMPARE WITH THOSE OF ITS PEERS?

a. What are the capacity growth expectations (ASKs) over the next 3–5 years?
b. What are the company's per-unit revenue expectations (RPKs)?
c. How much yield-per-revenue passenger kilometre does the company currently generate? Which routes offer the highest yields? How seasonal are these yields?
d. What are the company's operating margins?
e. How does FX impact the company's RPK and CASK (cost per available seat kilometre)?
f. What is the company's hedging strategy concerning fuel prices and FX?

20. WHAT IS THE COMPANY'S FINANCIAL LEVERAGE AFTER FACTORING ANY OFF-BALANCE SHEET DEBT IN THE FORM OF AIRCRAFT LEASES?

a. What has been the company's leverage ratio after considering aircraft rentals and off-balance sheet items (net debt including leases/EBITDA)? How does this compare with its peers?
b. What is the company's aircraft lease profile? How many of these are operating leases versus wet leases?
c. How does the company decide on ownership versus leasing versus rental? How does it determine the type of lease to use?

21. HOW MUCH REVENUE IS DERIVED FROM ANCILLARY SERVICES AND LOYALTY PROGRAMMES?

a. What items constitute these services? Is the company planning to expand this basket?
b. How much revenue does the company expect to derive from these in the future? What are the margins from these services?
c. How useful are the company's loyalty programmes in getting repeat customers? What are the costs involved?
d. How much of the company's liabilities are associated with loyalty programmes?

22. WHAT IS THE COMPANY'S INDUSTRIAL RELATIONS POLICY AND STRATEGY?

a. How successful has the company been in retaining pilots and technical staff?
b. How vulnerable are the company's operations to potential industrial action? Has it experienced any such disruption in the past?
c. What is the structure and duration of the company's wage agreements?
d. How strong and active are the trade unions in the company's markets of operation? What percentage of the company's workforce is unionised?
e. Are the unions co-operative or antagonistic, in general?

23. HOW HAS THE COMPANY PERFORMED ON ENVIRONMENTAL AND CLIMATE CHANGE RELATED ISSUES?

a. Establish the company's fuel consumption and emissions per revenue passenger kilometre/load tonne kilometre flown?
b. Does the company have a plan to reduce fuel and emissions intensity of its operations? If so, what measures are being undertaken?
c. What are the company's reduction targets? How is its track record in achieving these targets?
d. Does the company have or expect to have binding obligations under any existing or proposed market-based measures on emissions reduction such as the European Emission Trading Scheme - Aviation? If so, can it provide details of their operational and financial impact?
e. Does the company offer an option for passengers to buy carbon credits to offset the emissions resulting from their flight?
f. What are the regulations governing noise produced by the company's aircraft while taking off from and landing at different airports that the company operates from? What is the company's track record in complying with these requirements?
g. Does the company monitor the cabin air quality of its passenger flights? What measures does it undertake to ensure the quality is within acceptable limits as required by regulation/health standards?
h. How does the company ensure the safe and secured collection, handling and storage of passenger, employee and flight data?
i. Has the company ever experienced a data breach or been subject to information/cyber sabotage?
j. What are the company's obligations under the data privacy/security statutes of different jurisdictions? What measures does it undertake to ensure full compliance?

PROPERTY DEVELOPMENT

LUMPS, BUMPS, AND SLUMPS

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

In a complex and fast-moving financial world, it's comforting to know that some sectors remain relatively easy to understand. A case in point is property development. The property developer acquires land and an architect then designs the building and obtains planning approval before passing the baton to the construction team.

At this stage, the developer could choose to undertake marketing and sales before construction is complete or wait until the last brick falls into place. Either way, you can then calculate the gross development value (GDV) of a project or profit from the project, of which the sum of GDV, excluding the developer's liabilities, will yield the value of the development.

FUNDAMENTAL #1: LUMPY REVENUE GENERATION

So far, so simple. There are, however, a few variations to this straightforward business model that you should note. We shall begin with the lumpy nature of revenue generation.

It can take years to complete a project, and if the developer only has only one development, then the profit-and-loss account will not record any revenue during the planning and construction phase – something that can stretch for many financial reporting quarters. Upon completion, and the subsequent sale of residential or commercial units, revenue will spike before declining when all the units are sold. Investors and analysts are somewhat uneasy with this supposedly erratic performance.

That said, revenue volatility is not a pertinent issue for big developers, as they usually have multiple projects running concurrently with different completion dates.

For companies that do not fall into this category, the need to smooth out their income stream is far stronger. The following steps may stabilise the variations in a firm's financial statements:

- Develop the land in phases. The first tranche is completed and sold, often at a lower entry price to generate interest in the project. When word gets out that the initial stage was well-received, work will start on phase two. By adopting this approach, the smaller developer's revenue will appear more fluid.
- For developers that lack the financial resources to take on multiple enterprises, there is the option of running numerous projects through joint ventures. The landowner supplies the land while the property developer does the rest, which evens out revenue-reporting numbers and reduces risk exposure to a project.
- Generate money from property investment. Developers may hold onto units for rental purposes, forming a revenue base and providing earnings stability. Alternatively, they may spin-off the property investment portfolio to a real estate investment trust (REIT), where dividends are declared on a quarterly or half-yearly basis.

It is also important to point out that any assessment of a property developer should consider the geographical distribution of its revenue sources – diversification reduces the risks associated with revenue concentration. Nevertheless, embodied in the points above are the all-important reputation and track record of the company. Purchasing real estate is not the same as buying fast-moving goods and services. We can choose not to patronise a restaurant due to poor service, but being saddled with a troubled property is painful, and the discomfort can be long lasting. Buyers and investors certainly place reputation and track record at a definite premium.

FUNDAMENTAL #2: THE DIFFERENT DEMAND FACTORS FOR PROPERTY DEVELOPERS

For residential property developers, key statistics include demographics: population, age, and net migration, as well as movement from the countryside to the city. Changes in income statistics should also be observed. Other areas to investigate include issues relating to single-occupancy city-centre apartments and suburban family houses. It also pays to understand the culture of each market – is home ownership seen as a measure of success or is perpetual renting accepted as the norm?

In the wake of near-zero interest rates, property prices have accelerated in many countries, including those in Asia Pacific where the price-to-income ratio (a measure of affordability) has soared. It is indeed a concern and you will likely solicit an angry response if the respondent has yet to own a residential unit. Governments may therefore offer subsidies to first-time home buyers, which can bode well for developers in the lower-end residential property space.

When examining the more cyclical commercial property developers, begin by looking at economic data. Stronger growth and expansionary monetary policies usually suggest an increase in business activity. Therefore, warehouses, factories, and retail assets will be highly sought after. The expansion in the service industry will also propel demand for office space.

After that, drill down and explore the factors unique to each industry and the location of the property. For example, when researching hotels, you should examine the growth in tourist arrivals. Another significant factor is the expansion of e-commerce, with demand for retail space suffering in favour of high-tech warehousing space in Asia-Pacific.

FUNDAMENTAL #3: LAND – THE CRUCIAL RAW MATERIAL IN PROPERTY DEVELOPMENT

Most developers possess a land bank, but this is an asset that can be depleted if not replenished promptly. Companies do participate in public auctions of land released by governments and can also choose to buy land from private owners. The key to land parcels is location, location, and location – but not at any cost. Overly optimistic offer prices at the peak of an economic cycle will hit the bottom line, more so in highly developed territories where the land cost forms the overwhelming proportion of total development costs.

Alternatively, developers may acquire old buildings. Although this can be less expensive than participating in auctions, such activity raises questions about the time and cost-effectiveness of renovating or converting an existing asset. In some areas, developers may also "land bank" through the conversion of one use of land to another, subject to the jurisdiction of the local authority.

FUNDAMENTAL #4: COMPANY ANALYSIS – DEVELOPERS AREN'T HOMOGENOUS

Several key performance metrics can be employed in the study of developers. Sell-through rates for recently launched projects can be a direct indication of company performance and an indication of track record and reputation. Observe changes in overall transaction volume, also known as transaction velocity, as there is a strong correlation between share prices and property transaction prices (as measured by property price index) and volume.

Changes in unsold inventory can indicate cyclical upswings and downswings. As a value measure, share price to revalued net asset value (RNAV, which is the book value of development property plus revaluation surplus) is a useful metric. During an up cycle, this ratio may range from around 0.9 to 1.5. On the other hand, in a bear market this ratio may range from approximately 0.3 to 0.6.

Studying how a developer manages its working capital (WC) requirement is helpful. Such an assessment should begin by analysing how the developer raises WC and the implications for the cost of capital and risk. At the same time, find out if the developer requires a higher level of WC in different areas of its operations, such as projects in other countries. Investors also need to note the developer's capital-allocation strategy in apportioning money to acquiring land parcels, developing properties, and other competing uses.

Another variation on the straightforward business model is the outsourcing of construction to contractors, as well as subcontractors. A developer's essential competency rests on having a keen eye for acquiring reasonably priced land parcels and developing these into coveted real estate trophies. While doing this, its management may decide to focus on what generates value for the business and outsource the construction segment. When extracting value from construction, the core competency differs – in this case, execution and cost control form the recipe for success. If this is the variation, then capital and WC requirements will be lower.

FUNDAMENTAL #5: SOURCES OF CAPITAL

Funding is critical for property development projects. External sources of money may come from bank loans, bond financing, share-rights issuance, or some other form of equity financing. Where a property developer has obtained funding, take the time to understand the funding structure because this can impact returns, especially if the company is highly geared.

FUNDAMENTAL #6: RISKS - ANALYSE THESE UNDER A MICROSCOPE

A developer may successfully bid for land during a boom only to experience a subsequent market correction. Alternatively, it may bid overzealously and pay too much for individual land plots. As land forms a sizeable portion of total production, this cost misstep will hurt.

There may also be a supply shock with too many projects being completed all at once. This oversupply can be exacerbated by macroeconomic downturns, depressing both prices and take-up rates. Highly leveraged developers are acutely exposed when there is a double whammy of falling prices and risk-averse buyers.

Government intervention in the market is a further source of risk. Developers may experience the adverse consequence arising from regulatory policy changes designed to curb a perceived bubble.

For research points that look at the sector in more detail, please refer to the respective sections of our guide.

PROPERTY DEVELOPMENT

A step-by-step guide to analyzing the property development industry

01 REVENUE SOURCES
Balancing Stable vs. Lumpy (Uneven) Revenue

- Property investment business – Rent collection
- Property development
- Strategic investments – depending on specific asset class nature

02 Structural Influencers

- Tiers of city – economic development
- Regulatory restraints (in relation to jurisdiction)
- Population
  - Demographics
  - Migration friendliness
  - Urbanisation
- Government housing subsidy
- Culture – asset owning vs rental

03 TYPE OF PROPERTY ASSET CLASS

- Residential
- Commercial
- Industrial
- Hospitality

04 SOURCES OF LAND BANK

- Legacy sources
- Redevelopment of existing property
- Public auctions/ land tenders
- Conversion of land-use nature

05 SOURCES OF FUNDING

- Committed banking facilities
- Bond financing
- Rights issue
- Equity financing

06 RISK

- Mismatch of market timing during property development
- Supply shock
- Unexpected macro shock
- Over leveraged gearing ratio
- Market interest rate change
- Average tenor of loan too short
- Expectation mismatch (between type of units developed versus end-consumer needs)
- Regulatory policy
- Increase in vacancy

07 OTHERS

- ESG
- Other KPIs
  - Sell-through rates
  - Unsold inventory
  - Price to RNAV
  - Price-to-income ratio

PROPERTY DEVELOPERS

1. WHAT ARE THE DETAILS OF THE PROJECT PROFILE OF THE COMPANY?

a. Does the company cater to both residential and non-residential consumer categories?
b. How is the residential category classified in geographies where the company operates? Are there additional segments beyond affordable or budget housing, mid-size, luxury housing and retirement homes? Which of these segments does the company operates in?
c. What are the types of properties the company develops for the non-residential category? Does it cover segments beyond offices, retail space, shopping malls, hotels and recreational facilities?

2. WHAT ARE THE DRIVERS OF DEMAND FOR PROPERTIES IN THE KEY MARKETS?

a. How does the demand versus supply situation look in different consumer categories and segments across the company's key markets?
b. Is there oversupply or undersupply in any specific segments, consumer categories or locations?
c. How much relative importance do consumers attach to factors such as location, quality, and reputation of developer, pricing, total property cost, availability of finance and payment terms while making purchase decisions? Are there any other critical factors considered important by consumers across categories or segments in different regions?
d. To what extent does the company customize properties to suit customer needs?
e. What is the trade-off between the level of customisation and overruns in cost and time?
f. What is the extent of cyclicality and seasonality of demand for the company's properties?

3. WHAT ARE THE DRIVERS OF DEMAND FOR PROPERTIES IN THE RESIDENTIAL CATEGORY?

a. What is the level of unsold home inventories in different segments and regions?
b. Which segment is the company's primary focus? Does this vary by region?
c. How do house prices compare with income levels in key markets?
d. How do the dynamics of home ownership vs rental accommodation compare in the key markets of the company?
e. How favourable is the regulatory environment for growth of the housing finance market?
f. How prevalent is housing finance and how easy is it to obtain home loans?
g. How stringent are the down payment requirements and credit assessment norms?
h. What are the recent trends in building permit issuances, housing starts and unsold inventories?
i. How correlated are consumer confidence and employment conditions with new home sales, building permit issuances, housing starts and unsold inventories?

4. WHAT ARE THE DRIVERS OF DEMAND FOR PROPERTIES IN THE NON-RESIDENTIAL MARKET?

a. What are the trends in discretionary corporate spending on buildings and other infrastructural facilities?
b. Which are the industries driving demand for office and other non-residential properties?
c. What are the office vacancy rates, unsold inventory levels and trends in commercial property prices?
d. How correlated are business confidence indicators with occupancy rates?
e. How easily and quickly can properties be reconfigured for different uses? For example, can a property built for a traditional, large office space designed for a large bank be converted into multiple smaller workspaces to accommodate start-up companies?

5. WHAT ARE THE FACTORS DRIVING PROPERTY PRICES IN THE KEY MARKETS?

a. How do location, type and quality of property and availability of amenities affect prices?
b. What is the share of properties that are self-funded by the buyer versus those funded by borrowings?
c. What is the size and liquidity of resale property market?
d. How does the availability of housing finance and ease of payment terms influence prices?
e. What is the effect of liquidity and credit conditions on prices?
f. How does the perception of property as an investment vehicle compare with that of other asset classes in the key markets?
g. Is cyclicality observed in house prices? How does the company manage the impact of cyclicality?
h. How does the company manage the trade-off between waiting for the best bidder (highest price) and maintaining a light inventory of properties to sell?

6. WHAT IS THE MIX OF REVENUE AND PROFITS BY CONSUMER CATEGORIES, SEGMENTS AND GEOGRAPHIES?

a. What is the mix of revenues and profits by consumer categories, segments and regions?
b. How do the margins vary by consumer categories, segments and regions?

7. WHAT ARE THE LONG-TERM DRIVERS FOR THE BUSINESS?

a. What is the growth rate, median age and dependency ratio of the population in the key markets?
b. What are the home ownership rates in the key markets?
c. What is the average household size and household formation rate in the key markets?
d. What are the urbanisation and immigration rates in the key markets?

8. WHAT ARE THE INVESTMENT-DRIVEN FACTORS THAT ARE EXPECTED TO INFLUENCE STRUCTURAL DEMAND?

a. What is the proportion of properties bought for own use versus those held for investment?
b. What are the private sector and household debt levels? What proportion of this is from residential and non- residential mortgages?

9. WHAT ARE THE CONSUMPTION-DRIVEN FACTORS THAT ARE EXPECTED TO INFLUENCE STRUCTURAL DEMAND?

a. a. What are the various social, cultural and economic factors that influence home and property ownership in the key markets?

10. WHAT ARE THE REGULATION-DRIVEN FACTORS THAT ARE EXPECTED TO INFLUENCE STRUCTURAL DEMAND?

a. What are the existing, upcoming or expected legislative and regulatory mandates on housing and affordable housing?
b. Are there any tax benefits to investors, builders and funders of housing and property development?
c. Which are the segments likely to benefit from these drivers?

11. WHAT IS THE MARKET CONCENTRATION LEVEL AND ARE THERE BARRIERS TO ENTRY OF NEWER PLAYERS?

a. What is the share of top 3 and top 5 developers by consumer categories, segments and regions?
b. What are the factors facilitating or impeding entry of new players?
c. What are the approvals and licences required to operate as a property developer? What is the ease and cost of getting these clearances?
d. How easy and expensive is it to get skilled management team, engineering and technical staff, with experience of successfully executing projects in the specific markets where the company operates?
e. Do any existing or proposed labour or immigration regulations affect the company's ability to execute projects in specific geographies?

12. WHAT ARE THE VARIOUS MARKET AND REGULATORY FACTORS AFFECTING THE AVAILABILITY OF NEW PROPERTIES IN THE KEY MARKETS?

a. What is the estimated size of land available for development? Are sufficient land parcels in desired sizes available in preferred locations?
b. How concentrated or fragmented are land holdings across locations where development is planned?
c. How clear, reliable, transparent and accessible is the information on land titles?
d. How prevalent and restrictive are zoning regulations? How do they affect development costs and time?
e. How easy is it to obtain necessary approvals and permits? What is the typical time taken?
f. What is the typical transaction cost (registration charges, stamp duty, professional fees, statutory levies, etc.) as a percentage of property value?

13. WHAT ARE THE DETAILS OF THE SIZE AND PROFILE OF THE COMPANY'S LAND BANK?

a. Across key markets, how are company's land banks distributed?
b. How close to civil, social and economic infrastructures are the land parcels located?
c. How does the profile (location, proximity, market premium etc.) of the company's land bank compare with that of competitors?

14. HOW MATURE IS THE MARKET FOR PROPERTY FINANCING?

a. What are the various avenues available for investor participation in the key markets: real estate investment trusts (REITs), real estate exchange traded funds (ETFs), commingled real estate funds (CREFs) and infrastructure funds?
b. What is the extent of participation of various classes of investors (retail, high net worth individuals, institutions, retirement funds etc.) in the property market?

15. HOW CONDUCIVE IS GOVERNMENT POLICY ON PROPERTY DEVELOPMENT?

a. Is the policy stance of governments on, and engagement with, property development active or passive in the key markets?
b. What are the major objectives driving the policy stance and level of activity of the government?
c. How clear, consistent and reliable is the policy stance, pronouncements, prescriptions and enforcement?
d. Are there components of the government policy which influence demand, distort market activity or affect property prices?

16. HOW HAS THE COMPANY PERFORMED ON OPERATIONAL MEASURES? HOW DO THESE COMPARE WITH PEERS? HOW ARE THESE EXPECTED TO EVOLVE?

a. What has been the growth rate of the size of the company's property portfolio sold in terms of gross floor area and value?
b. What has been trend in average selling price per square foot?
c. How fast do the expectations of property buyers change?
d. How does the company track and manage the changing preferences of buyers?

