Accounting For Recovery

The Art Of Navigating A Pandemic

Abstract

Bears survive winter without water or food. Unlike humans, when deprived of sustenance bears' body burns only fat and that only sparingly. The skeletal muscles are spared. So when spring returns, leaner but with muscles intact, bears are all prepped to forage for food. Companies could take a leaf from the book on bear metabolism. During a pandemic, companies should only consume their cash reserves and that only sparingly. To the greatest extent possible, companies should retain their workforce and keep their supply chain intact. Even in the darkest hour of a pandemic companies nonetheless must have an eye on how they can resume normal business activities when eventually the economy recovers. That is the essence of accounting for recovery. This article demonstrates how the theory of growth accounting, familiar to economists, is well suited for the purpose of navigating a company through a pandemic towards recovery.

Accounting For Recovery

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Accounting For Growth

"*…As the pandemic squeezes big companies, executives are making decisions about who will bear the brunt of the sacrifices*." [Whoriskey, 2020] This sentence in the Washington Post on 5th May 2020 got my attention.

Well, I believe that the decisions that these executives make during this pandemic give us an accurate gauge of their business ethical orientation.

Faced with the onslaught of Covid-19 how a company treats stakeholders tells us whether that company deserves stakeholders' commitment. Without the commitment of its stakeholders, no company can have a long-term future.

Kazuo Inamori is the founder of the ¥1.5 trillion company, Kyocera and the ¥4.5 trillion KDDI. He was also instrumental in turning around Japan Airlines. In an interview with the ABC News, Inamori said, "*No company can generate long-term profit unless it makes every stakeholder happy*." ["Kyocera founder", 2009] Inamori's comment captured succinctly his *Rita No Kokoro*, his management philosophy.

How much should companies cut back on operating costs? Who should bear the brunt of the sacrifices? To answer these questions, I return to consider how the methodology elaborated upon in my previous article, *Stakeholder Equity*, might provide the answers. [Loh, 2020]

That previous article introduced *Accounting For Growth*, a methodology that could give with precision an account of how a company grew. Specifically, *Accounting For Growth* explained how changes in a company's resources contributed to its growth in revenue. The article demonstrated that *Accounting for Growth* could be applied to design an optimum mix of resources that would drive the company's long-term growth. The foundation of the methodology was the equation, *constant elasticity of substitution* (CES for short), an equation that is familiar to economists although not necessarily familiar to corporate executives. In economics, the CES equation falls under the general heading of *growth accounting*, hence *Accounting For Growth*.

If one were to read literatures on *growth accounting*, one would not encounter mention that resembles any principle of financial accounting. *Growth accounting*, including the *CES equation*, is purely a subset of economics, not much discussed outside the economics discipline. In a sense, *Accounting For Growth* is an attempt to bring accounting into *growth accounting* by showing how data that are typically available in a company's accounting records can be applied to *growth accounting*, and in particular to the *CES equation*.

This article will show how companies can apply *Accounting For Growth* to decide who should assume how much sacrifice during the pandemic. More importantly, this article shows how we can tell whether a company is poised for post-pandemic recovery.

But before proceeding to show how one should apply *Accounting For Growth* in a pandemic, let's review briefly the *CES equation* and some of the basics of *Accounting For Grow*th.

The *CES equation*, as derived by Arrow, Chenery, Minhas and Solow, took the form shown below. [Arrow, Chenery, Minhas, Solow, 1961].

$$V = \left(\beta K^{\frac{\sigma-1}{\sigma}} + \alpha L^{\frac{\sigma-1}{\sigma}}\right)^{\sigma/\sigma-1}$$

When applied to a firm, *Accounting For Growth* adopts an equivalent form of the *CES equation* as shown below

$$\mathbf{R} = \left(\mathbf{mM}^{\frac{\mathbf{s-1}}{\mathbf{s}}} + \mathbf{lL}^{\frac{\mathbf{s-1}}{\mathbf{s}}} + \mathbf{kK}^{\frac{\mathbf{s-1}}{\mathbf{s}}} + \mathbf{gG}^{\frac{\mathbf{s-1}}{\mathbf{s}}}\right)^{\mathbf{s}/\mathbf{s-1}}$$

Notation:
R is total revenue earned by the company
M is a proxy measure for quantities of goods and services provided by suppliers
L is a proxy measure for the skills and labour provided by employees
K is a measure of the productive services provided by the company's assets
G is a proxy measure of the company's consumption of social infrastructures and institutions
m is the total payment received by suppliers for goods and services
l is the amount of wages received by employees
k is the combined returns to capital providers and
g is total tax contribution by the company.

M, **L**, **K**, and **G** are the resources (i.e. the inputs) that a company needs to generate its revenue **R**. In principle one could drill down to the level of individual stakeholders, but for our purposes, we shall group stakeholders into four classes. These are the suppliers, employees, capital providers and society as a whole. Collectively these stakeholders contribute the necessary resources needed to generate the company's revenue. And **m**, **l**, **k**, and **g** are the returns to the stakeholders, i.e. returns to the providers of resources.

