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## How to Align the Value Creation Factors on the Rubik's Cube: Techniques to Excel in Value Chain Analysis

By Steef Huibregtse and Ying van Galen Wang\*

China has made significant contributions in driving forward the roll-out of the G20/OECD BEPS actions. In the last two years, with the release of Bulletin 42 on transfer pricing documentation,<sup>1</sup> Bulletin 64 on advance pricing arrangements,<sup>2</sup> and Bulletin 6 on further developing its transfer pricing regime<sup>3</sup> by the State Administration of Taxation (SAT), China has en-

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\* Steef Huibregtse is managing partner and chief executive officer with TPA Global, and Ying van Galen Wang is a director with the firm. Both are based in Amsterdam, The Netherlands.

<sup>1</sup> Bulletin 42 was issued by the SAT on June 30, 2016, and it is mainly focused on filing of related-party transactions and administration of contemporaneous transfer pricing documentation.

<sup>2</sup> Bulletin 64 was issued by the SAT on October 11, 2016, and it is mainly focused on refining the administration of advanced pricing arrangements.

<sup>3</sup> Bulletin 6, issued by the SAT on March 7, 2017, is mainly fo-

### WHAT IS A VALUE CHAIN ANALYSIS?

Before introducing three VCA techniques, one needs to understand what VCA is about. Value chain is a tool to identify the features of relationships among companies in a group, as noted by the OECD

tered into a new era for combating base erosion and profit shifting through transfer pricing. Value chain analysis (VCA) has become a focal point with respect to transfer pricing compliance for many multinational enterprises in China. In fact, Bulletin 42 requires multinationals to perform a comprehensive value-chain analysis and include it in the transfer pricing local file documentation as of January 1, 2016.

Many MNEs would like to know how to conduct a proper VCA. What are the techniques MNEs need to know and how do they use them? Performing a VCA is like solving a Rubik's cube puzzle, where you need to match a couple of different colors and sides simultaneously. Our experience is that the value created by group entities of a multinational in the global value chain are embedded in various operational and technical processes. During the process of conducting a VCA, one should take full account of each factor that drives value creation. Only considering one side without a view of the whole can create disruptions in other sides and corrupt the overall outcomes. In the post-BEPS environment, a multinational company's transfer pricing documents must be consistent with its business model and, therefore, each value creation driver must align with the actual profit allocation. Otherwise, tax authorities can identify tax/transfer pricing leakages from the different angles of the Rubik's cube.

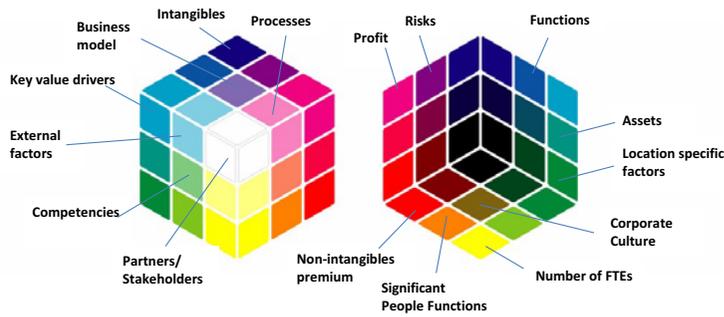
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cused on further developing China's transfer pricing regime.

in the latest profit splits draft:<sup>4</sup> "All business operations can be expressed through a value chain and

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<sup>4</sup> OECD/G20 BEPS Action 8–10: Revised Guidance on Profit Splits, July 4–Sept. 5, 2016. ¶24.