17. WHAT ARE THE MAJOR COMPONENTS OF THE COMPANY'S COST STRUCTURE?

a. What is the cost of building material and supplies as a proportion of selling price and total cost?
b. How does the material and supply cost vary by consumer categories, segments and regions? Are there any bottlenecks on this front?
c. How well has the company been able to control various components of its costs? What are the objective measures used by the company to track performance on this front?
d. What has been the track record of timeliness in completing projects and delivering properties to clients?
e. What has been the extent of time overruns across projects? What has been the financial and other implications of the overruns?

18. HOW ARE WORKING CAPITAL REQUIREMENTS MANAGED?

a. What is the preferred mode of raising working capital (WC)?
b. What is the currency mix of the WC?
c. What has been the weighted average cost of the WC?
d. How are the currency mix and cost of the WC expected to evolve?
e. What is the sensitivity of interest rate and forex volatility on the cost of WC?
f. Do the company's operations in specific projects, consumer categories, segments or geographies require higher levels of working capital than others?

19. HOW EFFICIENTLY HAS THE COMPANY UTILISED CAPITAL?

a. What is the capital allocation strategy between acquiring land banks and developing properties?
b. What is the target financial leverage level maintained by the company? Has the company been successful in maintaining its leverage within this range? How often have there been exceptions?
c. What has been the asset turnover by consumer categories, segments and regions?
d. How long is the development cycle in different consumer categories, segments and regions?

20. HOW HAS THE COMPANY PERFORMED ON FINANCIAL MEASURES? HOW DO THESE COMPARE WITH PEERS? HOW ARE THESE EXPECTED TO EVOLVE?

a. What has been the average selling price and revenue growth by volume (floor space, number of units) for different consumer categories, segments and geographies?
b. How are incoming cash flows structured? Are they tied to an agreed schedule based on time or project milestones?
c. What has been the gross, operating and net profit margins?
d. What is the sensitivity of margins to interest rates and forex volatility?

21. WHAT HAS BEEN THE COMPANY'S TRACK RECORD IN MANAGING LABOUR RELATIONS?

a. What is the proportion of unionised workforce?
b. What are the key market and regulatory challenges in relation to labour affairs?
c. Have there been instances of labour unrest in the past? How were those situations managed?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE

22. WHAT ARE THE DETAILS OF THE COMPANY'S ESG PRINCIPLES, PRACTICE AND TRACK RECORD?

a. What is the company's strategy, practices and track record in reducing the energy intensity, water intensity, emissions intensity, material consumption, waste generation and overall environmental and ecological footprint during execution of projects?
b. How does the energy consumption, emission, water use and waste generation intensity of the properties developed by the company, during their normal functioning, compare with industry benchmarks? What are the initiatives taken to reduce these?
c. Has the company received, or has plans to receive, certifications such as the Leadership in Energy and Environmental Design (LEED) rating devised by the United States Green Building Council (USGBC)?
d. What proportion of properties are equipped with smart metering applications to monitor consumption of energy, water and other utilities?
e. When the projects entail demolition of built structures, how much of the material is typically recovered? What is the procedure for handling recoveries and debris arising from the demolition?
f. Where possible, are features suited to the local climate incorporated in projects?
g. How much recycled, eco-friendly and locally sourced material are used in constructing buildings?
h. How has been the company's track record regarding the safety and fair treatment of labourers involved in its projects? What is the total number of fatalities, days lost and injuries in relation to total number of personnel employed?
i. What is the proportion of total work sub-contracted or outsourced?
j. What is the proportion of the local population in the workforce?
k. How much is the typical spend on maintenance and safety at the company's offices and project sites?
l. What is the size and proportion of the company's sold, owned, managed and under development portfolio that is covered by ESG principles?
m. Has the company faced accusations of corruption, bribery or offering inappropriate inducements to obtain land use permissions, development permits or construction approvals?
n. Has the company ever been accused of, investigated or penalized for not obtaining prior approvals or violating approved plans?
o. Does the company have a documented policy on ESG and sustainability principles that govern the property development agenda?
p. What is the company's policy and track record relating to political donations?

BANKING INDUSTRY

UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF THE BANKS SECTOR

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SPHERES OF OPERATION

The role banks play in our lives is vital. Their activities underpin the efficient working of an economy – indeed, they are often among the most significant constituents of a country's stock market.

When we talk about banks, we are not just referring to the familiar branches we occasionally visit to deposit funds or withdraw cash. Banks is an umbrella term that describes an industry subdivided into several segments, including, but not restricted to Consumer Banking & Wealth Management (also known as retail banking), Wholesale (also known as institutional banking) and Treasury.

ECONOMIC PERFORMANCE

Let's begin at a high level. The first dimension to look at when assessing any bank is the performance of the economy (or economies) in which it operates. This directly influences credit growth and asset quality. Both factors tend to be better when an economy is thriving. In particular, observe how a bank's loan book correlates with changes in a country's GDP, and how the different sectors that make up the loan book are performing.

INCOME GENERATION

Banks generate their income from a variety of sources. If we start with interest income, net interest income (and margin) would be the key number to examine. Net interest income (NII) is the difference between what a bank earns on its loans and its funding costs. A high net interest margin, in general, indicates loan-book profitability. However, this needs to be placed against the quality of loans provided to evaluate the creditworthiness of an asset.

A good check here is to assess the sensitivity of loan and deposit growth to changes in interest rates and measure these factors with peer banks in the sector. Furthermore, it is sensible to examine the bank's loan-to-deposit ratio (the extent to which deposits finance loans) and the sources of a bank's funds – specifically, the contribution made by low-cost deposits (current and savings accounts) to the total funding mix.

Next in line would be fee- and commission-based income. This income arises from a variety of sources, including corporate advisory services, transactional commissions, investment banking and wealth-management services, and remittances, together with the commission generated from the sale of third-party financial products.

In addition, banks also generate trading income, which is non-interest and non-fee-based in nature. This income is usually derived from trading in bonds, FOREX, rates, derivatives, and equities.

Among these streams, trading income typically exhibits the highest level of volatility and risk, while NII is recurring and the most stable form of income. Lastly, income can also flow in from investments held and managed by the bank.

You should also be conscious of the cost structure of the bank and the trend in cost-to-income ratio. Staff expenditure is typically the largest component of a bank's costs.

If you want to gauge how a bank is performing across all business sectors, it is important to investigate its return on equity, as well as its return on assets. The extent to which all these earning streams are recurring is another important aspect of banking stocks you should bear in mind before putting your money on the table.

SPECIALIST SERVICES

Banks vary in profile and size. Some offer across-the-board services, while others are more specialized. For private banks, the pool of affluent individuals across their key markets is critical, as is the quality of their products and services. Churn rates, trends in fee-based income, including how much of this is recurring, are other important metrics to note. For investment banking, the nature of its income generation is more variable, with returns dependent on trading profits and its M&A deal pipeline, so the attendant risks and the track record of the business should be considered.

RISK-AWARE

The very nature of banking requires careful management of risk. The strength of a bank in the face of credit, market, and operational-related challenges can be measured by looking at its capital adequacy ratio, regarding Tier 1 and Tier 2 capital, in relation to its risk-weighted assets (RWA) overall. The amount of non-performing loans that the bank carries in comparison with the total loan-book size, as well as the level of provisioning maintained against these loans, are also key parameters that help you to understand risk.

Some banks may have off-balance-sheet liabilities, such as project partnerships and the provision of third-party guarantees, that it is not obliged to disclose in granularity under respective local regulatory frameworks. Off-balance-sheet liabilities are the usual nesting ground for well-hidden red flags. Liquidity coverage ratio, which is the proportion of high-quality liquid assets versus net cash outflows, is another metric to observe if you want to know if the bank can manage any liquidity shocks effectively.

The performance of a bank is further influenced by the geographical spread of its business, and by the profile of the customer base, which has an impact on risk and loan-growth potential. Exposure to specific countries, industries, or customer groups may bring growth opportunities but also affect the risk profile of the bank.

OPPORTUNITIES AND THREATS

In recent years, the employment of technology and digitalisation in banking services has brought both opportunities and threats. There are a few points to consider. Does the bank use technology to facilitate expansion across business segments and geographies? Will the application of technology lead to enhanced levels of service and deliver new products to the bank's customers, as well as reduce its servicing costs?

At the other end of the spectrum, new-age technologies in the form of P2P networks, fintech developments, and the advent of crypto-currencies might serve as disruptive forces to the conventional banking ecosystem.

Another important attribute that demands your full attention is the service penetration rate in the key markets of operation. Usually, the degree of service penetration rate functions as a structural influencer and will vary at both the market and product level. This may be particularly true in developing markets.

Lastly, as we approach the tenth anniversary of the global financial crisis, banks remain under the scrutiny of regulators, with lawmakers worldwide considering various measures designed to control banking activity. Amid this uncertainty, however, many organisations are already 'self-regulating' ahead of anticipated changes. Given that such activities eat directly into compliance costs, it is worth finding out what initiatives have been, or will be, introduced to ensure that the bank operates within a tight compliance framework.

For research points that look at specific sub-sector types, such as investment banking and private banking, please refer to the respective sections of our questioning framework.

BANKING INDUSTRY

A step-by-step guide to analyzing the banking industry

01 LOCAL ECONOMY

The business of banks have a strong correlation with the local economy

02 INCOME OPPORTUNITIES

What are they? How do they generate income for the bank?

Types of Income:

- Interest income
- Fees based income
- Trading income
- Recurring vs. non-recurring
- Return on equity and tangible equity
- Return on assets

03 RISKS

What risks are there? How do they affect performance and how are they being managed?

- Exposure to cyclical / risky industries
- Capital adequacy, liquidity, leverage
- Credit, market and operational risk
- Extent of off-balance sheet liabilities, estimated materialization
- Asset quality: classification norms, nonperforming loan (NPLs), provisioning
- Size of risk weighted assets
- Value at risk
- Regulatory risk

04 DEGREE OF BUSINESS CONCENTRATION

How is the bank's business distributed?

- Revenue distribution (among geographies and business units)
- Loan portfolio distribution (among the various brick and mortar industries)

05 STRUCTURAL INFLUENCES

Identify any other structural influences and broader long-term trends

- Market penetration of banking services
- Threat of technology-led disruption

Aspects Unique to the Banking Industry:

- Very high sensitivity to macro-economic conditions and monetary policy
- Managing risk is central to the entire industry
- Optimal capital allocation among different businesses is critical
- Requires a unique approach to each business, increasing overall complexity

Key Risks:

- **Asset quality deterioration, geopolitical disruptions**
- **Strong regulatory punitive action for errant behaviour**

COMMON TO THE SECTOR

1. WHAT ARE THE DIFFERENT SERVICES AND PRODUCTS OFFERED BY THE BANK?

a. What are the various business segments does the bank operate (for instance, retail, commercial, investment banking, and private banking) in?
b. What is the split of revenue and profits between the various business segments?
c. Does the bank consider any of these businesses as non-core? If so, what is the strategy for managing the non-core businesses?

2. WHAT GEOGRAPHIES DOES THE BANK OPERATE IN?

a. What is the geographical spread of the operations of the bank?
b. What is the mix of revenue and profits from those different regions?
c. What is the share of business derived from domestic markets versus international markets?
d. Does the bank consider any of these regions or countries as non-core? If yes, then what is the strategy for managing operations in these non-core regions or countries?

3. WHAT IS THE PROPORTION OF NON-INTEREST INCOME EARNED BY THE BANK AND WHAT ARE THE STRATEGIES TO MANAGE THESE INCOME SOURCES EFFECTIVELY?

a. What are the businesses that generate fee income (for instance, account-related charges, remittances, payments, commissions on sale of third-party products, guarantees, custodial and safe keeping services and capital market advisory)?
b. What are the businesses that generate non-fee, non-interest income (trading and investment income)?
c. What is the mix of revenue and profits from non-interest income generating businesses by geography?
d. How seasonal and volatile are different components of the non-interest income?
e. What are the strategies adopted to reduce or manage risk and volatility of non-interest income?
f. What is the overall strategy for non-interest income businesses? Does the bank plans to expand, downsize or maintain share in the overall mix?

4. WHAT IS THE SPLIT BETWEEN BUSINESSES GENERATING RECURRING INCOME VERSUS THOSE GENERATING NON-RECURRING INCOME?

a. What are the business units of the bank that generate recurring income (for instance, interest income)?
b. Which business units generate income which may not offer recurring inflows (for instance, fee income)?
c. How has the mix between these two streams evolved over time?
d. What is the bank's strategy for the next 3-5 years to manage this mix?

5. HOW DO GDP GROWTH AND ECONOMIC ACTIVITY INFLUENCE CREDIT DEMAND AND DEPOSITS IN KEY MARKETS?

a. How closely does the loan book growth rate correlate with the changes in the GDP growth rate in the key markets?
b. How does the correlation look against the overall economic growth and against the growth in different sectors that make up the loan portfolio of the bank?
c. What is the outlook for economic growth in these sectors in the key markets?

6. WHAT IS THE EFFECT OF CHANGES IN INTEREST RATES AND LIQUIDITY ON THE BANK'S BUSINESS?

a. How does change in interest rates affect deposit and loan growth? Is the relationship consistent irrespective of interest rate levels and extent of change?
b. How have net interest margin (NIM) and net interest income (NII) reacted to changes in the interest rate in the past? Is this relationship expected to hold in the future?
c. How much of the loan book is under fixed versus floating interest rate arrangement?
d. Have there been any occasions of liquidity pressures in the past due to changes in interest rates? If yes, how were those instances managed?
e. How is the Asset and Liability Management (ALM) position of the bank? Is it managed dynamically to take advantage of interest rate movements while retaining effective liquidity?

7. WHAT IS THE COST OF FUNDS SCENARIO OF THE BANK? HOW DOES IT COMPARE WITH THAT OF PEERS?

a. What is the share of the low cost funding source – Current and Savings deposits (CASA Ratio) – in total deposits?
b. How does the cost of new deposits compare with that of existing deposits?
c. How does the bank's CASA profile change in relation to changing interest rates?
d. How stable is the CASA profile of the bank in relation to that of competitors?

8. HOW ACCESSIBLE AND AFFORDABLE ARE BANKING SERVICES IN THE BANK'S KEY MARKETS?

a. How simple is the process of opening and operating bank accounts and borrowing of funds?
b. What is the level of transaction costs in the industry? How does this compare with the cost of the bank's services?
c. How does the market perceive the quality of the bank's customer service? Are there objective assessments of this perception based on proprietary or third-party market research or surveys?

9. WHAT ARE THE DIGITALISATION-ENABLED SERVICES OFFERED BY THE BANK?

a. How does the bank's digital offerings compare with offerings of competitors?
b. To what extent the bank is using data analytics to improve efficiencies and effectiveness of marketing, to upsell and cross-sell various products and services to customers and to provide tailored offerings?
c. Does the bank offer online payment services like digital / mobile wallets and electronic bill payments?
d. How willing are the customers to pay for the added convenience or value provided by digital services?

10. WHAT IS THE MARKET SHARE OF THE BANK IN DIFFERENT BUSINESSES, IN THE REGIONS WHERE IT DOES BUSINESS?

a. Are there plans to expand market share in any of these businesses and regions?
b. Does the bank have plans to enter new businesses or regions?
c. To what extent does technology facilitate expansion to additional business segments and geographies? What are the specific technology- enabled initiatives, including those awaiting execution, towards this goal? What are the benefits anticipated?

11. WHAT IS THE EXTENT OF PENETRATION AND GEOGRAPHICAL SPREAD OF THE BANKING NETWORK IN KEY MARKETS?

a. What are the penetration levels of different banking products and services in the key markets?
b. How effectively has the banking industry tapped the market for banking services? Is the offtake consistent across the entire suite of services and products?
c. How does the penetration and reach of the bank's network compare with that of the industry?
d. Does the bank plan to penetrate deeper within the existing customer base or serve a wider set of customers? If so, what is the strategy around this expansion?

12. IS THE BANK A GLOBAL OR DOMESTIC SYSTEMATICALLY IMPORTANT FINANCIAL INSTITUTION (SIFI)?

a. What are the bail-in provisions that apply to the business on this account?

13. HOW MUCH, AND WHAT KIND OF, DISRUPTION DOES THE BANK FORESEE FROM NEW-AGE TECHNOLOGIES SUCH AS CRYPTO CURRENCY, P2P NETWORKS AND OTHER FINTECH DEVELOPMENTS?

a. What are the potential threats from new-age technologies?
b. Which are the businesses and revenue streams likely to be affected the most on account of these technological developments?
c. Does the bank foresee any potential opportunities arising from these technologies? If so, what are the planned strategies to exploit such prospects?
d. What is the share of customers using online and mobile platforms to access banking services?

14. HOW CONDUCIVE IS THE SOCIAL, ECONOMIC AND DEMOGRAPHIC PROFILE OF THE POPULATION IN THE BANK'S KEY MARKETS TO ADOPTION OF TECHNOLOGY-ENABLED SOLUTIONS? HOW IS THIS EVOLVING?

a. What is the median age of the population?
b. What are the penetration levels of computers, smartphones and internet connectivity?
c. What is the perception of the population towards technology in general?
d. To what extent technology is likely to play a role in promoting the goals of financial inclusion by spreading access to, and promoting usage of, banking services?

15. WHAT ARE THE VARIOUS FACTORS THAT IMPEDE THE ENTRY OF NEW BANKS INTO THE MARKET?

a. How difficult is it to obtain banking licence in the key markets?
b. What are the criteria governing capital requirements, promoter stake, foreign investment and ownership norms?
c. How high is the cost of entry into the business across the key markets?
d. What is the market cost of attracting new deposits on a per dollar basis?
e. What are the compliance and overhead expenses per new customer?

16. WHAT IS THE LEVEL OF COMPETITION AND MARKET CONCENTRATION IN THE KEY MARKETS?

a. How many banks operate in the key markets? What is the bank's share of business in these markets?
b. How well is the bank protected from a sudden disruption by a new entrant or a differentiated strategy adopted by competing banks?
c. What are the norms governing Mergers and Acquisitions in the banking space in key markets?
d. How easy is it for a new entrant to foray into the industry through the M&A route?

17. WHAT IS THE EXTENT OF EXPOSURE OF THE LOAN BOOK TO THE CYCLICAL AND RISKY SECTORS OF THE ECONOMY?

a. What is the bank's objective definition of non-performing loan (NPL)?
b. What is the level of NPLs in the cyclical and risky sectors?
c. How does this compare with the overall level of NPLs?
d. What is the NPL coverage ratio?
e. How does the NPL level, proportion and coverage compare with those of local and global peers?

18. WHAT IS THE EXTENT OF THE BANK'S OFF-BALANCE SHEET LIABILITIES?

a. What are the details of guarantees, letters of credit, derivative contracts and other such off-balance sheet exposures?
b. How much of these liabilities are contingent in nature? How much of those are expected to materialise and when?