What about the value of **s**? The index, **s**, balances the right hand side of the equation with the left hand side. The index can be thought of as a measure of how efficient the mix of inputs (we shall use the term *input structure*) has been in generating the revenue, **R**, and also how equitable the returns (i.e. **m**, **l**, **k**, **g**) were to the stakeholders. In that sense, **s** is an index of *stakeholder equity*. As it is quite a mouthful to call the index, **s**, the index of *constant elasticity of substitution*, or index of *stakeholder equity*, we shall use the term *CES index* as the shorthand for the index **s**.

Faced with the onslaught of Covid-19 how far should a company cut back? Who should bear the brunt of the sacrifices? What does *Accounting For Growth* recommend?

Navigating An Airline Though The Pandemic

Accounting For Growth is best undertaken using a company's internal accounting records. Answer to questions about where the axe should fall in a cost-cutting exercise requires access to detailed accounting data and an intimate knowledge of the company's operations. It is necessarily an exercise to be done within the company. Nonetheless, especially if the purpose is to evaluate from the outside whether a company has operated optimally and equitably during a pandemic, even without access to the company's internal accounting records, a good estimate of the *CES index*, **s**, can be made using a company's published financial statements.

Taking into account the constraints due to incomplete information, this article is best viewed as being illustrative of how the *Accounting For Growth* methodology might be

used to form an opinion regarding how a company is being managed during this pandemic.

According to the International Air Transport Association (IATA), the Covid-19 crisis will see airline passenger revenues drop by 55%. [International Air Transport Association, 2020] So we should expect that there would be a lot of red ink spilled this year. How companies respond to the crisis caused by this pandemic will tell us much about their management's philosophy. Do these companies' managements live up to the ideals of Kazuo Inamori's *Rita No Kokoro*?

For illustrative purposes only, we shall use published information from British Airways' 2018 Annual Report. [British Airways PLC, 2019] We shall assume (probably wrongly) that the company expects that the 2020 passenger revenue would fall by 50% but that revenue would recover to 80% the following year.

How far should the company cut back? Who should bear the brunt? Will the company be poised for recovery when travel demand returns?

At the time of writing, the most recent financial statements available on the Internet are for the year ending 31st Dec 2018. We start by rearranging British Airways' published 2018 balance sheet and profit and loss statement. For an explanation on why and how these are done, refer to the article *Stakeholder Equity*. [Loh, 2020]

Fig 1 shows the British Airways Balance Sheet for 2018, rearranged.

The balance sheet has been rearranged such that all non-financial assets are grouped together on the left hand side of the statement and all financial liabilities (including shareholder equity) less financial assets, on the right hand side. In order that the balance sheet balances, the left hand side must equal the right hand side.

Balance Sheet Rearranged 2018

Non Financial Assets		**Financial**	
Property plant and equipment	8,134	Assets	
Intangibles	1,067	Non-current	3,193
inventories	175		
		Current	4,112
		Total shareholders' equity	5,667
		Total non-current liabilities	5,176
		Total current liabilities	5,838
	9,376		9,376

Fig 1

Fig 2 shows the Profit and Loss Statement for 2018, also rearranged.

Notice that in this rearranged format, a new item, Value Added, has been included and that this item appears twice. For a detailed discussion on the concept of value added, refer to an excellent article by M V Morley in the American Accounting Association. [Morley, 1979]

The basis for the rearranged format of the Profit and Loss Statement becomes clear when we consider that the definition of value added is given by the following accounting identity:

Revenue less costs of purchased goods and services must equal

- Employee expenses +
- Depreciation and amortisation charges +
- Finance costs +
- Taxes +
- Profit after corporate tax

Since we are evaluating performance of the company's operating activities, expenses relating to exceptional items or gains and losses from investing activities are arranged after the value added, so that the changes from such non-operating activities do not confound our calculations.

There is a section on total tax contributions in Fig 2 that is usually not found within a company's Profit and Loss Statement. Increasingly annual reports now include a brief account of the company's total tax contribution. This is a welcome development and in particular for *Accounting For Growth* because with this information it is now feasible to include society as a class of stakeholders, along with creditors, shareholders, employees and suppliers.

A company's total tax contribution is not entirely captured in its Profit and Loss Statement. For example, VAT, or in the case of airlines, passenger duties and ticket taxes are not considered part of the company's revenue. These taxes are collected by the company on behalf of the government and are therefore excluded in the computation of profit and loss. Nonetheless, these taxes make up part of a company's returns to society, **g**. That is the reason why Fig 2 includes the total tax contribution.

Note that since returns to society, **g**, now includes the amount of taxes collected by the company on behalf of the government, the total value generated by the company's business activities (i.e. **m** + **l** + **k** + **g**) is now greater than the revenue shown in the company's profit and loss statement. This point will become clear when later we discuss returns to stakeholders.

Profit & Loss Statement 2018		
Revenue		13,021
Changes in inventory of (FGs WIPs) – materials		
Purchased goods and services		7,665
Value added		5,356
Changes in inventory – other direct costs		
of which employee costs		
of which PPE costs		
Employee costs		2,535
Employee income	2,423	
Payroll taxes	112	
Depreciation & amortisation		786
Finance costs		83
Finance costs	-116	
Finance income	33	
Profit befor exceptioal items before tax		1,952
Value added		5,356
Exceptional One-off items		394
Financial transaction gains (losses)		193
Profit before corporte tax		2,539
Corporate tax		-365
Profit after tax		2,174
Total tax contribution		
Payroll taxes	200	
Corporate tax	365	
Taxes paid as part of P&L		565
Air passenger duties	720	
Ticket taxes	438	
Taxes collected on behalf of government		1,158
Total tax contribution		1,723
Revenue + taxes collected on behalf of governement		14,179

Fig 2

Fig 3 shows the 2018 stakeholder *input structure*.