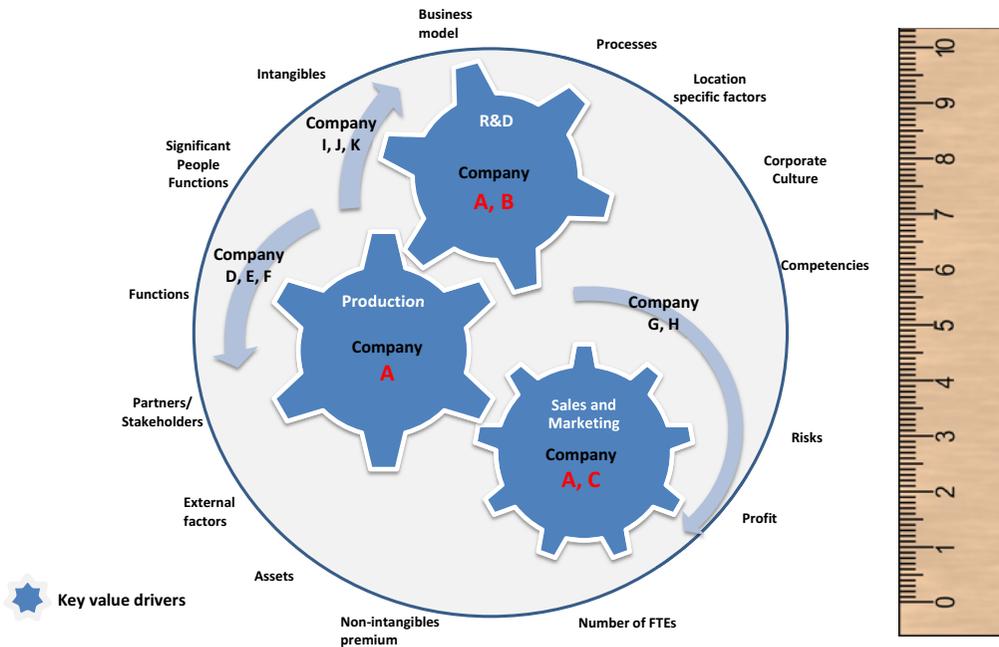


Source: Diagram shown above is for illustrative purposes only. TPA Global.

many MNE groups operate through a global value chain.”

VCA is an end-to-end type of analysis of a multinational group’s business activities. It provides a holistic view on how all the business activities interact with each other, how value is created and how profit is allocated among group entities in the global value chain.

A VCA reflects the key value drivers for an MNE’s business, sector, or line of activity and identifies the relative contributions to the value-creation process. A VCA is based on the assumption that the basic purpose of a business is to provide or create value for users of its products and services. VCA can be used to set transfer prices, test the actual results of intercompany transactions, and determine the contribution of a group’s companies to the overall value chain.



Source: Diagram shown above is for illustrative purposes only. TPA Global.

Based on our years of practical experience in analyzing MNEs’ value chains, we suggest the following three techniques that allow MNEs to use one or more techniques for analyzing the global value chain of which a China entity is a part.

### VCA TECHNIQUE 1: ALIGNMENT OF FINANCIAL RATIOS VS. FTE RATIOS

The first practical technique is to assess whether the following four financial ratios are aligned in terms of

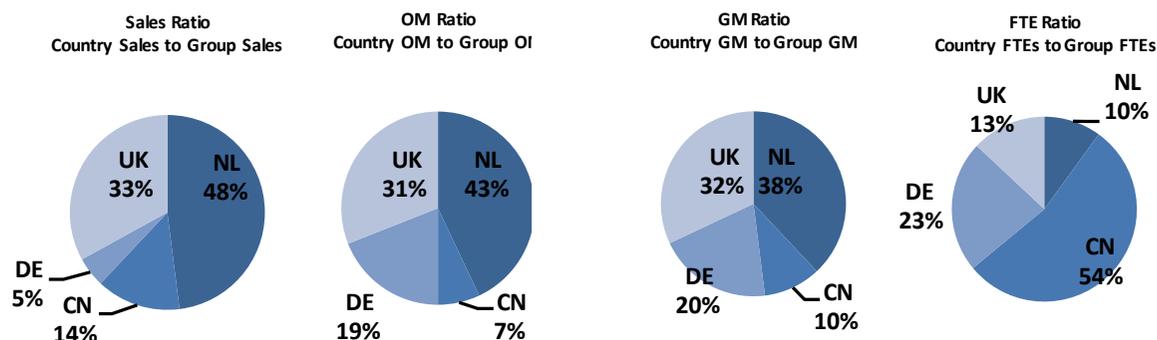
a Chinese entity, in order to analyze value created by various companies in the group:<sup>5</sup>

- Sales of entity to total group sales (Sales ratio)

<sup>5</sup> A similar approach is also reflected in the *BEPS Action 13 Country-by-Country Reporting — Handbook on Effective Tax Risk Assessment*, issued by the OECD in September 2017. This handbook recommended that tax authorities use 19 tax risk indicators and provided guidance to identify tax risks using information contained in the Country-by-Country Report.

- Operating margin (OM) of entity to total group OM (OM ratio)
- Gross margin (GM) of entity to total group GM
- FTEs<sup>6</sup> of entity to total group FTEs (FTE ratio).