19. HOW DOES THE BANK'S PERFORMANCE LOOK ON OPERATIONAL METRICS? HOW DOES THE PERFORMANCE COMPARE WITH PEERS AND HOW ARE THESE EXPECTED TO EVOLVE?

a. What have been the trend in loan growth over the past few years?
b. What has been the impact of loan growth on interest income and asset quality? Does faster growth result in lower interest income and/or higher NPLs?
c. What are the yields for different types of loans (for instance, mortgage, business and personal loans) and deposits?
d. How is the net interest spread (yield on interest earning assets minus rate of interest paid on borrowed funds) expected to evolve?
e. How has been the trend in net new assets additions, in different businesses and geographies?
f. How has the ratio of net new assets to that of total assets trended in the last few years?
g. What is the cost-to-income ratio for different businesses across geographies?
h. How have metrics such as customers, loans, deposits and assets per employee/branch and employees per branch evolved?

20. HOW DO THE BANK'S PROFITABILITY METRICS STACK UP? HOW DOES THE PROFITABILITY COMPARE WITH PEERS AND HOW ARE THESE EXPECTED TO EVOLVE?

a. What are the bank's NIMs?
b. How does profitability of the bank compare with that of peers in terms of key metrics such as Return on Equity (RoE), Return on Tangible Equity (RoTE) and Return on Assets (RoA)?
c. What has been the cost of provisioning for NPLs? How has that affected profitability?
d. What is the outlook on profitability in the medium and long term?

21. HOW ROBUST IS THE ASSET QUALITY OF THE BANK'S LOAN BOOK? HOW DOES IT COMPARE WITH THAT OF PEERS?

a. What is the NPL ratio and coverage ratio?
b. What is the cost of risk (total adjustments for impaired assets included in the income statement, as a proportion of the overall outstanding loans)?
c. What have been the bank's specific strategies around managing NPLs? How successful have such measures been? What is the plan of action for the near to medium term?
d. What are the regulatory requirements for classifying asset quality across the key markets?

22. HOW MUCH REGULATORY CAPITAL DOES THE BANK HAVE? WHAT ARE ITS DIFFERENT COMPONENTS?

a. How much adjusted common equity and additional Tier 1 capital does the bank hold?
b. How much Tier 2 capital does the bank hold? What are the securities it constitutes? Does it include grandfathered securities which are likely to be phased out?
c. What are the standards and assumptions used in calculating adjusted common equity?

23. HOW IS THE BANK PLACED ON CAPITAL REQUIREMENTS, LIQUIDITY AND SOLVENCY NORMS?

a. What are the bank's Common Equity Tier 1 (CET1), Tier 2 (CET2) and Total Capital Adequacy Ratio (CAR), Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR)? How do these stack up against regulatory requirements?
b. How do these ratios compare with peers with a similar business, geographical and currency profile?

24. WHAT IS THE METHODOLOGY THE BANK FOLLOWS TO CALCULATE RISK-WEIGHTED ASSETS (RWAs)?

a. Which is the Basel standard mandated by regulators for the bank?
b. How are RWAs computed (credit RWAs; standardised approach vs internal ratings-based approach)?
c. What are the additional criteria and standards required by regulators?

25. WHAT APPROACH DOES THE BANK FOLLOWS TO ASSESS AND CALCULATE CREDIT RISK?

a. How is the default risk of borrowers assessed and risk weights assigned?
b. What are the asset quality classification norms and assumptions followed?
c. How frequently is the size of NPLs required to be assessed and reported?
d. How is the extent of risks from off-balance sheet items such as bank guarantees and Letters of Intent (LoI) estimated?

26. WHAT ARE THE ASPECTS OF MARKET RISK THE BANK IS EXPOSED TO?

a. How is the impact of interest rate risk on RWAs estimated? What are the assumptions used?
b. What is the currency mix of assets and liabilities? How is the impact of exchange rate fluctuations on RWAs estimated?
c. What is the extent of risk (including counterparty risk) exposure from off-balance sheet commitments and from the use of financial derivative instruments such as hedging?
d. What has been the amount of security write-downs as a proportion of total structured credit portfolios over the last few years?

27. WHAT ARE THE VARIOUS OPERATIONAL RISK FACTORS THAT THE BANK IS EXPOSED TO?

a. How is the size of potential losses arising from fraudulent activities estimated? What has been the bank's experience in this regard?
b. How frequently do service outages occur due to technology, security and safety incidents? How are the provisions required to cover these contingencies estimated?
c. Have there been any instances of loss or theft of operational, transaction or customer data due to breach of the bank's computer systems? What are the measures in place, or proposed, to address such incidents?
d. What are the other factors of operational risk does the bank provides for?
e. What is the methodology used to estimate the extent of various operational risk factors? What is the Basel-define approach used to estimate such risks – standardised or advanced?

28. WHAT IS THE BANK'S PHILOSOPHY ON, AND APPROACH TO, RETURN OF CAPITAL TO SHAREHOLDERS?

a. What is the philosophy around dividends, buybacks and acquisitions?
b. How is excess capital, if any, proposed to be used in the future?

29. TO WHAT EXTENT IS TECHNOLOGY HELPING THE BANK TO IMPROVE OPERATIONAL PERFORMANCE?

a. What are the various technology-enabled initiatives taken by the bank to increase process efficiencies, reduce cost of operations and improve collections?
b. What are the details of the digital channels offered for customers to engage with and resolve their queries and issues? Is it possible for a customer to conduct an interaction solely through digital channels, without recourse to offline and traditional channels?
c. How is technology helping the bank to improve availability of services to customers, reduce response times to queries and provide interfaces and services in multiple-languages?
d. How helpful are technology-enabled solutions in providing services to traditionally unbanked customers, who may live in underserved locations, use banking services less frequently, perform smaller-sized transactions or are wary of using traditional banking channels?

30. WHAT ROLE DOES TECHNOLOGY PLAY IN HELPING THE BANK BETTER MANAGE RISK?

a. What are the ways in which technology is helping in preventing, detecting and mitigating fraud?
b. Does the bank use technology to improve the speed, accuracy and reliability of credit assessment?
c. Is the bank using alternative data, such as social media usage, to assess the credit risk of potential borrowers with no credit history?
d. Is the bank exploring blockchain technology to develop solutions for authentication, data protection, fraud prevention and cyber security?

31. WHAT IS THE TRACK RECORD OF MANAGEMENT IN TERMS OF REPUTATION, INTEGRITY AND TRANSPARENCY AMONG PEERS? HOW AGGRESSIVE IS THE BANK'S STYLE OF FUNCTIONING WITH RESPECT TO BUSINESS GROWTH, PROVISIONING AND SELLING PRACTICES?

QUERIES PERTAINING TO INVESTMENT BANKING

32. WHAT SERVICES ARE OFFERED BY THE INVESTMENT BANK? WHAT IS THE MIX OF REVENUE IN THE LAST 10 YEARS?

a. What is the mix of fee and trading income?
b. What was the proportion of fee income derived from the equity business (public offerings, private placements, M&A advisory, underwriting), debt business (syndicated loans, bridge loans, mezzanine loans), fixed income (bond offerings), currencies and commodities?
c. How much of the fee income was generated from offerings in the primary market (IPOs, FPOs) versus secondary markets (investment research, securities broking)?
d. What is the bank's share of fee income in different asset classes and offerings across key markets?
e. What is the mix of trading income generated from different asset classes (equity, debt, fixed income, currencies, commodities and alternatives)?

33. WHAT ARE THE DETAILS OF THE DEALS IN PIPELINE?

a. How many deals are in pipeline across different asset classes and regions? What is the amount of capital raising involved?
b. What has been the pipeline size and conversion rate (deal wins as a proportion of deals proposed) of the bank over the past few years across asset classes and regions?
c. How does the bank's deal conversion rate compare with that of the peers?

34. WHAT IS THE LEVEL OF M&A AND IPO ACTIVITY IN KEY MARKETS?

a. What are the factors driving demand for the bank's offerings in this space?
b. How cyclical and seasonal is the M&A and IPO activity?
c. How is the prospective business (number and size of deals, fee income) from this segment forecasted?

35. DOES THE BANK ENGAGE IN PROPRIETARY TRADING?

a. What is the bank's philosophy guiding the proprietary (prop) trading activity?
b. How effectively are the risks managed to ensure any adverse developments do not affect other businesses and threaten the survival of the bank?
c. How does the risk and profitability of prop trading compare with that of trading activity undertaken by peers and with that of other businesses of the bank?

36. HOW DOES THE BANK STAND IN TERMS OF MARKET SHARE IN DIFFERENT OFFERINGS?

a. How much market share does the bank hold by number of deals, aggregate deal size and aggregate fee income in different asset classes across the key markets?
b. Does the bank have a focus on, or has a strong presence in, certain industries or geographies? What is the strategy around this focus?
c. Where does the bank feature in the industry league tables and rankings?

37. WHAT IS THE LEVEL OF HOUSEHOLD SAVINGS IN THE BANK'S KEY MARKETS?

a. How much of the savings are invested in financial assets and capital markets?
b. How are these trends expected to evolve in future?

38. WHAT IS THE COST STRUCTURE AND PROFITABILITY OF THE IB BUSINESS? HOW DO THESE COMPARE WITH THOSE OF PEERS AND THE BANK'S OTHER BUSINESSES?

a. What is the ratio of costs, including bonus, to income? What is the extent of profitability as measured by RoE less CoE?
b. How do these measures compare against its peer universe?

39. WHAT IS THE VALUE-AT-RISK (VAR) POSITION? HOW DOES THIS COMPARE WITH THAT OF ITS PEERS?

a. What are the details of the methodology used by the bank to estimate the VaR position?

QUERIES PERTAINING TO PRIVATE BANKING AND WEALTH MANAGEMENT

40. WHAT IS THE MIX OF REVENUE BETWEEN FEE AND INTEREST INCOME?

a. What are the different services provided to clients (for instance, Wealth Management, Tax Planning and Estate Planning)?
b. What is the mix of the fee income from the different services provided by the bank?
c. What proportion of the fee income can be regarded as recurring in nature?
d. How volatile and risky is the non-recurring income? How is the volatility managed?
e. Does the bank disclose details of the size of client assets managed across client segments (for instance, high net worth (HNW) group and ultra HNW (UHNW) group, based on total wealth) and geographies? If, so what are the typical ticket sizes?

41. WHAT IS THE SIZE AND PROFILE OF THE BANK'S ASSETS UNDER MANAGEMENT (AUM)?

a. What is the split of the AUM among different asset classes, client segments and geographies?
b. What are the typical ticket sizes of client assets managed?
c. What is the range of asset management fee charged for different asset classes, fund types and client segments, across different regions?
d. What is the AUM share and fee income share across the key markets?
e. How much is the mix of revenue (fee and interest income) earned from different client segments?

42. WHAT IS THE POPULATION SIZE OF AFFLUENT INDIVIDUALS (HNW AND UHNW INDIVIDUALS) IN THE KEY MARKETS? HOW IS IT EVOLVING?

43. WHAT ARE THE FACTORS UNDERLYING THE BANK'S RELATIONSHIP MANAGEMENT STRATEGY?

a. What are the dimensions (for instance, amount, source and age of wealth, age and geographical location of client) used for client segmentation?
b. What is the typical client turnover rate? How does the bank identify causes and minimises churn?
c. How is the effectiveness of relationship managers (RM) measured?
d. How many clients does a single relationship manager typically advise?
e. How much fee income is generated by a typical relationship manager in a year?
f. What is the strategy and policy adopted by the bank on bonus pay-outs? How does the bank's practices compare with industry practices?
g. What is the ratio of staff cost to fee income? What are the fixed and variable (bonus) components of the staff cost?

44. TO WHAT EXTENT TECHNOLOGY IS HELPING IN EXPANDING OFFERINGS AND ENLARGING THE CLIENT BASE?

a. How does the bank use technology-enabled solutions to improve the productivity of RMs?
b. Are there plans to use technology to offer wealth management solutions to clients with much smaller investible assets, on the lines of a retail wealth management product?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE

45. WHAT ARE THE BANK'S ESG PRINCIPLES, PRACTICE AND TRACK RECORD?

a. Does the bank use ESG criteria as a screening factor while making credit and investment decisions?
b. What is the value and proportion of loans that are subjected to ESG screening and declined on those grounds?
c. What is the value and proportion of own AUMs, AUMs held for clients, financial instruments, investment property and prop trading activities that are managed in accordance with ESG criteria?
d. If investment research and advice is provided to clients, are ESG criteria incorporated in the research and advisory processes?
e. Does the bank undertake or make investments in research related to various risks associated with ESG-related aspects of the business? If yes, then what is the strategy and the amount of investments made in such initiatives?
f. Does the bank make investments in microfinance? What has been the value of these investments over the last few years?
g. What are the steps taken to ensure financial inclusiveness of disadvantaged and under-privileged communities in areas where the bank does business?
h. What is the bank's information security policy and strategy? How does the bank protect the privacy of clients and ensure the safety of their data?
i. Does the bank have a policy against doing business with entities which have been accused of violating, or operating in conflict zones where there have been violations of, human rights?
j. Has the bank or its employees been accused, investigated, tried, penalised, fined or opted for settlement with regulators, customers or shareholders for any reason? What are the details of any such instances in the last 10 years?
k. How much are the bank's expenses and fines over the last 10 years on law suits, fines and settlements related to anti-competitive behaviour, anti-trust and monopoly practices?
l. What is the total amount held under dispute from various legal proceedings?
m. What is the bank's policy and track record relating to political donations?

TELECOMMUNICATIONS

UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF THE TELECOMMUNICATIONS SECTOR

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

Investors exploring the telecommunications sector must be aware of the key economic, operational and regulatory factors influencing these firms. These factors vary from country to country but also from company to company, depending on the kind of service the firm provides–fixed line, mobile or a combination of the two. Common to all are the opportunities afforded by the growth in data and the proliferation of online services. For operators in developing markets, lower penetration rates offer longterm opportunities; for operators in the developed world, staying relevant by keeping pace with technological advancements is vital. In general, the telecommunications sector is marked by intense competition, hefty capital expenditure requirements (at least historically) and rigorous regulatory intrusion.

DEMAND DRIVERS

The degree of price elasticity of demand is a notable issue in the telecommunications services space. For mobile operators, this flexibility tends to be non-discretionary but at the same time still relatively elastic. In short, price sensitivity is an important metric to consider.

Of increasing importance is the extent of contributions from new-age services enabled by digitalisation. These include unified messaging, collaboration and content generation. A company's positioning in these areas can have a profound impact on its revenue prospects.

The appeal, range and quality of a service offering are critical. How well a fixed-line operator is positioned can be gauged by examining the profile of end users, and the revenue split between voice and data.

In the mobile segment, the operating outlook is influenced by the mix of revenue by user type (for example, retail versus corporate), data usage and billing arrangements (prepaid or subscription). More recently, mobile has been taking a growing share of total data consumption. However, the whole pie is growing: usage of data has increased considerably across the board and companies are thinking of ways to harvest and monetise the information they have gleaned from customer behaviour.

MARKET POSITION

The operating landscape for telecommunications companies is heavily influenced by both competition and the regulatory environment. Investors should examine barriers to entry in addition to the ease with which existing rival firms can compete as the number of operators in the market has a bearing on performance. Investors should also consider whether there are only a few competing businesses, or whether the market could be ripe for consolidation.

Of course, the sector's mechanics are not purely dependent on supply-and-demand parameters. The role of the regulator is essential from both competition and licensing perspectives. Pricing can be influenced by the agenda of a regulatory body, and an operator may be obliged to fulfil specific technological or coverage requirements. The structure of the telecommunications market is changing, and the consequences of increased competition from over-the-top services such as Skype or WhatsApp require monitoring.

STRUCTURAL INFLUENCERS

Levels of urbanisation, market penetration rates and customer purchasing power are critical long-term drivers of the telecommunications industry and are significant determinants of subscriber growth. This metric can be evaluated by examining the per-capita availability and usage of telecommunications services. The efficient utilisation of technology and analytics also plays a huge role in driving up both demand and market share.

In this competitive environment, a unique feature of the sector has been the expansion of nonvoice services. Data, convergence and the bundling of content, in addition to the growth in the enterprise market, are significant revenue drivers for fixed-line operators. Some of these areas, such as data, are also relevant for wireless operators. However, the more specific issues for the mobile sector are the availability and affordability of smart devices, as well as the ability to develop a roadmap for network/technological upgrades to avoid obsolescence.

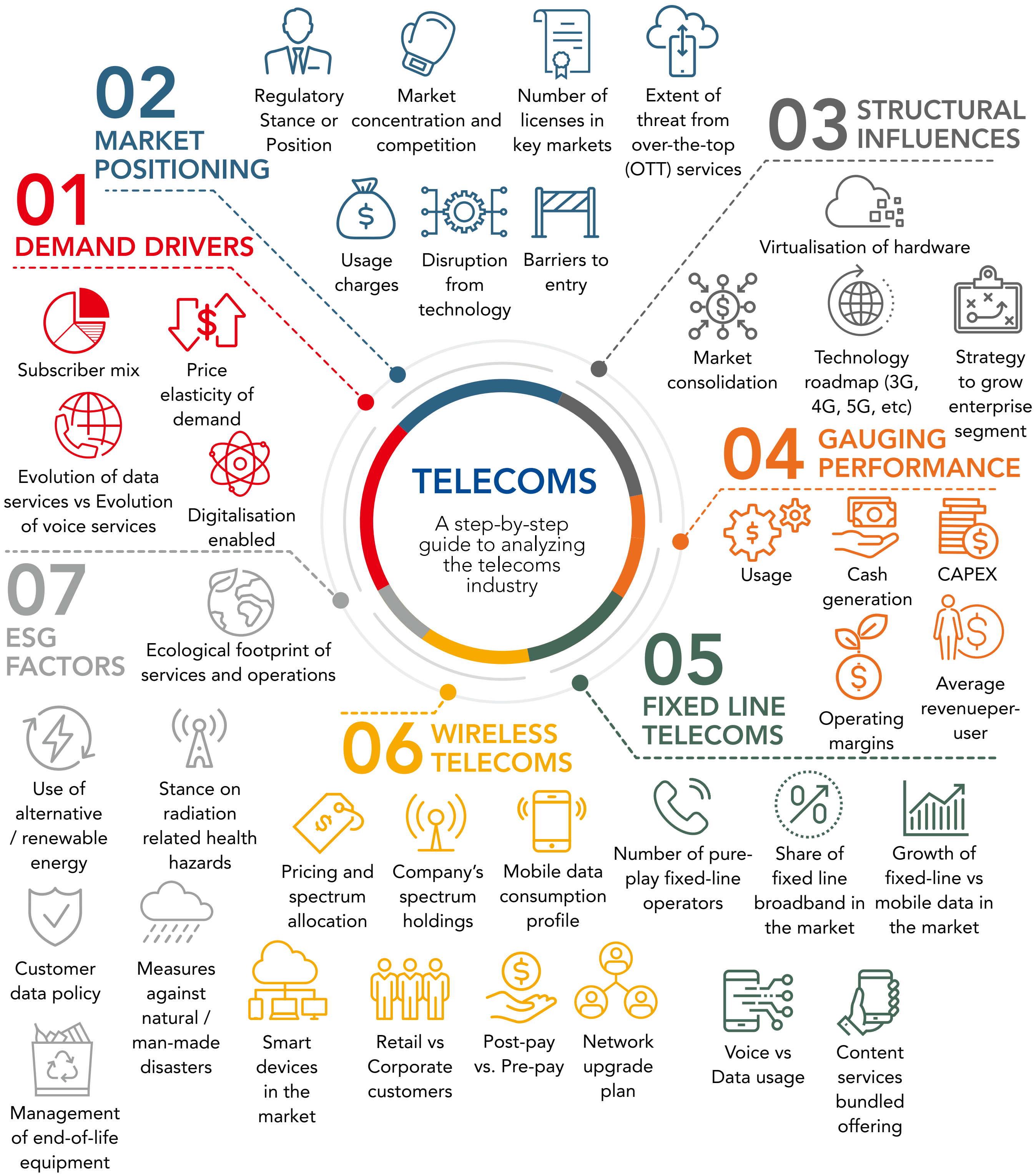
Related to the factors above, is the advent of network hardware virtualisation, which has cross-sector implications. This new model for service provider infrastructure requires less capitalintensive equipment and is more software based, with a positive effect on capital expenditure requirements. This could prove to be a differentiating factor in the future.