Notice that in Fig 3 stakeholder contributions are measured with proxies. To understand why, let's take the case of **M**, the quantities of goods and services purchased. Purchased goods and services may include any aircrafts that are leased, some large, some small. But they also include on-board meals, if these are supplied by a third-party. Also cabin crews' uniforms, and so on. It is not feasible to arrive at a single quantity that represents the aggregate amount of number of leased aircrafts, the amount of on-board meals, the number of sets of stewardesses' uniforms consumed in 2018. That is why, for convenience the monetary value of purchased goods and services is used as a proxy for the aggregate quantity, **M**. Of course, in that case, the money received by suppliers, **m**, is also the same monetary value of purchased goods and services. However, it is important to bear in mind that **M** is meant to measure quantities of inputs whereas **m** measures the monetary returns to suppliers for those inputs. In a cost cutting exercise, these two numbers may well be different, as we shall see later.

What about the proxy value for **K**? Recall that in the rearranged balance sheet the sum of all non-financial assets equals financial liabilities (including shareholder equity) less financial assets. But why is the sum of non-financial assets not the proxy for the value of **K**? It is because non-financial assets can have useful lives greater than one year. So the contribution of an asset is best measured by the extent of service the asset contributes

to the generation of revenue. The proxy that is appropriate in this case is the asset's depreciation plus the opportunity cost of any funds expanded to acquire the asset.

Notice also that the proxies used are not necessarily of the same unit of measurement. So, for example, whereas **M** is measured in £ million, **L** is measured in number of employees. Later we shall convert stakeholder inputs into dimensionless indices so that we can add or multiply inputs of different classes of stakeholders.

Stakeholder Input Structure	
	Proxy values
Suppliers of purchased goods and services, £million	7,665
Skills and labour, number of employees	38,202
Assets service from creditors shareholders, £ million	921
Society's infrastructures and institutions	5,356

Fig 3

Returns To Stakeholders		
	£ million	Share %
Suppliers of purchased goods and services	7,665	54%
Employees	2,423	17%
Capital pproviders	2,368	17%
Society	1,723	12%
Aggregate returns to all stakeholder	14,179	100%

Fig 4

Fig 4 shows the 2018 returns to stakeholders. Recall that returns to society, **g**, includes not only taxes that are captured within the Profit and Loss Statement but also taxes collected by the company on behalf of the government and these are not part of the Profit and Loss Statement. So the sum of **m**, **l**, **k** and **g** is greater than the company's revenue. The sum is equal to revenue plus taxes collected on behalf of the government. For convenience, we shall use the term *revenue plus* (or Revenue + Taxes) as the shorthand for the sum of revenue plus taxes collected on behalf of the government. From here on we shall be mostly using *revenue plus* instead of only revenue.

Later we will find that it is more convenient to view Fig 3 and Fig 4 together. We shall call the combination of the *input structure* of Fig 3 and the *returns structure* of Fig 4 as British Airways' 2018 *stakeholder structure*

How does *revenue plus* change when a company's *stakeholder structure* changes? We shall use the British Airway's 2018 *stakeholder structure* (as shown in Fig 3 and Fig 4) as the base structure. What is this base structure? A convenient way to grasp the concept of this base structure is to imagine that we are creating a new unit of measurement called **M** such that £7,665 million of goods and services is 1.0 **M**.

Fig 5 shows an example of an imagined set of *stakeholder structure* that is different from the 2018 base structure. In Fig 5 we imagine that the quantity of purchased goods and services has been reduced by 30% such that using the new unit of measurement the quantity is now 0.7**M**. Similarly the number of employees has been reduced by 15% such that the quantity is now 0.85**L**, and so on. We designate this as the *what-if stakeholder structure*.

Next we tabulate the returns to stakeholders. We imagine that the price level of purchased goods and service is lower than in 2018, such that 0.7**M** of goods and services cost only £4,927 million. Similarly we imagine wages are lower such that employee expenses for 0.85**L** amount to only £1,662 million. We further imagine that the returns to capital providers has risen whereas returns to society (i.e. tax revenue) has fallen.

Stakeholder Input Structure	2018 Actual	What If		
	Proxy values			
Supplies of purchased goods and services	1.0M	0.70M		
Skills and labour, number of employees	1.0L	0.85L		
Asset service from creditors shareholders, £ million	1.0K	0.89K		
Society's infrastructures and institutions	1.0G	1.08G		
Returns To Stakeholders	2018 Actual		What If	
	£ million	% Share	£ million	% Share
Suppliers of purchased goods and services	7,665	54%	4,927	42%
Employees	2,423	17%	1,662	14%
Capital providers	2,368	17%	3,388	29%
Society	1,723	12%	1,632	14%
Aggregate returns to all stakeholder	14,179	100%	11,609	100%

Fig 5

Now we are in the position to plot the *what-if* CES curve. We do that by applying the *what-if* structure to the CES equation, and then plot the CES curve of Fig 6, with *revenue plus* as the vertical axis and *CES index* as the horizontal axis. Notice that Fig 6 tells us that for the same *stakeholder structure*, *revenue plus* can vary from about £10,000 million to about £11,760 million. Intuitively we expect that should be the case, that the actual achieved *revenue plus* depends on how efficiently the company utilises its resources. The red marker denotes what the *revenue plus* would be if the company operated its resources as efficiently as it actually did in 2018. The *revenue plus* at the red marker is £11,648 million.