<sup>6</sup> Full-time equivalent.



The pie charts indicate a group with Netherlands operations — only 10% in terms of FTE ratio — earning 43% of total OM and 38% of total GM, and conversely China FTEs — 54% of the total — corresponding to only 7% of the OM and 10% of the GM. Assuming number of FTEs would be the only factor to allocate profits, misalignments should be explained to a variety of stakeholders (e.g., tax authorities).

Thus, the MNE should include an explanation (derived from conducting a value chain analysis) of such circumstances in its tax/transfer pricing documentation(s) and returns.

## Case Study

XYZ Group is one of the world’s leading e-commerce MNEs. The parent company is located in China, and there are operations in Hong Kong, the

The pie charts below represent potential misalignments among the four ratios. Looking at the Chinese group entity’s Sales-to-OM-to-GM ratio vs. its FTE ratio, the greater the allocation differs per variable, the more explanation the tax authority would require.

Cayman Islands, and other countries around the world. Below we will analyze XYZ’s global value chain for FY 2016 using the VCA technique 1 described above.

Assume that XYZ Group’s total earnings before interest and tax (EBIT) in FY 2016 is approximately \$4 billion and that the entire group employed 30,000 employees during the fiscal year. This means that approximately \$133,000 EBIT per employee is reported.

Assuming XYZ China employs 20,000 FTEs during FY 2016, this would indicate that these employees should create approximately \$2.7 billion of EBIT per year. Assuming Hong Kong, the Cayman Islands, and other countries’ employees number 1,000, 10, and 8,990, respectively, in FY 2016, the corresponding EBIT allocation for each region/country can be roughly calculated as follows:

	Consolidated	China	Hong Kong	Cayman	Other
EBIT (\$'000)	\$4,000,000	\$2,666,667	\$133,333	\$1,333	\$1,198,667
Number of FTEs	30,000	20,000	1,000	10	8,990
EBIT/per FTE (\$'000)	\$133				
<b>Allocation of EBIT (rounded)</b>		<b>67%</b>	<b>3%</b>	<b>0%</b>	<b>30%</b>

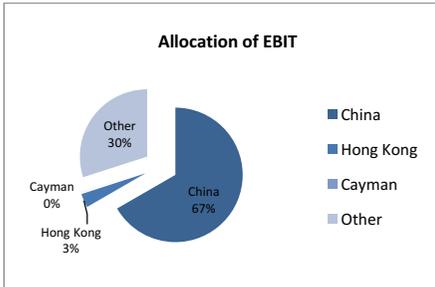
Source: Table and numbers shown above are for illustrative purposes only. TPA Global.

## Pros

This technique is straightforward to use. As each ratio captures different aspects of the business/financial risk, none of them alone can reflect the business/financial risk of an entity in its entirety, and thus this technique provides a collective analysis to take a holistic view of the business/financial health of an entity.

## Cons

The downsides to using this technique are that the relevant weight of functions, risks, and assets cannot be reflected, and intangibles involved or location-specific factors are not considered and reflected when making such a comparison. For example, the 54% of FTE ratio may imply that the Chinese entity is a toll manufacturer performing routine types of functions



Source: Pie chart shown above is for illustrative purposes only. TPA Global. and risks, that it does not own any intangible assets and, therefore, that it has sound economic arguments why its OM is 7%.

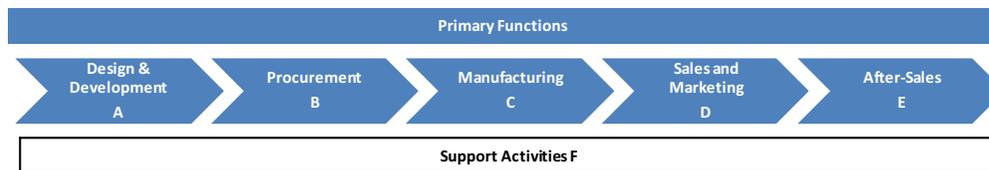
In addition, other external influences such as political, economic, sociocultural, technological, environmental and legal factors are not being considered in this analysis.

## VCA TECHNIQUE 2: PORTER'S VCA MODEL

The second technique is based on Michel Porter's VCA model,<sup>7</sup> in which Porter proposed a generic VCA model that the multinational can use to evaluate their value chain from a holistic view.