PERFORMANCE METRICS

Several measures can be employed to gauge how well a telecommunications firm is doing. Trends in average revenue per user (ARPU) and ARPU's sensitivity to price changes, along with net subscriber additions, are key indicators that can help track a telecommunications company's financial health. Subscriber acquisition costs and churn rates can reflect the impact of competition within the market.

The strength of the company's balance sheet also merits inspection. Given the potential for high levels of capital expenditure in this sector, investors should closely examine factors such as the amount of debt and free cash flow.

An area of focus regarding fixed-line companies relates to their cost structure relative to that of wireless telecommunications. For mobile operators, the amount of available spectrum and the nature of the associated licensing regime are essential considerations.


TELECOMS
A step-by-step guide to analyzing the telecoms industry
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02 MARKET POSITIONING
Regulatory Stance or Position
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Usage charges
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03 STRUCTURAL INFLUENCES
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Technology roadmap (3G, 4G, 5G, etc)
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04 GAUGING PERFORMANCE
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05 FIXED LINE TELECOMS
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06 WIRELESS TELECOMS
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Company's spectrum holdings
Mobile data consumption profile
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Post-pay vs. Pre-pay
Network upgrade plan
07 ESG FACTORS
Ecological footprint of services and operations
Use of alternative / renewable energy
Stance on radiation related health hazards
Customer data policy
Measures against natural / man-made disasters
Management of end-of-life equipment

COMMON TO THE SECTOR

1. WHAT IS THE NATURE AND MIX OF SERVICES OFFERED TO SUBSCRIBERS?

a. What are the primary factors driving subscriber acquisition?
b. What has been the split of subscriber base and new additions between post-pay and pre-pay set-up and by type of customers (retail vs corporate)?
c. What are the types and mix of services (voice, messaging, data and content) that are currently on offer to clients?
d. Is the company offering, or has plans to offer, new services such as unified messaging, collaboration and content, enabled by digitalisation of the network and the ecosystem?
e. Does the company offer digital channels for customers to engage with and resolve their issues? Is it possible for a customer to conduct an interaction solely through digital channels, without recourse to offline and traditional channels?
f. What is the revenue model being employed? What is the mix of the subscription-based model versus the pay-per-use model?
g. What is the offtake for these services? What is the company's expectation for growth?
h. What proportion of the subscriber base is from the machine to machine (M2M) segment? What are the growth trends?
i. Who does the company compete with in providing these services? What is the company's strategy to manage competition?
j. How much does it cost to acquire customers? What are the key expense heads under acquisition costs?

2. WHAT IS THE EXTENT AND TYPE OF DATA USAGE? WHAT ARE ITS KEY DRIVERS AND LIMITATIONS?

a. What are the drivers of data usage in the key markets?
b. What is the economic cost [including the cost of last-mile connectivity, spectrum, trunk and the notional profits lost due to over-the-top (OTT) services such as Skype and WhatsApp] of providing data?
c. What is the data capacity on the company's network?
d. Have there been any bottlenecks or constraints in providing data services?
e. What is the prevalence of bundling and unlimited usage plans in the market? How does the company's offerings compare with those of competitors?
f. How much demand is attributable to messaging and data use from M2M automated alerts sent by service providers like banks?
g. What proportion of the demand for data can be attributed to Internet of Things (IoT)-enabled applications?

3. WHAT IS THE DEGREE OF PRICE SENSITIVITY FOR TELECOM SERVICES IN THE COMPANY'S KEY MARKETS?

a. How much does demand change in response to a unit change in price? How does this vary across the different services?
b. Is the degree of change in demand in response to price changes stable across price points or does it differ at various price points?
c. Is the competition in key markets predominantly based on price levels?
d. If not based on price levels, how does the product and service differentiation work?
e. How differentiated are the company's services in key markets relative to those of competitors?
f. How does the company's differentiation strategy vary with type of content provided (voice vs data) and type of end-user (retail vs corporate) being catered?

4. WHAT ARE THE VARIOUS DATA POINTS ABOUT THE USAGE AND BEHAVIOUR OF CUSTOMERS THE COMPANY HARVESTS?

a. a. How does the company monetise this usage data? What are the potential additional options being considered to better utilise this information?

5. HOW DOES NETWORK COVERAGE AND QUALITY AFFECT DEMAND FOR THE COMPANY'S SERVICES?

a. How does the company's network coverage compare with that of competitors, in terms of population reach and geographical spread?
b. How do consumers perceive the network quality and coverage of the company in relation to other operators? Is there any industry study or market survey to substantiate these perceptions?
c. To what extent does improvement in network quality and coverage result in increased adoption of a company's services?
d. How does this sensitivity of usage to network quality compare with sensitivity to prices?

6. HOW EASY IS IT FOR NEW PLAYERS TO ENTER AND COMPETE? WHAT ARE THE ENTRY BARRIERS?

a. What are the regulatory barriers faced by new entrants?
b. What are the investments required for a new entrant to set up network and start offering services?
c. Is there a likelihood of a new entrant potentially disrupting the company's market position? What could such a player do differently?
d. Are mobile virtual network operator (MVNO) licences permitted in the company's key markets? If yes, then how successful has the model been?
e. Has the entry of new players or MVNOs affected business? How does the company plan to manage these challenges?

7. TO WHAT EXTENT DOES REGULATION AFFECT DEMAND FOR TELECOM SERVICES?

a. Does regulation tend to be ex-ante or post-facto in nature?
b. Are operators free to decide on pricing or is pricing driven by the regulator?
c. Is the regulatory regime technology-neutral?
d. Does regulation cover quality of service (QoS) norms?
e. Are there regulatory requirements on providing service in underserved areas (for instance, are there any Universal Service Obligations)?

8. HOW DOES REGULATORY CHANGES AFFECT THE COMPANY'S BUSINESS UNITS?

a. What are the specific instances of business impact due to regulatory issues?
b. How did the company manage the impact, if any, of regulatory changes in the past?
c. How prepared is the company to manage regulatory interventions in the future?

9. WHAT ARE THE INTERCONNECT USAGE CHARGES (IUCs) ACROSS THE KEY MARKETS?

a. What is the regulatory stance on IUCs?
b. Is there an asymmetric IUC regime in place? If yes, then what is the impact on the company finances?
c. How are IUCs expected to evolve?

10. WHAT IS THE PENETRATION RATE OF TELECOM SERVICES ACROSS THE KEY MARKETS? HOW ARE THESE EVOLVING?

a. What is the per capita availability and usage of telecom services (in terms of number of connections, voice and data capacity)?
b. How much potential space does this leave for new subscriber growth?
c. What is the population expenditure on telecom services as a share of GDP?

11. WHAT ARE THE URBANISATION LEVELS AND PURCHASING POWER OF THE POPULATION ACROSS THE KEY MARKETS?

a. What proportion of the population in key markets is urban? How is this forecasted to change in the future?
b. How does the Average Revenues Per User (ARPU) in the key markets compare to the per capita disposable income? How is this expected to evolve in the future?
c. What are the other long-term demographic, social or macroeconomic factors affecting demand for telecom services in the key markets?

12. WHAT IS THE EXTENT OF THREAT FROM OTT SERVICES SUCH AS SKYPE AND WHATSAPP?

a. What is the estimated loss due to OTT services substituting traditional telecom services such as voice and messaging?
b. Typically, how much of the total data consumption in the key markets is attributable to the use of OTT services?
c. What is the company's strategy to manage disruption from OTT services?

13. WHAT IS THE COMPANY'S STRATEGY TO LEVERAGE OPPORTUNITIES ARISING FROM DIGITALISATION?

a. To what extent is the company using data analytics to improve efficiencies and effectiveness of marketing, optimise pricing, make tailored offerings, reduce customer churn and improve collections?
b. How do digital solutions help in monitoring utilisation levels of the company's network and optimising deployment of capacity? How much efficiencies and cost reductions have been achieved as a result?
c. Does the company foresee increasing virtualisation of the network hardware? What are the likely implications on capital requirements, demand, cost and competition?
d. How does the company plan to integrate, or make interoperable, its legacy IT systems to enable seamless and fully digital operations? What are the challenges in achieving this?
e. How is the company's leadership managing organisational and workforce challenges while executing its digital strategy?
f. Does the company have plans to participate in adjacencies such as information technology services, content and financial services? What is the preferred operating model (in-house vs independent business unit vs partnerships) to offer these services?
g. As a strategy, does the company intend to create and maintain its own platforms for providing and distributing various services or does it seek to achieve interoperability with existing platforms?
h. How comfortable is the company in working with open platforms, standards and technologies?
i. What is the company's stance on net neutrality?

14. WHAT ARE THE SUBSCRIBER NET ADDITIONS AND CHURN RATES IN THE KEY MARKETS?

a. What has been the average subscriber churn rate over the past three years? How has it evolved?
b. What have been the key factors leading to loss of subscribers?
c. What has been the company's track record on customer satisfaction? How are the satisfaction levels tracked and measured?

15. WHAT ARE THE ARPUS AND REALISATIONS IN KEY MARKETS? HOW ARE THESE EVOLVING? WHAT IS THEIR SENSITIVITY TO PRICING?

a. What are the pre-pay and post-pay ARPUs for voice and data?
b. How have the ARPUs evolved and what are the company's expectations?
c. How has the rise in data usage and introduction of unlimited calling plans affected the ARPUs?
d. Can the impact on ARPUs from falling price level of services be quantified? Do usage volumes rise to a level sufficient enough to maintain ARPUs?
e. What are the ARPUs and volume of usage (text messages and data) in the M2M segment? How are these evolving?
f. What is the average realisation (revenue less cost) in each segment? How is it affected by changes in usage volumes and pricing?

16. HOW HAS THE COMPANY PERFORMED ON QOS NORMS?

a. How does the company's performance in providing different services compare with the benchmarks and with other operators?
b. Has the company ever been subject to warnings or fines for failure to adhere to QoS norms?

17. WHAT ARE THE COMPANY'S CAPEX REQUIREMENTS? HOW IS THE COMPANY PLACED IN TERMS OF CAPITAL EFFICIENCY, FREE CASH FLOW, LEVERAGE AND MARGINS? HOW DID THESE LOOK IN THE PAST AND HOW ARE THEY EXPECTED TO EVOLVE IN THE FUTURE?

a. How has the company fared in terms of return on assets (RoA) historically? How is it expected to evolve in the future? What are the likely risks to these expectations?
b. How much of the capex requirements is met by internal accruals (cash from operations) versus from external financing?
c. What is the ratio of money spent on replacement capex versus growth capex?
d. Does the company's operating margin increase with larger growth capex spend? How does this work from a business model perspective? How sustainable is this increase in operating margin?
e. If excess growth capex still results in stagnant operating margin, how long will this adverse situation persist? What implications does this hold for consolidation?
f. What is the company's position in terms of net debt over EBITDA? How is the ratio likely to shape up in future? What are the company's plans to manage leverage and maintain comfortable repayment capacity?

FIXED-LINE TELECOMS

18. HOW MANY PURE-PLAY FIXED-LINE PROVIDERS OPERATE IN THE KEY MARKETS?

a. Is there a unified telecom services licensing regime which allows an operator to obtain a single licence to offer voice, data and content services?
b. What is the level of competition from Wireless Telecom providers?

19. WHAT IS THE SHARE OF FIXED-LINE BROADBAND IN THE TOTAL DATA CONSUMPTION IN THE KEY MARKETS?

a. How has been the growth of fixed-line broadband services in the key markets? Is the current trend sustainable in the medium and long term?
b. What has been the company's market share in the overall fixed-line broadband services?
c. How are the fixed-line broadband services evolving as a business segment and, more specifically, as a revenue stream to the company?

20. HOW DOES THE GROWTH IN FIXED-LINE BROADBAND COMPARE WITH THAT OF MOBILE DATA IN THE KEY MARKETS?

21. WHAT IS THE COMPANY'S STRATEGY TO BUNDLE CONTENT SERVICES? WHAT ARE THE CHALLENGES FORESEEN IN SCALING UP THESE SERVICES?

a. Does the company offer bundled content services, along with voice and data?
b. If yes, what proportion of the current revenue is attributable to bundled services? How does the company see it evolving in the coming years?
c. What are the specific challenges for the company, and the industry, when scaling up these services?

22. WHAT IS THE MIX OF VOICE AND DATA USAGE BY THE CUSTOMER BASE?

a. How much of the company's revenue is derived from each type of service?
b. How does the mix of voice and data usage vary between retail and corporate users?

23. HOW DOES THE COST STRUCTURE COMPARE WITH THAT OF WIRELESS TELECOMS? HOW IS IT EXPECTED TO EVOLVE?

a. What are the various components of the cost?
b. How does the cost structure compare with that of other Fixed-line and Wireless Telecom providers?

WIRELESS TELECOMS

24. HOW IS SPECTRUM ALLOCATED AND PRICED IN THE COMPANY'S KEY MARKETS?

a. Is spectrum bundled with the licence or must they be acquired separately?
b. What is the pricing model used in key markets to allocate and licence spectrum? Is the spectrum auctioned, assigned on revenue-sharing basis or on fixed-cost basis?
c. What is the acquisition cost of spectrum per megahertz?
d. Typically, for how long is the spectrum allocated or licensed to an individual operator? What is the extension or renewal process?
e. What are the differences, if any, in the spectrum allocation process for existing operators and new operators?

25. WHAT ARE THE DETAILS OF THE COMPANY'S SPECTRUM HOLDINGS?

a. How much spectrum does the company hold?
b. In what frequency bands are these held?
c. What proportion of the spectrum in each band is held in the preferred lower frequencies (which provide larger coverage and better indoor reception)?
d. How much spectrum is available per million users, at the industry level and for the company?
e. How much of the population does the company's spectrum cover, in its licence areas?
f. How much unused spectrum does the company hold? How does the company intend to monetise the unused spectrum?

26. WHAT ARE THE HEADWINDS FOR MARKET CONSOLIDATION?

a. How many licences does the company hold in the countries/ provinces it operates in?
b. What is the market share in each licence area, country and province?
c. How intense is the competition in each licence area?
d. How many operators typically offer services in each licence area and how is the market share distributed across the players?
e. What are the headwinds for market consolidation?
f. What are the regulatory hurdles in the road to consolidation?
g. Are there caps prescribed by the regulator in terms of subscriber share, revenue share and spectrum holdings within licence areas, and at regional and country level?

27. WHAT IS THE PROFILE OF MOBILE DATA CONSUMPTION?

a. What is the share of mobile data in total data consumption in the key markets?
b. What is the per capita usage of mobile data?
c. At what rate is the per capita consumption growing?
d. How do per capita usage and growth of the company's customers compare with the industry trends?
e. How does the mobile data growth compare with that of fixed-line broadband?

28. WHAT IS THE AVAILABILITY AND AFFORDABILITY OF SMART DEVICES ACROSS THE KEY MARKETS?

a. What is the penetration rate of smartphones across the key markets? What are the growth prospects?
b. How affordable are smartphones in the key markets and across customer demographic groups (by age group and socio-economic category of the population)?
c. Is there any strategy to subsidise the cost of smartphones and thereby increase adoption by customers? If yes, then how does the cost-benefit equation work?

29. WHAT IS THE MIX OF REVENUES AND PROFITS BY TYPE OF USER (RETAIL VS CORPORATE) AND BY TYPE OF SUBSCRIPTION (POST-PAY VS PRE-PAY)?

a. What are the ARPUs for each user and subscription type?
b. What are the realisations in each segment?
c. How do the ARPUs and realisations compare with those of peers?
d. How are ARPUs and realisations expected to evolve?

30. WHAT ROADMAP DOES THE COMPANY ENVISION TO IMPLEMENT TECHNOLOGY AND NETWORK UPGRADES?

a. How much of the company network is on 2G/3G/4G networks?
b. What is the roadmap for deployment of 4G/5G networks?
c. How mature is the device ecosystem in the key markets to support roll-out of next-generation networks?

31. WHAT IS THE COMPANY'S STRATEGY TO GROW THE CORPORATE/ENTERPRISE SEGMENT OF THE USER BASE?

a. How do the ARPUs, realisations and churn rates of corporate/enterprise users compare with those of retail users?
b. Is there a specific strategy to grow business from the segment?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) ASPECTS

32. WHAT ARE THE COMPANY'S ESG PRINCIPLES, PRACTICES AND TRACK RECORD?

a. What is the company's strategy, practices and track record in reducing the energy intensity, water intensity, emissions intensity, waste generation and overall environmental and ecological footprint of the services and operations?
b. To what extent are alternative/renewable energy sources used for operations, specifically to run facilities such as network equipment, mobile tower stations and data centres?
c. How does the company ensure sustainable product life cycle management of the network equipment it uses and the devices used by the customers? Does the company recover, or facilitate recovery of, any material from end-of-life equipment?
d. How does the company ensure safe disposal of customer devices and e-waste generated from operations?
e. Given the extensive use of electronic equipment across the industry, by both the service providers and the customer, is the company exploring technology solutions that will entail lessfrequent replacement of hardware and considering software upgrades instead?
f. What is the company's stance on the potential health hazards of electromagnetic radiation (EMF) from base tower stations and from wireless devices used by customers? Is there any research programme or collaboration with other organisations to investigate this?
g. How does the company ensure customer devices are labelled appropriately to indicate the level of EMF radiation?
h. What are the steps taken to ensure the safety of the company's employees and contractors from aspects such as EMF radiation, noise from back-up power equipment, optical hazards (due to exposure to laser light during fibre optic cable connection activities), travel and work in remote sites and fire risks?
i. What are the measures practised to ensure customer privacy and safety of customer data the company collects and stores? Have there been any breaches of customer privacy or data?
j. What is the company policy regarding marketing communications sent by third parties using the company network? Do customers have the option to opt-out or manage use of such communications?
k. Does the company face allegations, investigation, litigation or other legal proceedings related to anti-competitive behaviour, anti-trust and monopoly practices, corrupt practices in obtaining approvals, licences and spectrum or any other aspects?
l. Has the company ever been fined or warned by the telecom regulator for any reason?
m. Given telecommunications infrastructure is often considered a strategic asset, what are the measures taken to prevent sabotage and recover from any eventuality arising from natural or man-made disasters?