What else can we learn from studying Fig 6? For a given *stakeholder structure*, i.e. for a given set of stakeholder contributions and the corresponding returns to stakeholders, *revenue plus* is greater when *CES index* is higher. We interpret that to mean that the aggregate returns to stakeholders is higher when the *CES index* is higher. However, intuitively we know that there can be many combinations of *stakeholder structure* that could give us the same *revenue plus* of £11,648 million, some with low *CES index*, some with high *CES index*. So a corollary is that, for a given *revenue plus*, a *stakeholder structure* with the highest *CES index* at that *revenue plus*, is the structure that maximises the aggreate returns to stakeholder.

However, during a pandemic, some employees might have to be retrenched and some supplies discontinued. In that case, minimising retrenchment or minimising disruption to the supply chain, i.e. minimising sacrifices required of stakeholders might serve stakeholders' overall interest better than maximising returns. Later we shall return to consider this when we assess various options for *stakeholder structure*.

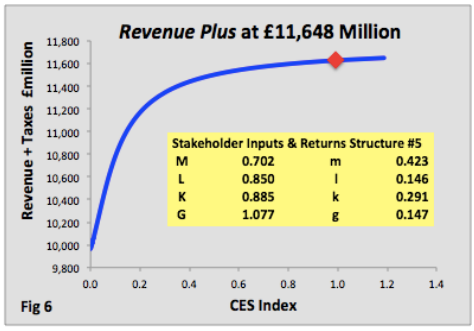


Fig 6

All the aforementioned have been discussed in great details in the article *Stakeholder Equity*. [Loh, 2020]

We now return to consider the question posed at the beginning of this article. Faced with the onslaught of Covid-19 what and how much should a company cut back? Which stakeholder should bear the brunt of the sacrifices? What does *Accounting For Growth* recommend?

In Praise Of Bears

Despite reeling from the onslaught of Covid-19, companies nevertheless should aim to preserve their *input structure* such that when the economy eventually rebounds, these companies would be poised to meet the growing demand.

Companies should plan to survive this pandemic the way grizzly bears survive winter. Hibernating bears survive for months without food or drink only to emerge in spring none the worse for it. What is bears' secret? According to a study at the University of Barcelona, during hibernation bears do not lose muscle tissues, only fat. ["Bears And Hibernation", 2008] This is not so in the case of other mammals.

Just as bears preserve their skeletal muscles intact through the winter months, companies should conserve their operating resources through this pandemic in preparation for better days. That means preserving their stakeholder *input structure*.

How might a company decide how much stakeholder inputs to preserve? And at what ratios? How much should each stakeholder sacrifice?

The scant information available in an annual report is not enough for us to derive with precision answers to these questions. While executives could tap their company's detailed internal data to chart a course for recovery, someone outside, desiring to form an opinion ex post whether the executives had handled the crisis posed by the pandemic effectively and equitably would have only published financial information to go by. Nonetheless, such information is usually sufficient for the limited purpose of forming an opinion about the performance of a company's executives.

For illustrative purposes we shall use the information in the British Airways 2018 annual report.

How much resources the company must conserve depends on how much business the company hopes will return when the economy recovers. And how much each stakeholder must sacrifice depends on what works best both while the pandemic is still raging as well as when business rebounds.

We shall assume, for the sake of simplicity, that British Airways expects that during the pandemic passenger revenue will decline by 50%. Revenues from cargo and other operations are expected to remain relatively stable. Taking into account that passenger revenue represented 89% of 2018 total revenue, a decline by 50% in passenger revenue translates to that revenue that is only £7,211 million, which is 55% of the 2018 total revenue. The corresponding *revenue plus* would be £7,852 million.

Let's assume that the company believes that during recovery potential passenger revenue will return to 80% of 2018 figure, and that cargo and other demands will continue to stay constant. Since passenger revenue was 89% of British Airways' 2018 total revenue, we assume that if passenger revenue is 80% of 2018, the resulting *revenue plus* (i.e. revenue plus passenger taxes and ticket taxes) will be £11,648 million. Intuitively we know that there can be many combinations of *stakeholder structure* that could give us the same *revenue plus* of £11,648 million, some with low *CES index*, some with high *CES index*. The question is, which *input structure* minimises pain to stakeholder during the pandemic and later maximises returns during the recovery phase?

Clearly trimming the company's capacity for doing business by 45% will result in maximum pain for some, if not all stakeholders. And furthermore, the company's operating capability would atrophy too much for the company to respond when recovery comes. So we shall assume that the company would reduce some purchases, negotiate for lower prices, retrench some employees, cut wages, but none of these to the full extent of 45%.

Fig 7 shows five sets of *stakeholder structure* that would deliver £11,648 million at *CES index* of 1.0. Bear in mind that what is set out here is but a hypothetical example. In reality, a company in search of an optimum structure (of resources and returns) would not stop at only five options. Besides, not every structure that theoretically can deliver £11,648 million at *CES index* of 1.0 is going to be practicable. So the company might have to trawl through twenty or more options to find a few feasible structures to choose from. Notice again that a full specification of a *stakeholder structure*, as shown in Fig 7, must include both the stakeholder *input structure* as well as the returns to stakeholder.

