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Comparability adjustments

From the editor

The two articles reprinted in this special edition of *Transfer Pricing International Journal*, which examine Comparability Adjustments from an economist's viewpoint and provide helpful case studies, were first published in July 2013 and March 2014.

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Comparability adjustments...

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...in the absence of suitable local comparables in emerging and developing economies

One of the oft-encountered problems in the application of profit-based methods is the lack of reliable data for independent companies operating in the same country or economic region as that of the dependent tested party. This problem may manifest itself in some of the smaller developed countries, but is particularly acute in most of the emerging/developing economies.[1]

The apparent lack of comparables in developing countries recently rose to prominence by taking a spot in the agenda of the G8 summit held in June 2013. The preamble to the summit communiqué states:

> "The ability of tax administrations to compare relevant price information across jurisdictions is essential for the effective operation of transfer pricing rules, and a lack of data on comparable transactions is a significant issue for effective tax collection, particularly in developing countries. We ask the OECD to find ways to address the concerns expressed by developing countries on the quality and availability of the information on comparable transactions that is needed to administer transfer pricing effectively."[2]

The lack of local comparables is often addressed by practitioners by using suitable comparables from other jurisdictions. Yet, when such comparables come from countries with significantly different economic conditions than the country of the tested party, some adjustments to account for these differences are called for. This series of two articles explores the options of improving comparability in cases where non-domestic comparables are used. The first article of the series presents theoretical approaches, while the second article (to be published later in 2013) will provide practical application and examples.

The rest of the article is organised as follows: section l provides an overview of existing guidelines and literature on adjustments for economic differences; section ll illustrates the need for economic circumstances adjustments and identifies those areas where differences in economic circumstances have a large impact on companies' profit patterns and can be reliably adjusted for. This section also provides descrip-

tions of some of the applicable economic adjustments. The last section concludes.

I. Principles and guidelines

A number of economic factors can contribute to differences in risk profile and cost structures, and, consequently, influence profit margins of companies. When considering companies operating in different locations, the following factors may influence the return that a company would expect to earn: degree of competition, political risk exposure, credit market conditions (in particular, the risk of default), access to borrowing, consumer purchasing power, regulatory differences, location specific costs of production, economic condition in the industry, level of inflation, exchange rate fluctuations, differences in payment terms, and other business and market-related risks. These differences in economic conditions, if material, are likely to affect the margins that companies earn in different geographies and hence affect the arm's length range computed, thus justifying the need for appropriate adjustments.

When selecting comparable companies, both the OECD and the UN Guidelines recognise five comparability factors, as follows:

- characteristics of the property or service transferred,
- functions performed by the parties taking into account assets employed and risks assumed, in short referred to as the "functional analysis",
- contractual terms,
- economic circumstances, and
- business strategies pursued.

While putting considerable emphasis on comparability,[3] the OECD and the UN Guidelines provide that domestic comparables are generally preferred but both seem to allow for the use of non-domestic comparables in the absence of local comparables.[4] The OECD Transfer Pricing Guidelines point out that non-domestic comparables should not automatically be rejected merely because they are from another tax ju-

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risdiction.[5] The OECD Guidelines further recommend that when independent transactions are scarce in certain markets and industries a pragmatic approach needs to be developed on a case-by-case basis.

The UN Guidelines express a preference for uncontrolled comparables to be derived from the geographic market in which the controlled taxpayer operates since there may be significant differences in economic conditions between different markets.[6] However, if information from the local market is not available, an uncontrolled comparable derived from a different geographical market may be considered if it can be determined that:

i. there are no material differences between the two markets that would affect the price or profit of the transaction or

ii. reasonably reliable adjustments can be made to account for such material differences between the two markets.

In transfer pricing practice, the use of non-domestic comparables is generally well accepted; for instance, pan-European samples have become a standard for most Multinational Enterprises (MNEs) to reduce compliance costs (and avoid the cost of searching for separate local comparables samples). While some tax authorities may insist on an exclusive use of domestic comparables, many do accept non-domestic comparables in certain circumstances. For example, Chinese tax authorities have been known to accept pan-Asian comparables samples in the absence of Chinese publicly listed comparables, preferring the pan-Asian sets of publicly listed companies to the sets of private Chinese comparables, whose financial data are viewed as not sufficiently reliable.

The underlying economic rationale for using regional comparables in the absence of suitable domestic comparables is that certain geographical regions, such as the European Union, have economic similarities. In the absence of suitable companies in closely comparable regions, one option is to carry out an expanded geographical search – the advantage being availability of a larger number of potentially comparable companies, but with the possible disadvantage of substantial inter-regional economic differences. These differences may affect the margins that companies earn in different geographies and hence reduce the reliability of the arm's length range computed.

The following section discusses various adjustments for economic circumstances that aim at improving the reliability of the results obtained from a non-domestic comparables' search. The analytical framework for these adjustments envisions reliably constructing an arm's length range for the tested party located in Country X based on evidence from comparables located in a different country (say, Country Y). This requires adjusting for the differences between the two countries that might affect the results so that the comparables from Country Y would reflect the outcome that would have been achieved had they been located in Country X. These adjustments require, in principle, an assessment of the market and competitive conditions in both countries and finally arriving at the conclusion that the inferences drawn from Country X can reasonably be applied to the comparables from Country Y.