REITs

UNDERSTANDING REAL ESTATE INVESTMENT TRUSTS (REITs)

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REAL ESTATE INVESTMENT TRUST (REIT) SECTOR

REITs are vehicles that own and typically operate a portfolio of income-yielding real estate assets. Modelled along the lines of unit trusts, REITs allow for funds to be pooled from a group of investors. Such a structure provides retail investors with several advantages: a low-hurdle entry and exposure to a diversified pool of real estate assets with a high level of liquidity, which would not otherwise be possible with direct investing.

Most REITs are publicly listed, and declare above 90% of their earnings as dividends to fulfil certain benefits accorded to REITs by the local securities regulator. As such, REITs provide a stable source of recurrent income, which serves as a yield play rather than an investment avenue for reaping capital gains. We believe an effective and accurate fundamental analysis can help the retail investor determine if the recurrent income is stable and/or trending upwards over the long term.

A REIT generally focuses on a specific category of property for investments. Some common classifications of REITs include: Office and Commercial REITs, Retail REITs and Industrial REITs.

THE FUNDAMENTALS OF REITs

Within each of these dimensions, certain elements are common across all REITs, while certain elements are specific to the type of REIT (e.g. industrial, commercial or retail, etc.).

Demand drivers: Portfolio profile and tenant profile are the key drivers that determine how revenue could pan out for a REIT.

The former covers attributes such as the location attractiveness of properties within the portfolio (after all, property is all about "location, location, location"), the target segment and the quality of the property supply pipeline vis-à-vis market requirements.

As for the latter (tenant profile), investors should examine factors such as overall occupancy levels, average lease tenure and turnover rates. In addition, the business prospects and credit worthiness of tenants especially anchor tenants will give clues to the potential change in future demand (and as a result, potential impact on recurrent income), and ultimately to the Distribution Per Unit (DPU) growth which is a key metric for dividend declaration.

Other pertinent metrics associated with particular REITs, such as physical proximity of properties to target customers, are worth noting. For instance, the distance between residential areas and suburban malls for Retail REITs — and similarly the distance between the residence of skilled labour and grade-A central business district offices for Office and Commercial REITs — plays a crucial role in driving revenue for a REIT.

Market position: The number of competitors within the same property category and their relative market share influence the pricing power of a REIT. For instance, an operator of hospitals with a monopoly or high concentration ratio in the private hospitals industry would fare well, all else being equal.

Availability of gazetted land could be a key limiting factor in the supply of real estate; hence, maintaining the pricing power of incumbents.

Structural influencers: The ability of a REIT to innovate and adapt to structural changes in the market is critical for sustainability. For instance, increased automation might impact demand for Industrial REITs, while a shift in customer preference for online shopping may directly impact the revenue potential of Retail REITs.

Performance metrics: In evaluating the financial health of a REIT, it is important to focus on its operating margins, yield and leverage.

Net Operating Income (NOI) as a proportion of revenues and as a fraction of property value (also called capitalisation rate) captures the income-generating potential of a REIT. Funds from Operations (FFO) and Funds Available for Distribution (FAD), evaluated as a proportion of total rental income and portfolio value, capture the dividend-yielding capacity of a REIT. Gearing ratio, interest and fixed-charge coverage ratios are among the primary leverage-based metrics that investors should adopt to track a REIT.

At a qualitative level, the expertise of senior management (including the track record of earnings accretive acquisition, as well as the timely and honest communication of financial performance) point to a higher probability of the successful execution of the REIT's communicated strategy.

PERFORMANCE DRIVERS FOR DIFFERENT TYPES OF REITs

RETAIL AND MALL REITs

Level of demand: In the retail space, significant influences include the health of the economy, which underpins trends in real income, and consumption growth. Increases in real per-capita income, coupled with improving consumer confidence, determine the ability and willingness of households to open their wallets. This is especially so when deciding to purchase big-ticket items, such as electronics and furniture. Such factors, in turn, affect tenant operating performance which translates to the level of property demand and rental rates. The retail investor must also consider the tenant mix across a REIT's portfolio to determine performance. A diversified mix, with no one anchor tenant forming a substantial portion of the REIT's revenue, points to lower revenue concentration risks. Similarly, a retail investor may want to examine the number of properties in the portfolio — the higher the number, the less concentrated the revenue generated from one asset.

Changes in long-term drivers: Increasingly, the growth of e-commerce is impacting "bricks-and-mortar" retailers. Online shopping has adversely affected the operating performance of these retailers, some more than others. Can the managers of retail REITs respond to this trend? The shift from purely retail to a retail-plus-entertainment model is how some managers have decided to position their malls. The proportion of entertainment and food and beverage outlets versus merchandising has tipped in favour of the former.

For specific retail spaces, the proximity of a property to growth catchment areas is vital: consumers may favour a suburban mall closer to their place of residence. Other considerations, such as adequate car parking arrangements, can influence footfall and impact retailers' revenues.

A-GRADE OFFICE AND COMMERCIAL REITS

Key considerations in this segment include the outlook for job growth, particularly in the white-collar section of the workforce, which affects demand for A-grade commercial space; and the build rate of new A-grade office developments, which increases supply. Both factors are, in part, a function of economic performance.

Investors should assess trends in office refurbishment and leasing costs in a REIT's key markets. Portfolio profiles and tenant mix also help us to gauge the outlook for REIT revenue. In addition, proximity to the central business district, airports or suburban areas may be a factor, and some portfolios will enjoy a geographical advantage.

Other trends to be considered include the impact of automation on job growth and workspace demand. This is demonstrated by the shift to remote working and the emergence of shared workspaces.

INDUSTRIAL

The sensitivity of both property demand and rental rates to economic investment cycles is a key area of investor focus in the industrial sector.

Manufacturing growth, capital investment and warehouse needs affect revenue potential. These factors can be influenced by external trade performance and globalisation. Tenant mix is also worth noting: the growth prospects and competitiveness of those who rent factories and warehouses can determine a portfolio's return. Access to arterial roads, railways, ports and airports are further elements that contribute to a property's appeal.

Investors should note how automation is changing what companies look for in factory space. Meanwhile, the growth of e-commerce is influencing dynamics in the warehouse sector and presents an opportunity to leverage on this growth area.

Lastly, industrial properties with tenants who are vulnerable to changes in the business cycle and have short leases are viewed as riskier investments. On the other hand, properties with tenants on longer leases whose business activities are insulated from economic fluctuations are considered a safer option.

RESIDENTIAL

Various economic, social and demographic elements can affect the rental demand and prices of residential properties. These include income levels, changing employment conditions or patterns, plus household size and formation. Affordability, both in terms of rental and owner-occupied housing, also plays a significant role.

How well a property portfolio matches the demand profile, and of course location, are further considerations. The quality of transport links, and proximity to social infrastructure facilities and places of work, can determine the appeal of a property and, in turn, dictate values and rental prices.

Government policies relating to affordable housing and rent controls, as well as the structure of the tax regime, should also be considered. Demand dynamics can be influenced by the impact of "aggregators" such as Airbnb and providers of shared living spaces.

REITs

A step-by-step guide to analyzing Real Estate Investment Trusts

01 DEMAND DRIVERS

Factors influencing revenue and earnings capacity

- New supply, demand vs supply situation
- Portfolio Profile
- Proximity to relevant infrastructure
- Tenant diversity and turnover rates
- Size and profile of land bank
- Proximity to CBD
- Employment conditions
- Proximity to growth catchment areas
- Job growth, office capex, leasing costs
- Proximity to arterial roads, railways, ports and airports

02 MARKET POSITION

Interaction with external factors including competitors, suppliers, clients and regulators

- Land availability
- Changes in property use
- Government policy
- Impact of aggregators and shared living spaces
- Transition from pure retail to retail + entertainment model
- Rent affordability
- Impact of teleworking and shared working spaces
- Demand for warehouse space

03 STRUCTURAL INFLUENCERS

Broader long-term trends to watch out for

- Changes in employment
- Household size, start age and income levels
- Home ownership vs renting
- Consumption trends
- Impact of automation
- Investment cycle
- Shift to e-commerce globalisation and external trade

04 PERFORMANCE METRICS

Measures to track financial and operational health

- Management expertise
- Growth strategy
- Portfolio quality
- Operational performance
- Net Operating Income (NOI)
- Debt profile, interest cost and sensitivity to changes in rate
- Gearing, coverage ratios, funding capacity

COMMON TO THE SECTOR

1. HOW IS THE COMPANY PLACED IN RELATION TO THE OVERALL DEMAND-SUPPLY SITUATION OF ITS KEY MARKETS?

a. Which of the different segments, such as Residential and Student, Retail, Commercial and Office, and Industrial, does the company cater to?

b. How many new rental properties are expected to be added in the major markets in the next 3–5 years? Is there sufficient demand to absorb the expected supply of new properties?

c. How frequently does supply-demand mismatch occur in key segments and what typically is the extent of such a mismatch? How has the trend been in the last 5 years and how is it expected to evolve in the next 3–5 years?

d. How much do rental rates typically fall for a given unit of additional supply? What are such instances in the past when this was observed?

e. Do the rental rates increase by the same degree during phases of undersupply as they decrease during phases of oversupply?

2. HOW IS THE COMPANY PLACED IN TERMS OF ITS TENANT PROFILE?

a. What are the typical turnover rates of tenants across locations, market segments, size and quality of properties?

b. What is the company's strategy to optimise tenant turnover?

c. What is the typical waiting period before vacated properties can be rented out again?

d. What is the extent of trade-off between the waiting period and rental yields? Are there any specific factors that influence pricing power?

e. How much concessions/discounts on rental rates are being given across segments and markets?

f. What is the typical tenure of rental/lease agreements?

g. Are agreements typically signed on fixed or floating rental basis? In case of the latter, how are the frequency and rate of revision determined?

h. What is the general split of rental income between fixed-and floating-rent-based tenancies?

3. HOW EVENLY SPREAD ARE THE REVISION SCHEDULES OF THE RENTAL AGREEMENTS?

a. Are the revisions staggered uniformly over a period of time or do they happen collectively together?

b. How quickly can the rates be revised for existing agreements?

c. What is the typical notice period for premature termination? Are there any associated penalties?

d. For long-duration agreements, are there provisions for periodic mid-term reviews?

e. Is there a waiting list of tenants seeking occupancy? If so, on average, how many tenants are seeking occupancy at any given time? How long is the typical waiting time?

f. What are the standard selection criteria adopted to choose tenants? Does this vary across different segments, locations and property sizes? If so, what are the details?

4. WHAT IS THE PROFILE OF YOUR PORTFOLIO BY LOCATION, MARKET SEGMENT, SIZE AND QUALITY OF PROPERTIES?

a. What is the mix of property portfolio by number, size, value of properties and rental income, across geographies and locations?

b. How does the locational profile of existing and underdevelopment properties of the company compare with that of competitors?

c. What is the average age of properties in the company's portfolio?

d. How do the rental rates and yields compare with those of the company's peers?

e. How does the comparison feature across locations, market segments and age of properties?

5. WHAT IS THE SPLIT OF THE PROPERTY PORTFOLIO BETWEEN LAND HELD ON FREEHOLD BASIS AND ON LEASEHOLD BASIS?

a. What proportion of the land holdings are held as freehold properties?

b. What proportion of rental income is derived from freeholdowned versus leased properties?

c. What are the type of entities, such as government agencies, private individuals, institutions or corporates, from whom non-freehold lands are leased?

d. What is the expiry profile of these leasehold properties?

e. What are the extension/renewal provisions available under the agreements governing these leases?

f. What is the risk that the leases will not get renewed or extended? What is the strategy to manage the risk of non-renewal?

6. HOW IS THE COMPANY POSITIONED IN TERMS OF SIZE AND PROFILE OF ITS LAND BANK?

a. What are the specific areas where the land parcels are located?

b. What are the specific target market segments for the various land parcels, after they are developed?

c. How does the profile of the company's land bank compare with that of competitors?

7. WHAT ARE THE KEY ATTRIBUTES OF THE COMPANY'S GROWTH STRATEGY?

a. What is the preferred approach to growth between developing and acquiring properties?
b. How does the company decide on the approach to a particular segment and market?
c. What are the potential risks involved in both approaches? How are the risks managed?
d. How long does it typically take to develop properties? How does the development time vary by segment, size and location? How does this compare with the time taken by peers?
e. What is the company's strategy to optimise returns from its property portfolio? How are the decisions on when to sell and buy different properties made?
f. What has been the track record of premium/capital gains generated on property disposals so far?

8. WHAT IS THE STRATEGY OF THE COMPANY TO ADD VALUE TO TENANTS AND IMPROVE YIELDS THEREUPON?

a. How much money is spent on repairs and maintenance, as a proportion of rental income? How does the company prioritise between different requirements?
b. How much is spent on improvements to properties? How much incremental yields are derived as a result of the capex on these improvements?

9. WHAT IS THE TYPICAL SERVICE LIFE OF PROPERTIES ACROSS SEGMENTS?

a. How does the company manage property obsolescence arising from factors like completion of service life, location falling out of favour with customers and tenants etc.?

10. WHAT ARE THE MACROECONOMIC AND DEMOGRAPHIC DRIVERS AT PLAY? HOW ARE THESE ARE EXPECTED TO EVOLVE?

a. What are the expected long-term economic growth rates in key markets of the company?
b. What are the trends in per capita income growth and consumption in these markets?
c. What is the average age, life expectancy and dependency ratio of the population in key markets?

11. WHAT ARE THE VARIOUS MARKET AND REGULATORY FACTORS AFFECTING THE AVAILABILITY OF NEW PROPERTIES IN KEY MARKETS OF THE COMPANY?

a. What is the estimated size of land available for development? Are sufficient land parcels in desired sizes available in preferred locations?
b. How prevalent and restrictive are zoning regulations? What is the resultant impact on costs and development time?
c. How concentrated or fragmented are land holdings across locations chosen for development?
d. How clear, reliable, transparent and accessible is the information on land titles?
e. How easy is it to obtain necessary approvals and permits? What is the typical time period needed to achieve them?
f. What is the typical transaction cost (comprising of items like registration charges, stamp duty, professional fees and statutory levies) as a percentage of property value?

12. TO WHAT EXTENT ARE THE COMPANY'S KEY MARKETS CONCENTRATED OR FRAGMENTED BY SCALE OF OWNERSHIP OF PROPERTIES?

a. How many REITs typically operate in a given segment, market and sub-market?
b. What is the share of Top 3/Top 5 players in each segment, market and sub-market?
c. How is the company placed in terms of market share in different segments and markets?
d. How much pricing/negotiating power does the company derive from its size and market share?

13. WHAT ARE THE REGULATIONS THAT LIMIT THE COMPANY FROM ENGAGING IN NON-REIT ACTIVITIES?

a. What is the minimum proportion of income that should be derived from real-estate-related sources and activities to qualify as REITs?
b. What is the cap on income share permitted to be earned from non-real estate businesses?
c. Is there a minimum limit on the proportion of assets that is required to be invested/held in real estate?

14. HAVE THERE BEEN INSTANCES OF PROPERTIES ORIGINALLY INTENDED FOR A CERTAIN SEGMENT BEING USED BY OTHER TYPE OF TENANTS?

15. IS FOREIGN OWNERSHIP OF LAND AND PROPERTY PERMITTED IN GEOGRAPHIES WHERE THE COMPANY OPERATES?

a. What are the regulations and restrictions on foreign ownership and investment in land and property?
b. To what extent is foreign ownership of, and investment in, REITs permitted?

16. HOW SUCCESSFUL HAS THE COMPANY BEEN IN ATTRACTING AND RETAINING A TOP-TIER MANAGEMENT TEAM?

a. What is the experience profile and track record of the management team?
b. How does the size of the management team compare with the size of the company's property portfolio? How does this compare with industry standards?
c. What are the staff costs and management expenses as a percentage of total expenses? How does the number compare with that of peers?

17. HOW DOES THE QUALITY OF PROPERTIES OF THE COMPANY COMPARE WITH THOSE OF ITS PEERS?

a. How do the yields from the company's properties compare with the market yields across segments and locations?
b. What is the Net Operating Income/Net Property Income (NOI) per square metre across segments and locations?

18. WHAT IS THE COMPANY'S TRACK RECORD ON OPERATIONAL PERFORMANCE? HOW DOES THE PERFORMANCE COMPARE WITH THAT OF PEERS?

a. What are the type, velocity (number of leases and volume of space leased out) and structure of leases that are typically used?
b. What is the weighted average lease tenure of the company's portfolio?
c. What are the same-store occupancy rates for the overall portfolio and across segments and markets?
d. What is the growth in renewal rental rates per unit for existing tenants and new tenants, across locations, market segments and quality of properties? How does this vary for renewal and new leases?
e. What has been the existing property rental NOI growth rate of the portfolio?
f. How do the rental yields and NOI margins of new properties compare with that of comparable existing properties? If there is a divergence, when does the company expect them to converge?
g. How much concessions/discounts does the company typically provide for anchor tenants? What is the potential impact of this on the pricing power, overall yields and margins?

19. WHAT ARE THE DETAILS OF THE COMPANY'S FINANCIAL PERFORMANCE? HOW DOES THAT COMPARE WITH THE PERFORMANCE OF PEERS?

a. What is the ratio of Funds From Operations (FFO) as a proportion of total rental income and portfolio value?
b. What is the ratio of Adjusted Funds From Operations (AFFO) and Funds Available for Distribution (FAD) as a proportion of total rental income and as a proportion of portfolio value?
c. What are the FFO and FAD margins and yields?
d. What are the NOI margins and yields (capitalisation rate)?
e. What is the methodology used to calculate FFO, AFFO and FAD?

20. WHAT IS THE EXTENT OF THE COMPANY'S FINANCIAL LEVERAGE AND PAYMENT CAPACITY?

a. What are the target ranges used for monitoring different measures of leverage including EBITDA/interest cost, gearing and fixed charge coverage ratio?

21. DOES THE COMPANY HAVE A FORMALLY STATED POLICY ON DIVIDENDS?

a. What are the details of the dividend policy? Is there a target payout ratio?
b. How does the policy compare with that of prevailing practices in the industry?