Stakeholder Input Structure					
Revenue at 82% of 2018	**2018 Actual As Base 1.0**				
	#1	**#2**	**#3**	**#4**	**#5**
Quantity of purchased goods and services M	**0.759**	**0.697**	**0.752**	**0.702**	**0.702**
Skills and labour, number of employees L	**0.768**	**0.870**	**0.709**	**0.889**	**0.850**
Asset service from creditors shareholders K	**0.880**	**0.885**	**0.887**	**0.890**	**0.885**
Society's infrastructures and institutions G	**0.993**	**1.080**	**1.041**	**1.065**	**1.077**
Returns To Stakeholders					
	As Fraction of *Revenue Plus* £11,627 Million				
Suppliers of purchased goods and services m	**0.462**	**0.422**	**0.439**	**0.429**	**0.423**
Employees l	**0.143**	**0.158**	**0.131**	**0.167**	**0.146**
Capital providers k	**0.261**	**0.281**	**0.291**	**0.266**	**0.291**
Society g	**0.135**	**0.139**	**0.139**	**0.138**	**0.140**

Fig 7

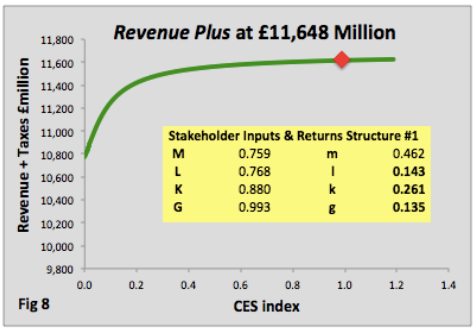
It is important to note that although the five stakeholder resources and returns structures (i.e. the five *stakeholder structures*) deliver the same *revenue plus* at the same

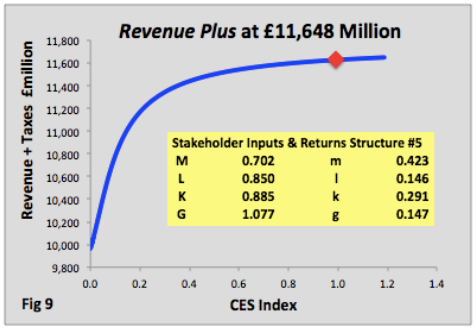
CES index of 1.0, the resources utilised are different and the returns to stakeholders are also different.

Recall that for a given *stakeholder structure*, the *revenue plus* generated depends on the company's *CES index*. The higher the *CES index*, the greater is the company's ability to generate revenue for a given *stakeholder structure*. And the corollary is, the higher the *CES index*, the greater is the returns to stakeholders as a whole.

Fig 8 plots the *revenue plus* against the *CES index* for structure #1. The red marker marks the point where the company operates at *CES index* of 1.0. A *CES index* of 1.0 implies that the company is operating at the same efficiency as 2018. The *revenue plus* at the red marker is £11,648 million.

Similarly, Fig 9 plots the *revenue plus* against the *CES index* for structure #5. The red marker marks the point where the company operates at *CES index* of 1.0. The *revenue plus* at the red marker is £11,648 million.





Since many combinations of resources and returns can generate the target recovery *revenue plus* of £11,648 million, assuming that the company continues to operate at the 2018 operational efficiency of *CES index* 1.0, the question arises, which combination should the airline choose?

Not every theoretical combinations thrown up by the CES model is practicable. Thus, many combinations would be outright discarded by the company. For example, any combination that proposes to substitute labour for assets have an obvious practical limitation in the case of an airline because no amount of extra labour can replace an aircraft. Aircrew cannot carry passengers; aircrafts carry passengers. However substituting purchased services for assets might in some cases be feasible. For example, aircrafts can be leased instead of outright ownership. So a company would trawl through many combinations to arrive at a few feasible *input structures*.

At first glance, there seems little to recommend one structure over another. All five sets of structures have the capacity to generate £11,648 million of *revenue plus* at *CES index* of 1.0. So the next question is, which structure represents the least pain to stakeholders when, during this pandemic, *revenue plus* plummets to only £7,852 million? (Recall that when passenger revenue falls to 50%, British Airways' *revenue plus* would falls to £7,852 million).

To answer this, we reconstruct the *stakeholder structure*, but this time for *revenue plus* at £7,852 million instead of £11,628 million. The resource (input) structure remains the same because that is the structure that ensures that the airline has the requisite capacity when passenger demand recovers. However the returns to each class of stakeholder as a

fraction of £7,852 million of course will be quite different from the returns as a fraction of £11,648 million.

Fig 10 shows the combinations of **M**, **L**, **K**, **G** and **m**, **l**, **k**, **g** for same five sets of *input structure* but for *revenue plus* of £7,852 million (instead of £11,648 million). In other words, the quantities of supplies, the number of employees, and annual service of assets are the same as in Fig 7. Similarly, although not shown in Fig 10, the price level of supplies and the wage level of employees have been kept the same as in Fig 7. That means, the costs of purchased goods and services and the employee expenses remain the same as in Fig 7. So naturally these expenses as a share of *revenue plus* at £7,852 million is higher compared to their shares at £11,648 million in Fig 7. And correspondingly, the returns to capital and returns to society are smaller.