We have further developed Porter's model and added certain features in light of the OECD BEPS Actions 8–10 and the specific requirement of Bulletin 42. As such, this technique can be illustrated as below:

<sup>7</sup> Michel Porter discussed his value chain model in his 1988 book *Competitive Advantage*, in which he first introduced the concept of the value chain.



	A	B	C	D	E	F
People Function	5%	30%	20%	10%	15%	20%
Significant People Function	1	1	2	4		
Risks	High	Medium	High	High	Low	Low
Assets	Tangible assets, Technology intangibles		Tangible assets, Technology intangibles	Marketing intangibles		
Non-Intangibles Premium	Assembled workforce	Centralized procurement synergy	Location savings	Market premium/ Consumer preference		

Source: Diagram shown above is for illustrative purposes only. TPA Global.

To perform a value chain analysis using this technique, the MNE needs to perform the following steps:

- Identify the primary functions and the support functions on the global value chain, taking into account the people function and significant people function (SPF) contributing to the business of the MNE group.
- Conduct a detailed functional analysis taking into account the following aspects:
  - functions performed;
  - risk assumed (taking into account the specific industry and the business model);
  - assets used: tangible assets and DEMPE (development, enhancement, maintenance, protection, and exploitation) of intangible.

- Identify the non-intangibles premium — e.g., group synergies, location savings, etc. — per each primary and support function.
- Assess the responsibility profile of each group entity and identify where the value is created by each group entity.
- Based on the outcome of the assessment above, allocate the appropriate profit to the group entities.

## Case Study

The Australian Inland Revenue Department (ATO) in 2017 introduced a self-rating procedure for transfer pricing risks under the centralized operating model

(principal model). Multinationals can rank and test their group transfer pricing risks based on the six risk-rating frameworks introduced by the ATO.

The ATO addresses transfer pricing risks in relation to functional profile and economic substance (see Appendix 1) for taxpayers to respond to, in order to test whether the taxpayer's underlying economics of its business model is aligned with the allocation of profits. The ATO indicated that the documents to be submitted by multinationals should not be just a narrative document, but should include in addition to a global value chain description, and the supporting documentation, such as audit statements, annual reports, job descriptions, KPIs, and cost/benefit test analysis.

Now we will use the above XYZ Group as an example to rate its relevant transfer pricing risks profile. Assume that the Hong Kong company is the principal company, acting as a sales entrepreneur for the group toward third-party customers. The sales in the local Australian market are made through the Hong Kong principal company. The Australian subsidiary acts only as a sales and marketing support company to provide relevant support to the Hong Kong principal. Based on the ATO's requirement, this situation requires the multinational to perform its own risk rating for the Australian subsidiary.

Assuming the Hong Kong's marketing revenue in FY 2016 is \$1.5 million and its operating expenses are \$300,000, its EBIT should be \$1.2 million. See the table below. In this case, the EBIT of the Hong Kong company would be 400% greater than its operating expenses. Based on the ATO's self-rating procedure, the Australian subsidiary will be included in the risk category for further investigation.

Item (FY 2016)	USD ('000)
<b>Marketing revenue</b>	<b>1,500</b>
Salary	250
Rent	50
<b>Total cost (A)</b>	<b>300</b>
<b>EBIT (B)</b>	<b>1,200</b>
<b>Effective mark-up above cost (B)/(A)</b>	<b>1,200 / 300 = 400%</b>

*Source: Table and numbers shown above are for illustrative purposes only. TPA Global.*

The ATO's self-rating procedure for transfer pricing risks can be considered as a disguised value chain analysis, as in Porter's model. Multinationals should

conduct a comprehensive assessment of their own value chain to increase their awareness and identify problems, and implement timely improvements insofar as their operating model, their governance model, and their finance/tax model are not synchronized.

### Pros

The biggest plus to using this technique is that it helps to easily carve out routine functions in the global value chain. In addition, the primary functions, risks, and assets — including the management of tangibles and intangibles and non-intangible premium (e.g., synergies, location savings and assembled workforce) — are covered and analyzed. The technique provides a holistic and transparent view of the multinational group's value chain and where the value is created from functions, risks, assets, and people's perspective.

### Cons

The cons are that the technique does not apply to analyzing fully integrated businesses, and it fails to account for the value proposition of the group's key value drivers to the group's value creation, and the specific key business processes that support and contribute to key value drivers.

In addition, other external influences — such as political, economic, socio-cultural, technological, environmental, and legal factors affecting value creation — are not considered in this analysis.