22. WHAT ARE THE IMPLICATIONS OF THE VOLATILITY OF INTEREST RATES TO COMPANY PERFORMANCE AND DISTRIBUTION?

a. What is the preferred debt/financing structure?
b. How much of the debt is on fixed rate payment versus floating rate payment?
c. What is the policy on hedging interest rate exposure? Does the company use instruments such as interest rate swaps to manage risk?
d. What has been the weighted average cost of debt and of total capital over the last 3–5 years? How does this compare with that of peers?
e. How is the interest cost likely to change for a per basis point change in interest rates?

23. WHAT ARE THE DETAILS OF THE COMPANY'S FUNDING CAPACITY?

a. What is the ratio of secured debt to total assets?
b. What is the ratio of unencumbered assets to total unsecured debt?
c. What is the maturity schedule and currency denomination distribution of the debt?
d. What is the issuer and security credit rating received from various credit rating agencies?
e. How have credit ratings evolved over time? How do they compare with the industry's overall credit profile?

RETAIL AND MALL

24. WHAT ARE THE FACTORS THAT DRIVE DEMAND FOR PROPERTIES?

a. How far are the company's properties located from growth catchment areas (places which are frequented by shoppers and entertainment-seekers) and population centres?
b. For parking spaces, how does growth in availability of space compare with growth in private car registrations?

25. HOW DO DIFFERENT MACROECONOMIC, SOCIAL AND DEMOGRAPHIC FACTORS AFFECT DEMAND IN KEY MARKETS?

a. Are the economies in key markets broadly driven by investment or by consumption?
b. What are the household wealth and disposable income levels in these markets?
c. What are the trends in real income growth?
d. What are the trends in consumer spending growth?
e. What are the aggregate household debt levels in these markets? How much of this is attributable to the consumer mortgage segment?

26. HOW IS THE RETAIL CHANNEL MIX POSITIONED AND HOW IS IT EVOLVING IN KEY MARKETS WITH THE ADVENT OF E-COMMERCE?

a. What is the share of e-commerce transactions in key markets and how is it expected to evolve?
b. What are the broad trends in net store openings/ space addition in the retail sector? What is the outlook for the company's tenants?
c. How is the retail channel mix (hyper and supermarket/ department stores/convenience stores) evolving in key markets?
d. What is the strategy of retailers to manage churn in the channel mix?
e. How will these strategies affect demand for retail space?

27. HOW IS THE GROWTH OF RIDE-SHARING LIKELY TO AFFECT DEMAND FOR PARKING SPACE?

28. WHAT IS THE PROFILE OF THE TENANTS OCCUPYING THE COMPANY'S PROPERTIES?

a. What is the typical level of sales generated by the tenants per unit of space?
b. What proportion of their sales do the tenants spend on rental/ lease payments?
c. How diversified is the tenant mix across different types of occupants (e.g. apparels, appliance and electronics stores, grocery stores)?
d. How much of the portfolio (in terms of space and rental income) is occupied by tenants selling non-discretionary products and services (e.g. food, staples, drugs, education services)?
e. How much of the tenant base is rated investment grade and above? If unrated, how does the company assess their creditworthiness?

29. WHAT ARE THE LIKELY OUTCOMES FROM THE POTENTIAL TRANSITION FROM PURE RETAIL TO RETAIL + ENTERTAINMENT MODEL IN KEY MARKETS?

a. Is there a shift to a hybrid retail + entertainment model happening in the company's key markets?
b. How does the business outlook of the hybrid model compare with that of pure retail set-up? How is this expected to evolve in the next 3–5 years?
c. What effect will this shift have on the profile (location, size) of properties that will be in demand?
d. How suited is the company's portfolio profile for adoption of this evolving model?
e. How will this shift towards a hybrid model influence the occupancy rates and yields?
f. How does the company plan to leverage this trend to grow its business?

OFFICE AND COMMERCIAL

30. HOW CLOSE TO THE CENTRAL BUSINESS DISTRICT (CBD), SUBURBAN AREAS AND AIRPORTS ARE THE COMPANY'S PROPERTIES LOCATED?

31. WHAT IS THE OUTLOOK FOR JOB GROWTH IN THE WHITE-COLLAR SEGMENT OF THE WORKFORCE?

a. Which industries are expected to drive demand for workspace in key markets?
b. Specifically, what are the geographic locations where demand is expected to increase significantly? How does the locational profile of company's properties compare against this outlook?
c. Are business closures expected in the markets where the company owns properties? How much impact on occupancy and rental rates is expected on account of such potential closures?
d. What are the trends in office capex/leasing costs in your key markets? How does this affect demand and rental rates of your properties?

32. WHAT ARE THE IMPLICATIONS FOR JOB GROWTH AND WORKSPACE DEMAND FROM THE RISE OF AUTOMATION?

33. WHAT IS THE PROFILE OF THE TENANTS OCCUPYING THE COMPANY'S PROPERTIES?

a. How are the tenants distributed based on their nature of operations (such as offices of industrial companies, financial services firms, professional services, backoffice services and government agencies)?
b. How is the tenant mix split by the size of their businesses: individual professionals, small businesses, mid-size companies or large corporates?

34. HOW CREDITWORTHY ARE THE COMPANY'S TENANTS?

a. How much of the tenant base is rated investment grade and above? If unrated, how does the company assess their creditworthiness?

35. WHAT ARE THE LIKELY IMPLICATIONS OF A GENERAL EMPLOYMENT SHIFT TO TELEWORKING AND THE RISE OF PROVIDERS OF SHARED WORKING SPACES (E.G. WEWORK)?

INDUSTRIAL

36. HOW CLOSE TO ARTERIAL ROADS, RAILWAYS, PORTS AND AIRPORTS ARE THE COMPANY'S PROPERTIES LOCATED?

37. WHAT ARE THE MACROECONOMIC FACTORS AFFECTING STRUCTURAL DEMAND FOR INDUSTRIAL PROPERTIES?

a. How sensitive is demand for industrial properties to the broader economic investment cycle?
b. How long is the average investment cycle in key markets? How is this evolving?
c. Are there any indicators adopted by the company to assess the outlook for capital investment in key markets?

38. WHAT IS THE STATE OF MANUFACTURING ACTIVITY IN KEY MARKETS.? WHAT ARE THE FUTURE PROSPECTS?

a. What is the share of manufacturing in the economy of the company's key markets? What are the key industries that constitute the segment?
b. How globally competitive is the local manufacturing ecosystem in these markets?
c. How is the increasing adoption of industrial robotics and automation likely to influence demand for factory space?

39. HOW DOES THE RISE OF E-COMMERCE INFLUENCE DEMAND FOR WAREHOUSE SPACE?

a. What is the share of e-commerce-based transactions in the company's key markets? How is this expected to evolve?
b. How much warehouse space is currently being used by the e-commerce industry? Do the key players typically own or rent warehouse space?
c. How does the company see the demand from e-commerce industry evolving in the coming years? How much of this is likely to be fulfilled by rental or lease-based engagements?
d. How does the company intend to leverage this opportunity?

40. WHAT IS THE PROFILE OF THE TENANTS OCCUPYING THE COMPANY'S PROPERTIES?

a. How are the tenants distributed by the nature of their operations (such as food processing, electronic device makers, pharma manufacturing, and automobile and components)?
b. How much of the demand for warehouse space is driven by external trade?
c. How much of the tenant base is rated investment grade and above? If unrated, how does the company assess their creditworthiness?

RESIDENTIAL

41. WHAT ARE THE VARIOUS FACTORS THAT DRIVE DEMAND FOR THE COMPANY'S PROPERTIES?

a. How closely located are the properties to the CBD, transit points and other social infrastructure facilities?
b. What is the profile of tenants by different socio-economic categories (SEC) and in terms of the nature of their occupation/ profession/employment (such as factory workers, office-goers and professionals)?

42. HOW DO EMPLOYMENT CONDITIONS INFLUENCE RENTAL DEMAND AND PRICES IN KEY MARKETS?

a. In the company's experience, how much does the demand for properties typically vary per percentage point of change in the unemployment rate?
b. What is the mix of number of units and rental income of properties that have been let out to corporate versus individual tenants? How do the yields and stability of rental income from these two categories compare?
c. Typically, how much time lag is observed before demand is affected by change in employment conditions?
d. How long does it usually take for demand to normalise after employment conditions improve?
e. Is the degree of impact on demand the same in both directions — deterioration and improvement in employment conditions?
f. What is the impact on rental rates of new lettings?
g. What is the typical tenure of rental/lease agreements?
h. How quickly can the rates be revised for existing agreements?

43. HOW DO THE STRUCTURAL CHANGES IN EMPLOYMENT INFLUENCE DEMAND FOR HOUSING?

a. What are the trends in the nature of employment? Is there a shift towards temporary and contractual hiring?
b. How frequently does the typical worker switch jobs/ relocate? Is the workforce being increasingly mobile with more frequent relocations?
c. What is the effect of these trends on the preference for owning versus renting houses?
d. How prevalent are education loans? To what extent do these influence the ownership versus rental choices of new entrants to workforce?

44. HOW DO MACROECONOMIC, SOCIAL AND DEMOGRAPHIC FACTORS AFFECT DEMAND IN KEY MARKETS?

a. What is the typical household size in the company's key markets?
b. What is the rate of household formation? How is this evolving?
c. What is the ratio of rental rates to household income levels?
d. How are the income levels expected to evolve in the next 3–5 years and beyond?
e. How are these trends expected to influence demand and rentals?
f. How is the demand for affordable housing versus highend accommodation evolving?
g. If income levels are expected to increase over time, how is that likely to influence demand for larger dwelling units with better facilities?

45. WHAT ARE THE TRENDS IN HOME OWNERSHIP IN KEY MARKETS AND ITS EFFECT ON RENTAL HOUSING?

a. What are the home ownership rates in key markets?
b. What is the preference of residents between owning and renting houses? Are there cultural factors that favour home ownership over rental?
c. How affordable is home ownership as compared to renting a house? How does house purchase value compare with income levels in key markets?
d. What is the observed relationship between income levels and home ownership? Is there a certain income level above which people typically prefer ownership over rental?
e. What are the overall household debt levels in key markets? What proportion of this is attributable to residential mortgages?
f. How prevalent is housing finance in key markets and how easy is it to obtain home loans?
g. How favourable is the regulatory environment for growth of the housing finance market?
h. How stringent are the down payment requirements and credit assessment norms?
i. How does the tax structure in key markets influence the dynamics between home ownership versus rental? How is this likely to evolve?
j. How will the home ownership rates influence demand for housing rental in the long term?

46. HOW DOES THE PROFILE OF THE COMPANY'S PROPERTIES COMPARE WITH WHAT PROSPECTIVE TENANTS SEEK?

a. What are the types and sizes of dwelling units preferred by tenants across different SECs?
b. How does the profile of properties owned by the company match against this demand profile?
c. Does the company focus on serving specific SECs?
d. How does the demand-supply situation look across different SECs?
e. Is there a structural undersupply in housing for specific SECs? If so, does the company have any strategy to exploit such gaps?

47. WHAT IS THE GOVERNMENT'S POLICY STANCE ON HOUSING AND ITS IMPLICATIONS FOR THE COMPANY'S BUSINESS?

a. Are there any regulatory mandates classifying certain areas for lower rental rates?
b. Do any rent control regulations exist in key markets?
c. To what extent is the company's portfolio vulnerable to these mandates and regulations?
d. What is the potential impact of these mandates and regulations on the rental rates and yields?

48. WHAT ARE THE IMPLICATIONS OF THE RISE OF AGGREGATORS (E.G. AIRBNB) AND PROVIDERS OF SHARED LIVING SPACES (E.G. WELIVE) FOR YOUR BUSINESS?

STUDENT ACCOMMODATION

49. WHAT ARE THE FACTORS THAT DRIVE RENTAL DEMAND FOR PROPERTIES?

a. How far are the student housing properties located from the campuses they intend to serve?
b. How sensitive is demand for student housing with enrolment numbers and new student starts?
c. What are the enrolment numbers and new student starts for the universities/institutions that the properties cater to?

50. HOW DO MACROECONOMIC, SOCIAL AND DEMOGRAPHIC FACTORS AFFECT DEMAND IN KEY MARKETS?

a. How prevalent is higher education in the company's key markets? How is the gross enrolment rate for higher education expected to evolve?
b. How affordable is higher education as compared to income levels?
c. What is the size of student age population in key markets? How is it expected to evolve?

51. HOW DOES THE PROFILE OF THE COMPANY'S PROPERTIES COMPARE WITH WHAT PROSPECTIVE TENANTS SEEK?

a. What are the types of institutions that the properties cater to? Specifically, are they targeted at undergraduate colleges, post-graduate and research universities, vocational schools, speciality institutions like medical/ law schools or multidisciplinary universities?
b. What is the social and economic profile of the students belonging to these institutions? Is the company's property profile aligned with this?
c. When is the enrolment season of these institutions? Are the new property development plans of the company broadly in sync with the enrolment season of these institutions?
d. What is the typical duration of courses that students undertake in these institutions?

52. WHAT ARE THE IMPLICATIONS OF THE RISE OF AGGREGATORS (E.G. AIRBNB) AND PROVIDERS OF SHARED LIVING SPACES (E.G. WELIVE) FOR YOUR BUSINESS?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE

53. WHAT ARE THE COMPANY'S ESG PRINCIPLES, PRACTICES AND TRACK RECORD? IN CASE PROPERTY DEVELOPMENT AND CONSTRUCTION ACTIVITY IS OUTSOURCED TO THIRD PARTIES, WHAT ARE THE COMPANY'S EXPECTATIONS FROM THEM IN TERMS OF THEIR ESG APPROACH AND DISCLOSURE?

a. What are the company's strategy, practices and track record in reducing the energy intensity, water intensity, emissions intensity, waste generation and overall environmental and ecological footprint of the buildings and construction projects?
b. Has the company received, or has plans to receive, certifications such as the Leadership in Energy and Environmental Design (LEED) rating devised by the United States Green Building Council (USGBC)?
c. What proportion of the company's tenants are equipped with smart metering applications for energy and other utilities?
d. How much recycled, eco-friendly and locally sourced material are used in constructing buildings?
e. When the projects entail demolition of built structures, how much of the material is typically recovered? What is the procedure for handling recoveries and debris arising from the demolition?
f. Have there been any instances when the company was accused of, investigated or penalised for violating zoning norms, appropriating ecologically sensitive land or diverting land meant for other use?
g. Has the company ever been accused of, investigated or penalised for aggressive, coercive or fraudulent land acquisition practices?
h. How has the company's track record been with regard to the safety and fair treatment of labourers involved in construction and maintenance of the properties?
i. Has the company ever been accused of, investigated or penalised for not obtaining prior approvals or violating approved plans?
j. What is the company's policy and track record relating to political donations?
k. Has the company faced accusations of corruption, bribery or offering inappropriate inducements to obtain land use permissions, development permits or construction approvals?
l. Does the company have a documented policy on ESG and sustainability principles that govern the property development agenda?

UTILITIES SECTOR

UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF UTILITIES

By Dr Alan Lok, CFA, FRM; Eunice Chu, FCCA and Guruprasad Jambunathan, CFA, FRM

When electricity was first supplied to homes, it triggered strong emotions. People were delighted and amazed, especially when there was light in the night, which was unbelievable with just the flick of a switch. This sense of bewilderment was accompanied by an equally strong emotion — utter horror. The dim gas lamps and smoky candles that previously were used gave way to sharp bright lights that starkly revealed how filthy their homes were. The 20th century had begun.

This parable reminds us of the profound effect generated power and other utilities, such as clean water supply and effective sewage treatment, have had on our lives. This reminder is necessary as consumers as well as investors take modern-day utilities for granted. To this end, we revisit the origins of the utilities sector to help us formulate the right questions to ask when examining these businesses.

ANYONE FOR A MONOPOLY?

When utilities began to carve out their business model around a century ago, natural monopolies made sense. Adopted steam turbines were vastly more efficient at generating power and much more scalable than the steam engines they replaced. The emergence of alternating current (AC) meant that power stations could be located farther away from consumers. Both of these developments suggested that electricitygenerating companies could be concentrated in the hands of one producer that needed the scale to push down unit costs. Other cost savings included maintenance costs spread over a broader revenue base as well as cheaper land costs to locate generators in rural locations.

With natural monopolies in strategic industries and the ability to raise prices, regulators were invariably part of the landscape to placate the electorate. The regulators played a big role in pricing decisions and company operations.

The following are traditional industry attributes:

- Efficiency driven — Scale lowers unit costs significantly.
- Highly regulated — Pricing decisions rest in the hands of regulators.
- Massive capital expenditure – Transformers, turbines, and generators are complex and big-ticket items that cannot be covered over the short term, which translate to a formidable barrier to entry.
- Natural monopolies across the utilities industry — In a similar vein, for the water and sewerage industry, the larger the scale, the lower the cost per unit.

POWER TO THE PEOPLE (AND INVESTORS)

Most people view utilities as purely concerned with power generation, but the industry incorporates other segments. Power generation is but one segment; long-distance power transmission follows and culminates with intermediaries who package and sell energy units to consumers.

Once built and running smoothly, the cash flow from power plant operations tends to be stable as electricity is a nondiscretionary product. Although pricing power is taken away from utilities, they nevertheless are guaranteed a minimum take-up rate in terms of volume. The latter ensures that natural monopolies always break even if they are efficient.

This translates to the utilities company attracting a certain type of investor — one that demands a stable dividend yield — treating the equity investment as a perpetual bond with stable market prices.

SUPPLY DISRUPTION

Note, however, that forces seeking to tear down monopolies are on the rise. The traditional hub-and-spoke grid model, some argue, is too rigid and unidirectional, with a cluster of central power generators feeding electricity through a complex web of transmission lines into homes.

With modern-day technology, the traditional utility model might be transformed from its current concentrated format to a distributed one, in which the entire network is set to be highly modular. The grid will be composed of smaller microgrids that can be segregated and generate their own power.

METER READING

Having identified a particular utilities company that holds interest, examine the details of the business profile and revenue mix. Establish the different products and services on offer and the geographic spread of its operations. The regulatory and tax backdrop will differ from country to country and may affect a firm's profit and dividend-paying capabilities.

Within the company's markets, identify the customer mix, including households and industrial or commercial establishments. Also note whether customer behavior varies across geographic locations. This behavior could be affected by seasonal factors — for example, Singapore may see consistent domestic electricity usage given its unvarying climate, whereas Hong Kong could see spikes in the summer as the use of air conditioning spikes.

Investors may want to determine whether a differential in pricing exists (who pays the lowest and highest tariffs), and how these tariffs are determined. Other pertinent features include the use of renewable or low-emission energy sources and regulations on quality and pollution control.

EFFICIENCY

From a performance perspective, key metrics to note include the track record on expenditure efficiency (actual expenditure versus allocated expenditure), power consumption per customer for various end-user types across various geographies, and capacity utilization.

LOOKING AHEAD

It is worth drilling down to learn more about the stance on competition in each territory where the firm operates. Lines of enquiry could include finding out whether local, regional, or national monopolies exist for any of these services in key markets. In large countries, such as the United States, rules and regulation can differ from state to state.