Stakeholder Input Structure					
Revenue a 55% of 2018	**2018 Actual As Base 1.0**				
	#1	**#2**	**#3**	**#4**	**#5**
Quantity of purchased goods and services M	**0.759**	**0.697**	**0.752**	**0.702**	**0.702**
Skills and labour, number of employees L	**0.768**	**0.870**	**0.709**	**0.889**	**0.850**
Asset service from creditors shareholders K	**0.880**	**0.885**	**0.887**	**0.890**	**0.885**
Society's infrastructures and institutions G	**0.342**	**0.429**	**0.391**	**0.414**	**0.427**
Returns To Stakeholders					
Revenue a 55% of 2018	**As Fraction of *Revenue Plus* £7,582 Million**				
	#1	**#2**	**#3**	**#4**	**#5**
Suppliers of purchased goods and services m	**0.685**	**0.626**	**0.652**	**0.636**	**0.627**
Employees l	**0.212**	**0.234**	**0.194**	**0.248**	**0.217**
Capital providers k	**0.007**	**0.037**	**0.051**	**0.015**	**0.051**
Society g	**0.097**	**0.103**	**0.103**	**0.101**	**0.105**

Fig 10

Recall that Fig 8 and Fig 9 plotted the CES curves for the structure #1 and structure #5 (as tabulated in Fig 7) when the airline business is in the recovery phase, at which time *revenue plus* is expected to be £11,648 million. The *CES index* was 1.0 at £11,648 million, indicating that the airline would resume operating its resources at the same efficiency as in 2018, before the pandemic. How would the corresponding CES curves for structures #1 and #5 (as tabulated in Fig 10) look like during the pandemic, when *revenue plus* is £7,852 million? And at what efficiency (i.e. at what *CES index*) will the airline be operating?

Intuitively we know that an *input structure* that is suited for *revenue plus* of £11,648 would be excessive for £7,852 million. Fig 11 plots the CES curve for structure #1 of Fig10. The *CES-index* is approximately 0.2, which is significantly lower than the *CES index* of 1.0. Fig 12 plots the CES curve for structure #5 of Fig 10. The *CES index* in Fig 12 is even lower, at approximately 0.1.

In both structures, the company is temporarily sacrificing efficiency in order to preserve its ability to ramp up operations when the industry recovers.

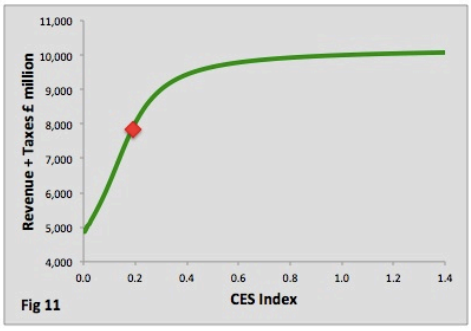


Fig 11

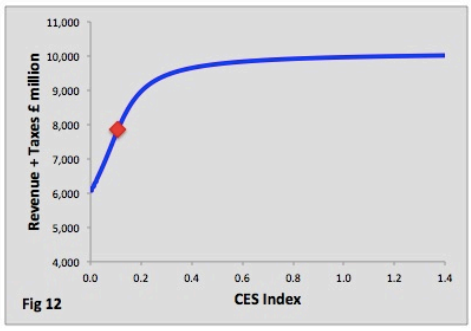


Fig 12

Earlier we saw that, when eventually business recovers at £11,648 million, there was little to recommend one set of structure over another. Does this conclusion also hold during the pandemic, when *revenue plus* is only £7,852 million? If the conclusion does not hold, which structure offers the better returns to all stakeholders?

Before we seek answers to those question, we take a detour to consider one more set of input and returns structures. Recall that in Fig 10 the same five sets of *input structures* as Fig 7 were retained. These are *input structures* that would assure the company of the requisite capacity to generate £11,648 million of *revenue plus* when the airline industry recovers. However these same set of *input structures* would mean that the company has to take losses in the meantime during the pandemic.

It is difficult for an outsider to estimate accurately what those likely losses might be. For example given the turmoil in the financial markets, we expect that most airlines would face serious losses from their hedging and other financial derivative activities. However, if we ignore any gains or losses from such financial activities, and consider only the profit or loss from the business operations, we can estimate that (during the pandemic) an *input structure* such as #1 of Fig 10 would result in a operating loss of about (£140) million.

But what if the company opted to cut costs to the bone? That is, what if, despite the dire situation that the company's stakeholders are facing, the company chooses to maximise profit (or minimise losses) instead? Fig 13 sets out an additional structure #6. In order to keep matters simple, Fig 13 contrasts structure #6 with only structure #1. Notice that the inputs **M**, **L** and **K** of structure #6 are smaller than those of structure #1, which is another way of saying that the company has cut back further on supplies and retrenched more employees and disposed some assets.

For the sake of simplicity in this exercise we shall keep the price level that the company pays for supplies and the wage level that it pays employees at the same levels as in structure #1, although in reality a company that is bent of cost cutting might just as well cut prices and wages too to achieve even higher returns to shareholders.