## VCA TECHNIQUE 3: PROCESS CONTRIBUTION ANALYSIS

For some highly integrated businesses with diverse functions carried out by various group entities across organizational boundaries, these functions may carry interdependencies between the local activities. For example, the separation into different group companies of production, logistics, warehousing, marketing, and sales functions may require considerable coordination in order to make the separate activities interact effectively. In this case, the MNE could consider using a process contribution analysis to reflect the value contribution of key business processes performed by primary functional units to the key value drivers.

The following table illustrates how to analyze the value chain by using this technique:

(A) Key value drivers	Weighting of key value drivers (EBIT)	(B) Key Processes	(C) Weighting of primary functions (units)				
			Design and dev.	Procurement	Mfg.	Sales and mktg.	HQ
1. Product innovation	35%	Research and development	X				x
		Testing and management	X		x		
2. Sourcing	15%	Vendor identification		X			
		Contract negotiation		X			
3. Supply chain management	30%	Production scheduling			X		
		Quality control			X	x	
4. Sales strategy	20%	Establishment of sales strategy				X	x
		Contract negotiation				X	
Score (C)			4	4	5	5	2
Weighting of (A) multiplied by Score (C)			1.4	0.6	1.6	1.1	0.6
(A) x (C) = % of EBIT			27%	11%	30%	21%	11%

Source: Table and numbers shown above are for illustrative purposes only. TPA Global.

Legend: X = 2; x = 1

The value contribution of the primary functions in the value chain can be calculated as per the following formula:

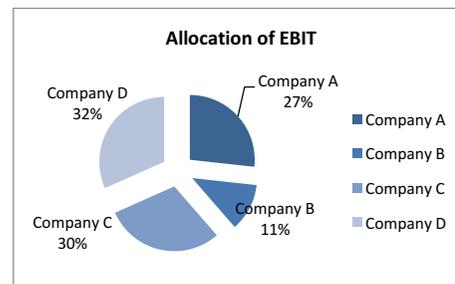
**【Key value driver weight % \* Primary function weights】**

## Case Study

Assuming that ABCD group has four companies located in four different countries, the appropriate profit allocation can be calculated as follows:

- Company A: Involved in product innovation functions only, the profit allocation should be 27%.
- Company B: Involved in sourcing functions only, the profit allocation should be 11%.
- Company C: Involved in manufacturing functions only, the profit allocation should be 30%.
- Company D: Involved in sales and HQ functions, the profit allocation should be 21% + 11% = 32%.

The following pie chart illustrates the respective profit allocation among the four group companies:



Source: Pie chart shown above is for illustrative purposes only. TPA Global.

To conduct a VCA using this technique, we suggest the following steps:

1. Determine (A) the key value drivers contributing to the value chain;
2. Attribute relevant weights to each key value driver in percentage terms;
3. Determine (B) the key business processes supporting each key value driver in the value chain;
4. Identify (C) primary functions (units) in the value chain;
5. Weight each primary function per each key process (by using points), considering significant people functions;
6. Based on the weights, calculate value creation per each primary function in percentage terms;
7. Allocate profit according to the percentage.

The outcome of the above analysis can be used to supplement or further verify the results of other analysis performed, for example the Porter type's value chain analysis (see VCA technique 2).

## Pros

This technique combines the key value drivers and the key processes with the primary functions (units) in the value chain, taking into account the value created by “significant people functions,” to quantify the value creation contributed by group companies. It provides a more detailed analysis for MNEs with a high degree of integration and a wide range of functions and business processes.

## Cons

The weighting can be extremely subjective when a multinational provides its view on the importance of the primary functions performed by each business unit. The more cross-checking of facts and weightings with empirical evidence from the market place with respect to the division of functions and business processes performed by the group companies in the value chain, the more objective the analysis will be.

Other external influences — such as political, economic, sociocultural, technological, environmental,

and legal factors affecting value creation — are not considered in this analysis.

## CONCLUSION

Analyzing a multinational’s value chain is like solving a Rubik’s cube; each small piece of color represents a value created by one or more of the group companies. An appropriate outcome of a value chain analysis would be a sound alignment between value creation, economic activities, and allocation of profits.

A multinational can consider using one or more of the techniques recommended above to obtain a comprehensive result and holistic view of its global value chain. To summarize the elements of the three VCA techniques, we suggest that multinationals follow the checklist below to analyze their global value chains.