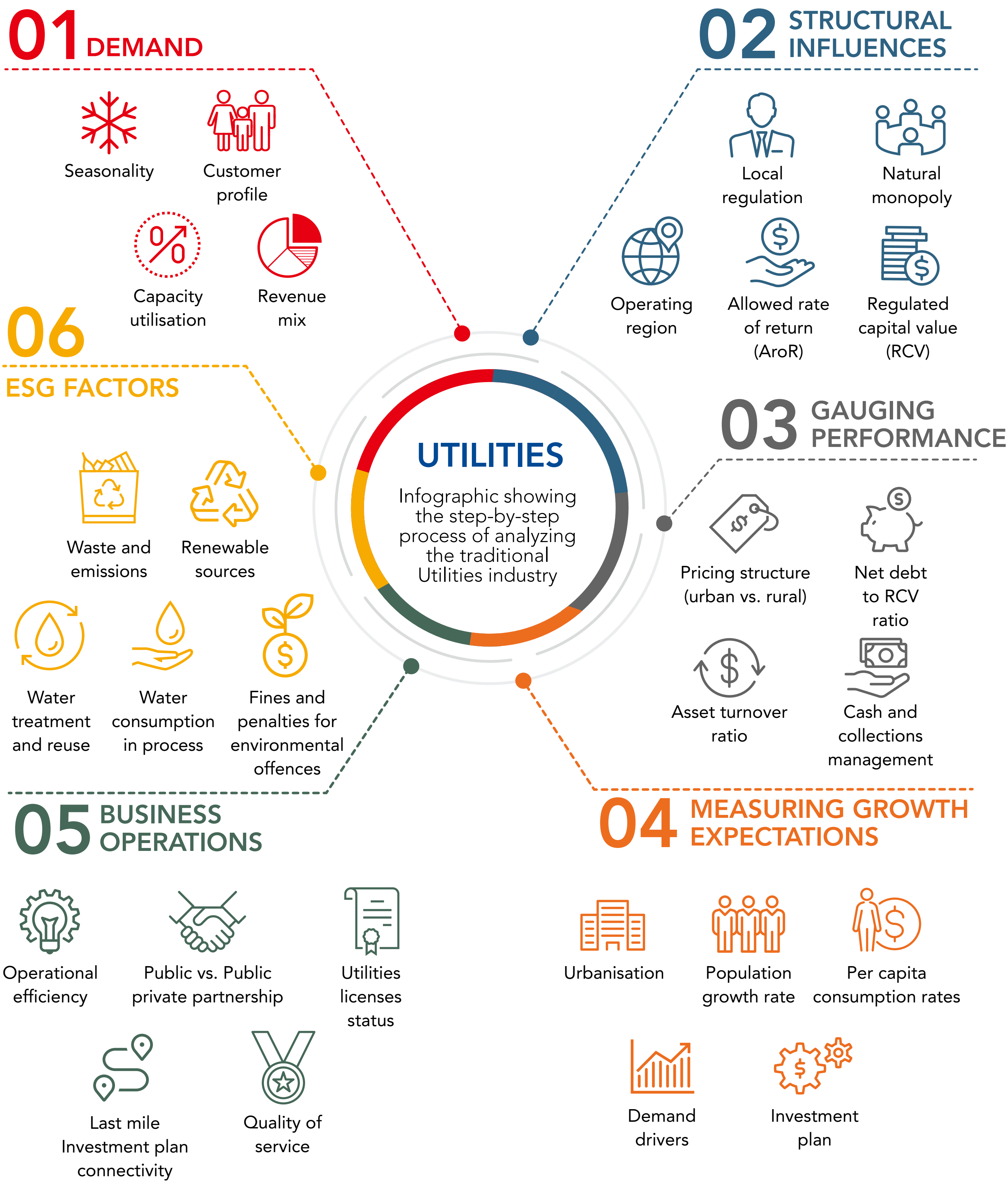
Note whether regulators intend to introduce or intensify competition. Investors must take stock of the likely consequences of upcoming changes and how the company plans to manage the impact.

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE PRINCIPLES

Environmental, social, and governance (ESG) principles represent another critical area that will affect performance, both in financial and reputational terms. Starting with financials, obtain a calculation of how much capital expenditure is allocated to ESG-related aspects of a business. In terms of incident-related costs, determine whether a penalty has been levied for leakages, spills, or other such incidents. Ask about the company's customer education policies, such as whether the company encourages the use of equipment and processes to improve efficiency while generating smaller amounts of waste. For power-generation companies, determine the potential share of renewable sources over the next 5, 10, or 20 years. For sewerage companies, determine the different recyclates generated by supply and sewage treatment firms, with a focus on the quality and quantity of water recovered from a unit of sewage treated.

LONG-TERM GENERATORS

Investors should evaluate the long-term drivers of the sector and anticipate how these drivers are expected to evolve. Consider the outlook for population growth and urbanization rate as well as the prospect of shifts in patterns of consumption.


01 DEMAND
Seasonality
Customer profile
Capacity utilisation
Revenue mix
02 STRUCTURAL INFLUENCES
Local regulation
Natural monopoly
Operating region
Allowed rate of return (AroR)
Regulated capital value (RCV)
03 GAUGING PERFORMANCE
Pricing structure (urban vs. rural)
Net debt to RCV ratio
Asset turnover ratio
Cash and collections management
04 MEASURING GROWTH EXPECTATIONS
Urbanisation
Population growth rate
Per capita consumption rates
Demand drivers
Investment plan
05 BUSINESS OPERATIONS
Operational efficiency
Public vs. Public private partnership
Utilities licenses status
Last mile Investment plan connectivity
Quality of service
06 ESG FACTORS
Waste and emissions
Renewable sources
Water treatment and reuse
Water consumption in process
Fines and penalties for environmental offences
UTILITIES
Infographic showing the step-by-step process of analyzing the traditional Utilities industry

COMMON TO THE SECTOR

1. WHAT ARE THE DETAILS OF THE COMPANY'S BUSINESS PROFILE AND REVENUE MIX?

a. What are the different products and services offered by the company?
b. What are the primary regions operated by the company?

2. WHAT IS THE CUSTOMER PROFILE IN MARKETS WHERE THE COMPANY OPERATES?

a. What is the mix of number of customers by type of end users: household, industrial and commercial establishments?
b. How does the customer behaviour and demand profile vary across geographical locations?

3. WHAT ARE THE DRIVERS OF DEMAND FOR THE COMPANY'S SERVICES? HOW ARE THESE EVOLVING?

a. What are the key demand drivers in each of the end-user segments?
b. How does the customer behaviour and demand profile vary by end user type and across different geographical locations?
c. What are the other factors affecting demand?

4. HOW SEASONAL IS THE DEMAND FOR THE COMPANY'S SERVICES?

d. What is the extent of seasonality observed in demand?
e. How severely do the weather conditions affect demand?
f. How are capacity utilisation and revenue generation optimised considering the seasonality in demand?

5. WHAT ARE THE FACTORS INFLUENCING PRICING OF THE COMPANY'S SERVICES?

a. What are the factors influencing tariffs in regions where the company operates?
b. Is there differential pricing based on type of end users and geographical location (urban vs. rural)?
c. If differential pricing exists, how is it determined?
d. Which type of users pay the least and the most tariff?

6. WHAT ARE THE DIFFERENT PRICING MODELS, SUCH AS COST PLUS AND MARKET BASED, USED IN THE INDUSTRY?

a. Which are the pricing models used in markets where the company operates?
b. What pricing models are adopted by the company? Is it influenced by the regulators?
c. Are there any ceilings on the price margins a provider can earn?

7. WHAT ARE THE LONG-TERM DRIVERS OF THE INDUSTRY? HOW ARE THESE EXPECTED TO EVOLVE?

a. What is the outlook for population growth and urbanisation in the key markets?
b. What is the growth outlook for the overall GDP and the manufacturing industry?
c. Are any major shifts foreseen in the pattern of consumption of the company's services?
d. What is the per capita consumption of the various products and services?
e. Are natural resources (coal, natural gas, freshwater etc.) required by the business available in sufficient quantities and at viable prices?

8. WHAT IS THE REGULATORY STANCE ON COMPETITION?

a. Is there a local, regional or national monopoly in any of the services provided in the key markets?
b. Do the regulators intend to introduce or intensify competition?
c. What are the potential ways in which competition can be facilitated and promoted by the regulator?
d. Which of these options are being considered by the regulators currently?
e. Which of these proposals are expected to fructify and when?
f. What are the likely consequences of any upcoming changes? How does the company intend to manage those consequences?

9. WHAT ARE THE FACTORS FACILITATING OR IMPEDING ENTRY OF NEW PLAYERS?

a. Which of the products, services and regions operated by the company are the most and the least competitive?
b. Are any of the services provided by the company tightly regulated with only single or a few licences permitted in each license area?
c. What are the services in which full competition is permitted with no, or higher, cap on licences?
d. Typically, how many players compete for a single licence for various services in different licence areas?
e. What is the initial investment required for new entrants for a given population size or number of customers or consumption volume?
f. Is the public private partnership (PPP) model prevalent in markets where the company operates? What are the benefits and pitfalls of this model?
g. To what extent is the PPP model being used? Is the use expected to increase in the future?

10. WHAT ARE THE REGULATION-DRIVEN FACTORS THAT COULD AFFECT PERFORMANCE?

a. Is the asset base regulated? What is the methodology, basis and assumptions used for determining the Regulated Capital Value (RCV)?
b. How does the difference between the book value of asset and the RCV influence pricing and costs?
c. What are the risks of deviation from assumptions and the fallout on finances?
d. Is there an allowed rate of return (ARoR) regime in force? What is the methodology and basis on which the ARoR is determined?
e. Do the RCV and ARoR vary for different services and across different regions?
f. How frequently are the RCV and ARoR reviewed? When is the next review due?

11. ARE THE LAST-MILE SERVICES IN THE KEY MARKETS UNBUNDLED?

a. Which are the services or parts of the service chain that are unbundled?
b. How many last-mile operators are typically permitted in every licence area?
c. How is the number of licences determined: by population size or by consumption volumes?
d. How many competitors are the in the company's licence areas?
e. What are the factors (cost, convenience, quality etc.) on which last-mile providers typically compete?
f. Does the prevailing regulation permit the same licensee to provide all services (bundled services) in a given licence area?
g. Which model is more lucrative: providing bundled services, providing services individually or providing only one service?
h. Does any aspect of regulation favour provision of services on a bundled vs. unbundled basis?
i. Do competing providers in the company's licensed areas provide free meters to customers? How does this affect the company's business? How is this countered?
j. How commonly smart meters are used in the company's license areas?
k. How different is the consumption pattern between customers who have smart meters versus those who do not have them?

12. IS THE BUSINESS SUBJECT TO AN OUTCOME DELIVERY INCENTIVE (ODI) REGIME?

a. Which parts of the service ecosystem are subject to an ODI regime in the company's licence areas?
b. Is the ODI regime mandatory or based on discretion of the customer or the provider?
c. What outcomes are covered by the ODI regime?
d. How are the benchmark values determined?
e. What are the incentives or penalties for over- or underperformance?
f. How sensitive are the company's margins to the range of possible incentives and penalties from the ODI regime?
g. Is there a mechanism to help consumers monitor their consumption pattern?
h. According to the company, how does the availability of consumption monitoring mechanisms affect consumer behaviour and, in turn, the company's performance against the ODIs?

13. IS THE COMPANY SUBJECT TO AN EXPENSE ALLOCATION REGIME?

a. Are the allocations done on an operating expenditure or total expenditure basis?
b. What are the components of operating and total expenditure?
c. How are the allocations determined?
d. What is the frequency of revision of the allocations?
e. What are the incentives or penalties for over- or underperformance?
f. How sensitive are margins to the range of possible incentives and penalties from the expense allocation regime?

14. HOW HAS THE PERFORMANCE BEEN ON OPERATIONAL MEASURES? HOW DO THESE COMPARE WITH THAT OF PEERS AND HOW ARE THESE EXPECTED TO EVOLVE?

a. How does the growth in demand and price realisation compare with peers operating in markets that have a similar profile and size?
b. How has the track record been on expenditure efficiency (actual expenditure vs. allocated expenditure)?
c. What is the typical recovery rate during billing and collection?
d. How does the company handle defaults or delayed payments?

15. HOW HAS THE COMPANY PERFORMED ON FINANCIAL MEASURES? HOW DO THESE COMPARE WITH THE PERFORMANCE OF PEERS AND HOW ARE THESE EXPECTED TO EVOLVE?

a. What has been the revenue growth, EBITDA and EBIT margins of the company?
b. What is the revenue and profit mix of the company by products and services? How do they differ for various end-user markets across key markets operated by the company?
c. What is the Return on Assets generated by the company?

16. WHAT IS THE RANGE OF VALUES FOR GEARING (NET DEBT-TO-RCV) RECOMMENDED BY THE REGULATORS? HOW DOES THE COMPANY GEARING COMPARE AGAINST THIS?

17. HOW HAS BEEN THE COMPANY'S TRACK RECORD IN EFFICIENT UTILIZATION OF ASSETS?

a. How efficient has the capital utilisation been in terms of asset turnover ratio?
b. In the company's estimate what is the capex invested per dollar of revenue and profits generated?
c. What is the typical service life of the company's plant and machinery?
d. How is the service life and replacement cycle of the company's infrastructure optimised?
e. What are some unique elements of the company's practices in this aspect?
f. What would be the capex required for a full revamp of the company's infrastructure?

18. WHAT ARE THE DETAILS OF THE COMPANY'S INVESTMENT PLAN FOR THE NEXT FEW YEARS?

a. What is the plan for investment and replacement capex for the next few years?
b. How does the company plan to raise capital to support these investments?
c. What is the likely effect on the company's gearing due to this capital raising?
d. While commissioning new capacity, how does the company identify, shortlist and engage providers of machinery, construction and engineering services?

19. WHAT IS THE COMPANY'S TRACK RECORD ON THE QUALITY OF SERVICES PROVIDED?

a. How frequently and for how long have the company's services been disrupted in the last few years?
b. What are the steps taken to prevent, detect and remedy disruptions or incidents?
c. Typically, how many complaints of fault are received annually for a given population of customers and the magnitude of services provided?
d. What is the average time taken to respond to and rectify these faults?
e. To what extent are technology-enabled solutions used for this purpose?
f. How are the satisfaction levels of customers tracked and measured?

WATER SUPPLY & SEWAGE TREATMENT

20. WHAT SERVICES ARE OFFERED BY THE COMPANY ACROSS DIFFERENT GEOGRAPHICAL LOCATIONS WHERE THE COMPANY OPERATES?

a. Which of these services are handled by the company: water treatment, waste treatment, pipelines, network management, metering and billing across its key markets?

21. WHAT ARE THE DIFFERENT RECYCLATES GENERATED?

a. What is the quality and quantity of water recovered from a unit of sewage treated?
b. What other materials (recyclates) are recovered and in what quantities?
c. What are the prices charged for recyclates?

22. WHAT ARE THE DEMAND DRIVERS OF THE COMPANY'S SERVICES? HOW ARE THESE EVOLVING?

a. What is the share of demand from the industrial market?
b. How do regulations on water quality, pollution control and related aspects affect demand?
c. Are there any mandates for recovery of, or use of recovered, energy or resources that influence demand for the company's services?

23. WHAT ARE THE LONG-TERM DRIVERS OF THE INDUSTRY? HOW ARE THESE EXPECTED TO EVOLVE?

a. What is the per capita water consumption and waste water generation?
b. Is the water supply or sewage treatment infrastructure likely to become more distributed?
c. Is the manufacturing sector in the key markets dominated by industries that are water and effluent intensive? What is the extent of water consumed and effluents generated per billion dollars of GDP generated by those industries?

24. WHAT ARE THE FACTORS FACILITATING OR IMPEDING ENTRY OF NEW PLAYERS?

a. What is the extent of regulation in water treatment, sewage treatment, pipelines, network management, metering, billing, collection and other services provided by the industry?

25. HOW HAS THE COMPANY PERFORMED ON OPERATIONAL MEASURES? HOW DO THESE COMPARE WITH THE PERFORMANCE OF PEERS AND HOW ARE THESE EXPECTED TO EVOLVE?

a. How has the company's growth been in terms of the number of households serviced, volume of water supplied and volume of sewage treated?
b. What has been the growth in revenue per unit of water supplied and waste treated?
c. What has been the capacity utilisation as a percentage of total available facilities for water treatment, sewage treatment, pipelines, recovery plants etc.?

26. WHAT HAS BEEN THE COMPANY'S TRACK RECORD IN TERMS OF QUALITY OF SERVICE?

a. What are the benchmarks governing the quality of water supplied, post-treatment sewage and material recovered?
b. How is the company's performance on these fronts monitored? What has been the track record?
c. Have there been any instances of sewage leaks? What are the implications of such incidents?

POWER UTILITIES

27. WHAT SERVICES ARE OFFERED BY THE COMPANY ACROSS DIFFERENT GEOGRAPHICAL LOCATIONS WHERE THE COMPANY OPERATES?

a. Which of these services are handled by the company: power generation, trading or wholesale, transmission, distribution, grid development, network management etc.?
b. What is the quantity of residual energy or material (process heat, high pressure steam, fly ash etc. that have potential applications) recovered from operations?

28. WHAT ARE THE DEMAND DRIVERS FOR THE SERVICES? HOW ARE THESE EVOLVING?

a. What is the share of demand from the industrial market?
b. How do any mandates for use of renewable or low emission energy sources influence demand, depending on type of energy (coal or solar) source used?
c. Are there any other factors that affect demand for the services?

29. WHAT ARE THE LONG-TERM DRIVERS OF THE INDUSTRY? HOW ARE THESE EXPECTED TO EVOLVE?

a. What is the per capita power consumption?
b. Is the manufacturing sector in the key markets dominated by industries that are energy intensive? How energy intensive are these industries in terms of energy consumed per billion dollars of GDP generated?
c. What is the company's view on the shift from centralised (thermal, hydro, nuclear) to distributed (solar, wind) modes of power generation?

30. DOES THE COMPANY OPERATE NUCLEAR FISSION-POWERED GENERATING PLANTS?

a. What is the company's view on the long-term prospects of nuclear fission as a source of energy?
b. How does the company see the global public and political opinion evolving in the context of Chernobyl and Fukushima accidents?
c. In the company's view, when will nuclear fusion become a viable source?

31. WHAT ARE THE COMPANY'S VIEWS ON THE ROLE OF RENEWABLES IN THE ENERGY MIX?

a. What is the potential share of renewable sources over the next 5, 10 and 20 years, in the current model of centralised generation?
b. How would the company's view change, based on potential breakthroughs in large-scale storage technologies?
c. How would this view change if the balance tilts in favour of distributed generation systems?