Stakeholder Input Structure			
Revenue a 55% of 2018	2018 Actual As Base 1.0		
	#1		#6
Quantity of purchased goods and services M	0.759		0.645
Skills and labour, number of employees L	0.768		0.653
Asset service from creditors shareholders K	0.880		0.748
Society's infrastructures and institutions G	0.342		0.492

Returns To Stakeholders			
Revenue a 55% of 2018	Fraction of Revenue Plus £7,582 Million		
	#1		#6
Suppliers of purchased goods and services m	0.685		0.582
Employees l	0.212		0.180
Capital providers k	0.007		0.123
Society g	0.097		0.114

Fig 13

Whereas structure #1 would result in an operating loss of (£140) million during the pandemic, structure #6 will deliver a profit of £825 million. Clearly a company that opts for structure #6 is opting to maximise shareholder returns. The question is; will maximising shareholder returns be at the expense of returns to other stakeholders? Are other stakeholders sacrificed to satisfy shareholder returns? How does structure #6 compare against, say, structure #1 and structure #5? Which structure offers the highest aggregate returns to stakeholders as a whole?

To answer these questions we compare the *CES index* of these three structures at *revenue plus* of £7,582 million. Fig 14 shows the CES curves for structure #1, structure #5 and structure #6.

Recall that when discussing Fig 6, we established that for any given *revenue plus*, a higher *CES index* was indicative of higher returns to stakeholders as a whole.

Since our interest is in the comparison of *CES indices*, Fig 14 is plotted with *CES index* as the vertical axis and *revenue plus* as the horizontal axis. When comparing structures #1, #5 and #6, the structure whose curve is above the others is the structure that offers the best returns to stakeholders as a whole.

Clearly, at £7,852 million, structure #1 is the best option of the three.

Notice that structure #6 has the lowest *CES index* at £7,582 million. Since structure #6 generates the highest profit for the company at £7,852, but lowest aggregate returns to stakeholder as a whole, we infer that the higher returns to shareholder has been achieved at the expense of lower returns for the other stakeholders. This is as we might expect since in structure #6 the company would have cut supplies and retrenched employees more than what is optimum at £7,852 million.

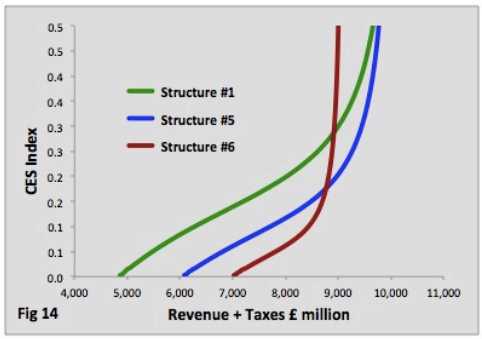


Fig 14

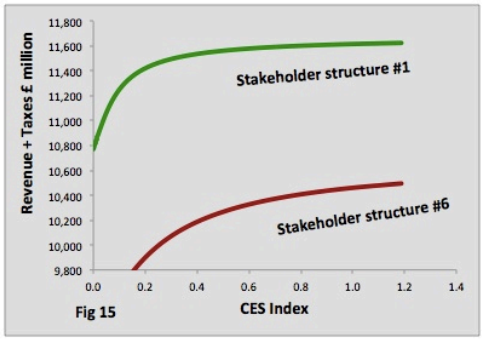


Fig 15

How do structure #1 and structure #6 compare during the recovery phase, when the potential *revenue plus* will be £11,648 million?

Fig 15 plots the CES curves of the two structures, with *CES index* on the horizontal axis and *revenue plus* on the vertical axis. Through structure #1 the company will be able generate £11,648 million *revenue plus* at *CES index* of 1.0. However, through structure #6, the company would not have sufficient operating capacity to generate £11,648 million *revenue plus*.

So, we see that cutting costs beyond what is optimum inflicts a double whammy upon the company. On the one hand some stakeholders will be inequitably sacrificed in order that shareholder profit is maximised. On the other hand, when demand for passenger flights returns, the company would not be able to meet the increased demand.

Cash Flow

At this point executives are likely counter, "Accounting for recovery is fine but the company may not survive long enough for recovery if it doesn't stem the drain on its cash flow." And they would have good company to back their view because Mohamed Aly El-Erian too wrote about the threat of liquidity problems turning into bankruptcy. [El-Erian, 2020]

Having enough cash to continue operations, service debts and settle losses arising from investing activities is always a challenging task even in the best of times. So accounting for recovery is incomplete if it gives no considerations in respect of cash flow.

Cash flow forecasts are notoriously unreliable, all the more so when undertaken using only public domain information, especially if the information is two years old.

There are three parts to a typical cash flow statement, and British Airways' cash flow statement is no exception. Fig 16 is a summary of its 2018 Cash Flow Statement, except that cash flow from investing activities has been omitted. Much would have changed in two years and it is futile to estimate the claims and obligations arising from investing activities based on 2018 results. This is especially true given the turmoil in the financial market, and in particular in the financial derivatives market. We simply bear in mind that whatever cash flow estimate we arrive at does not include cash flow from investing activities.

What might the estimated cash flow be for stakeholder structure #1 during the pandemic?