Step	Description	✓
1	Conduct a detailed industry analysis taking into account the external influences on value creation.	
2	Conduct a detailed functional analysis by interviewing relevant personnel and mapping the functions performed, risk assumed (including the specific industry and the business model), and assets used (tangibles and intangibles) with value creation.	
3	Identify the key value drivers of the group and key processes supporting the key value drivers.	
4	Qualitatively evaluate the contributions made by each group unit/entity.	
5	Quantitatively evaluate contributions made by each group unit in percentage.	
6	Review other factors that may have an impact on value creation (such as significant people function, group synergies, purchasing power, location advantage) and allocation of profit.	
7	Based on the outcome of the assessment above, allocate the appropriate profit to the group entities.	

In the post-BEPS environment, multinational companies’ transfer pricing documents must be consistent with their business models and the conduct of the people surrounding such businesses. Each element and allocation of value creation must align with the actual profit allocation. Otherwise, tax authorities can identify tax/transfer pricing leakages from many different angles of the Rubik’s cube. The VCAs support multinationals not only in complying with local and international regulations, but also in creating a better understanding of their internal operational issues. A VCA provides a comprehensive, transparent tax/transfer pricing view for both the MNE itself and multiple tax authorities.

## APPENDIX 1

The following questions are suggested by the ATO to taxpayers to consider when conducting their transfer pricing analysis in order to identify potential risks.

### A. Commerciality of the hub

1. What are the arm’s length commercial and financial relations with respect to the particular hub arrangement?

2. In arrangements between independent parties dealing wholly independently, how is the pricing determined, say on a cargo-by-cargo basis for marketing hubs, or on a product-by-product basis for procurement hubs?
3. What is the economic substance and commercial purpose of a separate and/or centralised hub (that is, an entity separated from the principal production entity or the manufacturer as a user of hub-procured goods)?
4. What is the evidence these activities add value to the global value chain?
5. Is there evidence of increased sales prices or volumes; or specific synergistic or other benefits to the global group, directly attributable to the activities of the hub?
6. Is there evidence of “market conduct” that resembles the structure of the arrangement between the associated enterprises?

### B. Functions of the hub

1. What evidence is there to substantiate that key decision making is occurring in the hub?

2. Where functions have been transferred from Australia to an offshore hub, what is the evidence that those functions are no longer physically performed in Australia?
3. Does the hub perform activity for related-party and third-party interests of the underlying joint venture production asset(s)?

**C. Evidence regarding the risks assumed by the hub**

1. What is the evidence that support which risks are economically significant to the value chain?
2. What is the nature of the risk borne in substance by the hub?
3. What evidence is there to substantiate the cost and consequence of the risk, together with the ability of the hub to control or manage as well as bear the financial consequences of the risk?
4. What evidence is there by way of specific documentation (for example, international agreement) and/or commercial conduct of the effective transfer of risk?
5. What is the evidence that the hub has the financial capacity to bear the risks that it is purported to bear (excluding the ability to call on the financial resources of other members of the group)?
6. Where commodity or financial markets increase or decrease substantially, what is the evidence that the financial outcomes of those movements align with an arm's length allocation of risks under the arrangement?

**D. Commerciality/arm's length nature of the pricing arrangements**

1. Based on the analysis of the legal form and the economic substance, does the profit accruing in

the hub reflect the true economic contribution made by this part of the global business?

2. If there is evidence of "market conduct" that resembles the structure of the arrangement between the associated enterprises, is there other evidence that demonstrates the profit outcomes are appropriate in the specific circumstances of the associated enterprises?
3. When profits in the hub are measured, can they be reconciled with reference to profit outcomes observed in other similar independent entities with reference to a range of profit level indicators (PLIs) (that is, those based on sales; operating costs; operating assets)?
4. If one or more of the PLIs cannot be reconciled having regard to open market outcomes, what evidence explains the reason for the divergence?
5. If a range of results has been identified, what is the most appropriate point in the range and why? To what extent have the comparables been adjusted for identifiable differences such as economic cycle, product or commodity volume, market price and other conditions that typically would be, or would reasonably be expected to be, considered by arm's length parties in determining the arm's length conditions?
6. What is the evidence that shows regular review of the price setting mechanism to ensure ongoing compliance with the statutory test?
7. Is there any evidence that the benefits of the arrangement to the Australian entity exceed the costs of the arrangement, for example versus a decision to "in-source" the function?