32. WHAT ARE THE FACTORS FACILITATING OR IMPEDING ENTRY OF NEW PLAYERS?

a. Could the extent of regulation of different services (generation, trading, transmission, distribution) be explained?

33. HOW HAS THE COMPANY PERFORMED ON OPERATIONAL MEASURES? HOW DO THESE COMPARE WITH THE PERFORMANCE OF PEERS AND HOW ARE THESE MEASURES EXPECTED TO EVOLVE?

a. What has been the growth in number of customers, amount of power supplied in aggregate and per customer for different enduser types and across geographies?
b. What has been the growth in revenue per unit of power supplied, for different end-user types and across geographies?
c. What has been the capacity utilisation as a percentage of total available generation, transmission and distribution capacity?
d. How does this vary by energy source of generation and by location of generating station?

34. WHAT HAS BEEN THE TRACK RECORD ON QUALITY OF SERVICES PROVIDED?

a. How has the quality of power supplied in terms of steady voltage, peak load handling etc.?
b. What benchmarks govern the quality, reliability and consistency of power supplied?
c. How is the company's performance on these fronts monitored? What has been the track record?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE

35. WHAT ARE THE DETAILS OF THE COMPANY'S ESG PRINCIPLES, PRACTICE AND TRACK RECORD?

a. What is the emission intensity of products and services (water supplied, sewage treated, power generated) provided by type of source (river, reservoir, groundwater, coal, hydro etc.) utilised?
b. What is the proportion of energy used or generated from renewable sources?
c. What is the water consumption intensity of the company's operations? How much of it is fresh water and treated water?
d. What is the percentage of customers equipped with smart metering applications?
e. How much is the volume of fresh water lost due to leakages, as a proportion of total water supplied and on a per customer basis?
f. What are the losses recorded during power Transmission and Distribution (T&D losses)?
g. How much of the fresh water consumed is recovered and reused?
h. Does the company use and encourage customers to use machinery, equipment, appliances and processes that provide high levels of energy and resource efficiency and generate smaller amounts of waste?
i. What is the extent of waste and effluents (fly ash, radioactive waste etc.) generated per unit of products and services provided?
j. How much of the waste generated is recycled or used for alternative purposes?
k. How is safe disposal of hazardous, non-reusable, nonrecyclable and non-biodegradable waste generated ensured?
l. How many incidents of release of effluents and pollutants are recorded annually for a given number of customer connections?
m. How much capex is allocated to investments on ESG-relevant aspects of business?
n. What is the total amount of costs, including remediation and fines, incurred due to leakages, spills or other such incidents?
o. How much were the total costs incurred due to incidents that disrupt operations, damage infrastructure or entail expenditure to remedy and repair?
p. How many were the recorded incidents that can result in lawsuits, litigation or compensation claims, in relation to the total number of customers served? How much cost could these translate to as a percentage of revenue?
q. What is the proportion of revenue generated in subsidised markets, markets with feed-in tariffs or regulated pricing structure?

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AFTERWORD

Our 21-industry business model questioning framework is not a panacea. Rather, it is a starting point for investors to start asking questions and probe in the more appropriate direction during fundamental analysis. Asking suitable questions is very important because each industry comes with its unique set of attributes that need to be well understood before an investor can put up a fair valuation.

Nevertheless, there still lies an area worthy of analysis that cuts through across all industries and to be more specific across all companies as well – corporate governance. Indeed, when attempting to sum up the importance of well-run companies, we were reminded of a quote by leading advocate Johan Myburgh who observed that "corporate governance is not a matter of right or wrong – it is more nuanced than that."

It's the word nuanced that strikes a chord. One of the main reasons we are examining the concept of corporate governance is to help industry professionals grasp that doing the right thing isn't merely a tick-box exercise, but something a lot more subtle and organic. Let us begin.

FINDING MEANING

Corporate governance, "CG" to some, is treated as a buzz phrase that gets repeated so often it loses its meaning. For others, it's merely a theoretical concept that has no application to the real world of business and no consequential impact on top-and-bottom lines. After all, CG principles are just the plaything of regulators – cumbersome, expensive to implement, restrictive, and only relevant to large multinational companies. Yes?

No. Research has repeatedly shown that however large or small a company is, implementing CG practices delivers a whole array of benefits not just to the business itself, but to society as a whole.

There! We said it. Society. It's time to think beyond the boardroom or compliance desk. But we are getting ahead of ourselves, more on that later.

GOVERNING RELATIONSHIPS

In essence, CG defines the rules that govern the relationships between management and employees, and between the company and the entities with which it interacts (clients, suppliers, customers, regulators, and so on). It sets guidelines that enable businesses to achieve their goals fairly while also controlling risk.

The ideal CG environment doesn't exist in reality. Good CG is not about achieving perfection, but about the ongoing process of identifying operational problems, addressing them openly, and fixing them. If a company professes perfect CG, then it is most likely not telling the truth.

TRANSPARENT BENEFITS

The first and perhaps most visible advantage of good CG is cultural. Decent people like to work with those cut from the same cloth. Word spreads fast, and companies that are seen to have a contented, meritocratic workplace culture can retain and lure talent across all levels. Those that foster a negative environment have a reputation for unfairness and internal politicking or fail to confront internal problems honestly, typically lose their best staff. Quite simply, the companies whose businesses thrive tend to be those whose CG cultivates the most talented, incentivised employees.

In more measurable areas, the pursuit of transparency delivers multiple rewards. Transparency is another of those over-used words; we've become used to corporate (not to mention political) leaders promising – but frequently not delivering – greater openness and accountability. But businesses that actually pursue a culture of transparency put themselves at an advantage for several reasons.

Firstly, shareholders like it. Shareholders are growing more sophisticated and are quick to detect then punish opaque practices. Companies that have healthy internal controls and individual accountability create a virtuous cycle; it leads to more engaged shareholders, which leads to more effective monitoring and measuring of performance, which encourages better risk control. This, in turn, enables the company to raise lower-cost debt (reduced risk commands reduced interest, after all), and to leverage its reputation during merger and acquisition negotiations.

In short, good CG breeds higher shareholder value.

A HOLISTIC VIEW

The advantages of CG are not confined to individual companies either. Viewed at a more holistic level, when good CG practices spill over into wider society and become embedded into a culture, this benefits economies as a whole in various ways.

Global capital is drawn to quality. Perceptions of risk determine both national and corporate credit ratings, and perceptions of good governance partly assess risk. Companies that demonstrate good CG can attract higher-quality capital, while those that don't may be forced to raise money in the open market at a higher cost, in the form of higher interest rates for bonds, or steeper discounts for equity issues.

Higher-cost debt directly affects the competitiveness of a company or an entire economy. Over time, less transparent companies are forced out of the market or persuaded to improve their CG or Corporate Social Responsibility (CSR) to become more competitive. Thus, a positive cycle is created that encourages companies to become more ethical and accountable.

In the longer term, capital then naturally flows to the companies and economies that make the most optimal use of it, which creates more value for shareholders, which attracts more investment, and ultimately reduces wastage and loss in capital markets.

A PRACTICAL REALITY

Perhaps this sounds unrealistic and utopian. If so, then consider that this model doesn't require that every business within a particular industry or market adopt the highest CG standards. All it needs is a critical mass of companies to do so.

Assuming there is a pool of capital available to invest in a particular market or industry, that money will tend to favour the companies with high CG and CSR standards. That consequently poses a threat to the businesses that lack those standards, thereby reinforcing the cycle. Idealism has nothing to do with this – it is simply natural market forces at work.

As we've noted already, plenty of lip service is paid to the concepts of transparency and CG. It's not hard to find companies that claim to hold themselves to the highest standards of governance operate the most beneficial CSR programmes, or design the most forward-thinking Environmental and Social Governance strategies.

It's a bit more challenging to find the ones that actually deliver on these pledges.

Complicating the process is the fact that CG is not a one-size-fits-all process. Practices that might apply to a manufacturing business might make no sense for a company in the entertainment industry. Likewise, companies operating in the same industry in different countries might be subject to cultural rules that render certain practices ineffective.

The gulf between CG theory and implementation can be wide. The practical application of appropriate CG standards requires local expertise and a nose for compromise and balance.

What is considered good corporate governance differs from industry to industry, since industry characteristics (and even the competitive environment around the firm) can complement or substitute for traditional corporate governance mechanisms. In addition, firms that operate in different countries are subject to different institutions and cultures, which may again complement or substitute for traditional corporate governance mechanisms.

For example, for historical reasons, countries have developed different corporate ownership structures, which necessitate different corporate governance mechanisms. In some countries banks have close links and minority shareholdings in publicly listed companies, which add to the monitoring powers of the board of directors, whereas in other countries such links are not prevalent.

In some countries the majority of firms have large controlling shareholders (linked to families or the state). Large related party (connected) transactions between listed entities and their controlling shareholders are prevalent in such markets, thus necessitating corporate governance mechanisms to ensure that they do not hurt the interests of minority shareholders.

In contrast, such concerns may be less important in markets where most firms are widely held and do not have large controlling shareholders. Therefore, it is widely agreed that there is no "one-size-fits-all" principle as far as corporate governance is concerned.

Nevertheless, the OECD has promoted six general corporate governance principles, four of which refer to mechanisms at the company's discretion, while the remaining two pertain to the environment where the firm operates. First published in 1999, the principles were revised in 2004 and 2015. They have become an international benchmark for companies, investors, and regulators, and they have been adopted by the Financial Stability Board and the World Bank. Of course, within these general principles, regulatory authorities in different countries have a lot of leeway to adopt different or stricter rules. These six general principles are explained in the following paragraphs.

1. THE RIGHTS AND EQUITABLE TREATMENT OF SHAREHOLDERS AND KEY OWNERSHIP FUNCTIONS

This principle highlights the rights of shareholders and whether all shareholders are treated equitably, whether they are large, minority or foreign, and also addresses the importance of offering different classes of shareholders the opportunity to obtain redress if such rights are violated.

With respect to shareholder rights, the basic idea is that shareholders should be free to exercise their rights and able to do so with ease. Examples of shareholders' rights include the right to participate in annual general meetings (AGMs), the right to receive their fair share of dividends, the right to inspect corporate documents, adequate information and opinions before voting, as well as actual voting practices (for example, online or cumulative voting). Therefore, firms exhibiting good corporate governance are those who promote transparency on such matters.

In addition, the principle highlights the importance of treating all shareholders equitably. This can be achieved by establishing mechanisms for minority shareholders to express their views on corporate affairs, by enforcing policies against trading of stock by insiders, by instituting safeguards to ensure that company assets do not become subject to improper use, and by policies which mitigate conflicts of interest between different classes of shareholders.

2. THE ROLE OF STAKEHOLDERS IN CORPORATE GOVERNANCE

According to this principle, firms recognize their responsibilities towards different stakeholders, which may be employees, investors, creditors, suppliers, customers, local communities, policy makers and government regulators. This principle has been acquiring more importance in recent years, and is often referred to as the company's Environmental, Social, and Governance (ESG) policy.

Consequently, various stock markets require enhanced disclosures on ESG practices over the years. Notwithstanding regulatory requirements, it is also recognized that, from the firm's perspective, a strong sense of corporate social responsibility (CSR) and emphasis on sustainability enhances the firm's reputation, which may lead to better opportunities to make profits in the long run and create shareholder value. While such practices differ widely, all around the world more and more firms are recognizing the importance of devoting resources and effort to safeguard social commitments and sustainability, and work for the greater social good.

3. DISCLOSURE AND TRANSPARENCY

The previous principles are underpinned by disclosure and transparency, which essentially forms the foundation of good corporate governance practices. The basic idea is to provide enough information in order to assure all classes of shareholders and other investors that company managers are acting in the best interests of the firm. Good practices highlight the use of all available channels to disseminate relevant information to market participants. This information includes – but is not limited to – information about the background of the firm's managers, the firm's financial information and performance, and its ownership structure. Firms practicing good corporate governance should provide transparent information disclosure on all material matters. They should also ensure a continuous flow of up-to-date information to the shareholders.

4. THE RESPONSIBILITIES OF THE BOARD

The last principle that is in the company's discretion, pertains specifically to how the company's board of directors contributes to the corporate governance of the firm. The idea is to ensure that the company receives appropriate strategic guidance, that company management is monitored effectively by the board, and that the board is accountable towards the firm and its shareholders. Day-to-day operations of the firm are routinely delegated to senior operating executive teams. Board directors are elected by shareholders in order to oversee the firm's operations, and to monitor and control how the management team performs its duties. The directors are responsible for establishing policies and guidelines that maximize the interests of the company's shareholders.

This principle covers a wide range of board of directors activities, such as the establishment of committees to oversee company functions, ensuring the board's independence from company insiders, enhancing the diversity of board members (in terms of background, nationality and gender) in order to ensure that a variety of opinions are being voiced, rules on how discussions take place during board meetings, and what resources are provided to directors to perform their duties.

5. ENSURING THE BASIS FOR AN EFFECTIVE CORPORATE GOVERNANCE FRAMEWORK

The remaining two principles adopted by the OECD are not at the firm's discretion but they are related to the general environment in which the firms operate. They highlight the importance of the market's regulatory environment, and the role of a wide array of financial institutions in safeguarding good corporate governance practices.

Good corporate governance is difficult to exist if the overall market framework is not subject to the rule of law, if effective supervision and enforcement are lacking, if the institutional framework does not promote market transparency, and is not conducive towards the efficient allocation of resources. For corporate governance standards to be high, legal, regulatory, and institutional factors play a significant role. This overall corporate governance framework is related to legislation, regulation (both imposed and self-regulation), and other corporate practices that may be the result of cultural and historic traditions. Consequently, these factors may differ significantly from country to country, giving rise to the notion that "one-size-does-not-fit-all."

The overall regulatory framework is also constantly at interplay with individual company practices, and the two constantly influence each other. A recent practice that has been adopted in many markets, related to this notion, is the so-called "comply or explain" rule. According to this rule, companies are allowed freedom to deviate from certain regulations, as long as they publicly explain the reasons that necessitate this deviation.

Of course, this regulatory environment is changing continuously, as best practices from abroad are adopted by other countries, either as a result of centrally imposed regulatory convergence or as a result of the cross-pollination of business practices that follows cross-border investment and international mergers and acquisitions (M&A).

6. INSTITUTIONAL INVESTORS, STOCK MARKETS, AND OTHER INTERMEDIARIES

The final principle is related to the role that financial intermediaries at different stages of the investment chain can play in order to improve corporate governance at the firm level. In modern economies, these financial intermediaries are independent decision makers, often with access to the firm's top management and the board of directors, and can therefore play a significant role in influencing corporate governance practices.

For example, institutional investors can decide to exercise (or not) their voting rights in companies, and they can disclose how they come up with such decisions. Financial intermediaries have superior monitoring capabilities compared to minority shareholders. The possibility of voting potentially large blocks of stock can have a significant impact on the firm's corporate governance practices. They should disclose potential conflicts of interest in exercising such duties, including – but not limited to – potential conflicts of interest among financial advisors, stock analysts and brokers, debt rating agencies, and other financial institutions that provide analysis or investment advice. They should comply with insider trading rules. Stock markets should ensure fair, efficient, and transparent pricing practices.

Overall, the role of financial intermediaries in promoting good corporate governance can be the result of both top-down regulation, as well as self-regulation and widely adopted industry practices. As these institutions increase their shareholdings in publicly listed companies worldwide (for example, as a result of pension systems reform, which channels a larger proportion of pension contributions towards securities markets), the potential role they can play in ensuring good corporate governance practices in the firms they invest in also increases.

The previous paragraphs provide a brief overview of the widely adopted OECD Principles of Corporate Governance. While there are other parties that have compiled such lists, these principles are a good place to start when analyzing corporate governance practices around the world, due to their recognition of differing institutional environments.

Three concluding remarks can be offered. First, these general principles provide useful benchmarks against which the corporate governance of firms across different jurisdictions can be assessed. Within these general principles, different markets and firms may adopt different practices that may accomplish the same goals.

Second, good corporate governance is not a static but rather a dynamic evolving process. As more and more firms adopt current best practices, new requirements are introduced, as they evolve based on international best practice and experience. For example, the recent increased attention on corporate social responsibility, sustainability and ESG practices worldwide is an example of this evolution. Companies that stay in today's corporate governance practices may find out that their corporate governance standards are outdated a few years later, and this may have an adverse impact on their reputations and stock prices. Therefore, it is important that firms take corporate governance seriously and keep abreast and informed of the latest developments in best practices.

Third, as cross-listings of stocks in different markets become more common, the practice provides an increased challenge to regulators in their effort to ensure that high common corporate governance standards are upheld for all firms listed in a specific market.

Our 21-business model questioning framework series will end here. However, our exploration in the realm of corporate governance and how it affects company business model will continue. In our subsequent publications on ARX, we will explore in depth the above universal corporate governance attributes that all companies should possess, regardless of the market or industry in which they operate. Then, later in the series, we will showcase real-world examples across an array of industries.

We hope that together with the industry specific ESG questions in this framework and the above post publication contents, you will obtain a holistic framework on how to inspect the corporate governance robustness of your target company.

There is much to learn. See you on ARX!

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I am delighted to be invited to write this afterword.

To help investors better analyze and to better undertake due diligence on a company, CFA Institute and ACCA have started developing this sector analysis research framework since 2018, which incorporated in-depth research as well as interviews with professionals within those sectors. As per this writing, we have:

- Conducted 15 sector analysis seminars, conferences and webinars
- Organized 12 physical panel discussions
- Recorded 10 financial education videos

Along the way, we are very grateful for the strong support and endorsement from the Investor and Financial Education Council (IFEC), Singapore Exchange and our local societies across APAC. With their network of influence we were able to engage and educate a much wider audience, for the ultimate benefit of society.

I am honored to be part of the working team and am glad that my small contribution has partially elevated this rare piece of open work to such a prestige level.

Last but not least, I would also like to take this opportunity to announce that most of the above spin-off products have been pre-recorded and made available in bite-sized format on the CFA Institute Asia-Pacific Research Exchange (www.arx.cfa).

Moving forward, we will be organizing more events as well as generating more post publication products in the pipelines. I therefore strongly encourage all stakeholders to make optimal use of all these resources to enhance your professional work as well as generating those elusive alphas for your portfolio.

All the best in your life-long investing journey.

Your sincerely,
Scott Lee
Director, Asia Pacific Research Exchange

About ACCA

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We're a thriving global community of **233,000** members and **536,000** future members based in **178** countries and regions, who work across a wide range of sectors and industries. We uphold the highest professional and ethical values.

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CFA Institute is the global association of investment professionals that sets the standard for professional excellence and credentials. The organization is a champion of ethical behavior in investment markets and a respected source of knowledge in the global financial community. Our aim is to create an environment where investors' interests come first, markets function at their best, and economies grow. There are more than 170,000 CFA charterholders worldwide in 164 markets. CFA Institute has nine offices worldwide and there are 161 local societies. For more information, visit **www.cfainstitute.org** or follow us on Twitter at @CFAInstitute and on Facebook.com/CFAInstitute.