Cash Flow Statement 2018

		2018
Operating profit	2,346	
less exceptional items	394	
Operating profit b4 exceptional items		1,952
Depreciation		786
Empolyer contribution to pension net costs		-583
Working capital change		1
Net interest paid		-61
Taxation		-137
Net cash flow from operating activities		1,715
Proceeds from long term borrowings		636
Repayments of borrowings		-167
Repayment of finance leases		-558
Dividends paid		-575
Distributions to perpetual securities		-279
Net cash flow from financing activities		-943
Cash flow from operating and financing activities		772

Fig 16

Cash flow from operating activities is perhaps the least problematic part of the three to estimate. We should expect that during the pandemic, with the revenue down by 45%, cash flow from operation would surely be affected. Based on the *stakeholder structure* #1, at *revenue plus* £7,852 million, profit before exceptional item will likely register a loss of (£140) million. So taking into account some changes in working capital and after adding back non-cash expenses such as depreciation, the resulting cash flow from operating activities is likely to be £92 million (recall that cash flow from operating activities in 2018 was £1,715 million).

We shall assume that the company is unable to raise any borrowings in the debt market given the tight credit conditions in the market. And we assume that the company will not make dividend payments for the year. (A little later, we shall consider why the government should, and what it could do to alleviate the company's cash flow problem).

According to Note 27 to the Financial Statements, expected net cash flow after servicing debts, and after settling trade payables, and accounting for gains and losses from derivatives etc., the net cash flow this year will be negative at (£778) million. [British Airways PLC, 2019]

So, assuming that the company had opted to adopt a *stakeholder structure* #1, the company is looking at a potential negative cash flow in the region of (£700) million.

Based on the 2018 financial statements, the company probably is in a reasonable liquid position and should be able to ride through a period of negative cash flow and still emerge unscathed. However, should the untoward arise, should the pandemic stretch beyond a year and cash reserves are depleted, the company might find itself in need of cash injection at a time when the market is not conducive for raising funds. In that event, given the current tight market conditions, the government may be the only source of funding. In any case, government assistance in the form of patient funding might be safer than going to the market for short-term loans. That for example was just what Cathay Pacific Airways did.

On June 9 2020 the Hong Kong government announced that it was investing HK$27.3 billion in Cathay's Pacific Airways, comprising preference shares of HK$19.5 billion and a bridging loan of HK$7.8 billion. These investments were designed to help the airline

overcome the challenges brought about by the pandemic. Hong Kong is a major international aviation hub. The aviation industry underpins a wide spectrum of economic activities that contribute in aggregate 4.6% of Hong Kong's GDP. Furthermore, more than 78,000 people work in the Hong Kong International Airport alone. So shoring up Cathay Pacific Airways makes sound economic sense. Such an action puts Hong Kong in a good position for the post pandemic recovery. [The Government of the Hong Kong Special Administrative Region, 2020]

Who Owns The Company?

"*Shareholders think they own the company — they are wrong*", says John Kay. [Kay. 2015]

Shareholders are not, in the eye of the law, part owners of the company. The company is something different from the totality of the shareholdings. That this is good law was affirmed in the case Commissioners of Inland Revenue v Laird [2003] UKHL 54.

Ownership is a woolly word. Legal writers often prefer to use the metaphor "bundle of rights" or colloquially, "bundle of sticks" to describe the concept of ownership of a property. A holder of that bundle confers upon the holder a set of rights over the property. By extension, another person may hold a different bundle of rights over that same property. [Ellickson, 2011]

So for examples shares confer the holders certain rights and claims upon the company. However, they do not give shareholders any rights to enter the company's premises or to make use of the company's assets.

Similarly employees have their bundle of rights and claims upon the company, and ditto for creditors, suppliers, the tax collector and the community as a whole.

In fact the UK's company law [Companies Act 2006] quite explicitly stipulates, among other things, that directors of a company are required to give due regard to the interests of employees, the need to foster relationships with suppliers and customers, and the impact of the company's operations on the community. Thus directors may be held accountable if, contrary to these provisions in the Companies Act, the company pursues any course of action that unjustifiably sacrifices the interests of some stakeholders.

Since in the eye of the law directors, and especially executive directors, owe a duty not only to shareholders but also to other classes of stakeholders, it behoves these directors to find a way to determine whether an intended course of action would maximise returns to stakeholders as a whole, or whether it would only maximise the benefits of one class at the expense of other classes of stakeholders.

And stakeholders, although they do not have direct control over the company, would find it useful to be able to measure whether the success of the company had been promoted for the benefit of all stakeholders as a whole.

Accounting For Growth provides a tool to measure whether the company is in compliance with the company law that stipulates that due regards be given to all stakeholders as a whole.

Conclusion

Bears survive winter without water or food. Unlike humans, when deprived of sustenance bears' body burns only fat and that only sparingly. The skeletal muscles are

spared. So when spring returns, leaner but with muscles intact, bears are all prepped to forage for food.

Companies could take a leaf from the book on bear metabolism, especially during this pandemic, even as their business teeters towards almost total collapse. During a pandemic companies should only consume their cash reserves and that only sparingly. To the greatest extent possible, companies should retain their workforce and keep their supply chain intact. That is the essence of accounting for recovery.

This article demonstrated how the theory of growth accounting, familiar to economists, could be adapted for the purpose of navigating a company through the pandemic towards eventual recovery. The article showed how one could evaluate whether a company had been accounting for recovery.

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