II. Overview of typical economic circumstances adjustments

It is important to recognise the fact that there is no universally accepted method for comparability adjustment when non-domestic comparables are being used[7]. Moreover, most statistical methods used to increase comparability will have their own limitations. Therefore, adjustment for geographic differences must be made carefully and only if reasonable and accurate adjustments can be made to increase the reliability of the results. There is a range of possible adjustments that can be undertaken to increase comparability between a foreign comparable and the tested party. The issue at stake when deciding on a comparability adjustment is not whether it is new or has been used before, but whether it reliably improves the comparability of the adjusted data. In the rest of this article we will discuss the following comparability adjustments:

- cost of capital adjustment
- working capital intensity adjustment
- other adjustments.

A. Cost of capital adjustment

When suitable local third-party evidence is not available and non-domestic comparables are used, adjustments must be performed to appropriately account for differences in operating conditions between the tested party and the comparables. For example, ease of access to credit markets, interest rates, stock market volatility, market risk, level of inflation, tax rates etc. usually differ across countries and hence the cost of capital also varies across countries. In case there are significant difference in cost of capital, margins observed for the comparables in a non-domestic location will not appropriately reflect those that can be expected for the tested party. A country cost of capital adjustment is thus required to account for the fact that a comparable company is based in a different country than the tested party.[8] To adjust for the difference in cost of capital, one needs to understand how such differences would impact the return that a rational investor would expect to earn if he/she were to invest in a particular location rather than another.

The definition of Return on Capital Employed (ROCE) is as follows:

$$\text{ROCE} = \frac{\text{Operating Profit}}{\text{Capital Employed}} \quad (1)$$

In competitive markets, companies may generate returns that are either above or below their cost of capital, in the short-run. However, in the long-run equilibrium, excess profits will be reduced to zero due to competition and companies earning less than their cost of capital will be driven out of business. Hence, in the long-run companies must earn their cost of capital. Thus in the long run the following condition holds:

$$\text{ROCE} = \text{WACC}^{[9]} \quad (2)$$

This implies,

$$\text{Operating Profit} = \text{WACC} \times \text{Capital Employed} \quad (3)$$

Consequently, the cost of capital adjustment is the following:

$$\Delta OperatingProfit = \frac{(WACC_{TestedParty} - WACC_{Comparable})}{\text{x Capital Employed}} \quad (4)$$

In general, the cost of capital varies not only across countries but also over time and the cost of capital adjustment captures both. The cost of capital adjustment also accounts for differences in capital structure between the tested party and the comparable companies. Moreover, the risk premium embedded in WACC typically encompasses the risks associated with a particular investment including political risk, credit risk, and other business and market specific risks. In fact, another way of understanding the cost of capital adjustment is to view it as a long-run no-arbitrage condition. The cost of capital adjustment operates on the presumption that the economic profit earned by companies is determined by their cost of capital on the *ex ante* basis, i.e., assuming no exogenous shocks to profitability take place.

It is important to note that the cost of capital adjustment can be used not only in conjunction with the balance-sheet-based PLIs[10] such as Return on Capital Employed but also with the income-statement-based PLIs such as Return on Sales, Return on Total Costs, etc. The operating profit measure in every PLI has to be adjusted by the factor computed per formula (4) above.

As noted above, the basic underlying assumption for the cost of capital adjustment is that in the long-run routine returns earned by companies are expected to cover the cost of capital. Hence, if returns of comparables from a country with lower cost of capital, which implies a low risk economic environment, are adjusted to a country with higher cost of capital (usually, an emerging/ developing economy), the adjusted profitability range will mechanically shift up. This result is consistent with basic finance theory of risk-return trade-off which implies that an investor investing in a riskier investment would *ex ante* expect a higher return. However, in higher-risk countries there is also a higher probability to both lose and gain more. Also, the actual returns observed in the short-run in such economies, depending on the economic conditions, can be higher or lower than the level implied by the cost of capital adjustment. Thus, one shortcoming of the cost of capital adjustment discussed above is that it does not take into account such volatility of market outcomes i.e. it does not widen the range of comparables' profitability observed in developed markets but only shifts it up.[11]

One can thus argue that a more appropriate adjustment technique should widen the range as well as move up the median when the target country has a higher level of risk than the country where the comparables are located. One example of such an adjustment can be found in the article by Stephen Curtis and Jean Francois Ruhashyankiko[12] which shows that under the assumption that comparables' returns are normally distributed, adjustments can be made to the standard deviation of the outcomes to widen the range of the comparables profitability results. Such an adjustment would complement the cost of capital adjustment discussed above and ensure that increased risk will be reflected in increased standard deviations and larger predicted inter-quartile ranges. However, the main drawback of this approach is that comparables' returns may not be normally distributed – this is most often the case when only a few comparables are used.

B. Working capital intensity adjustments

When non-domestic comparables are used, it is likely that the working capital intensity of the tested party located in emerging/developing economies will be significantly different from that of the comparables located elsewhere (e.g., in developed countries) due to differences in business environments. Such differences may include disparities in interest rates for the short term debt, differences in credit terms, and credit risks of typical business borrowers.

Thus, to improve comparability, it is important to adjust the working capital of the comparables and, if necessary, the tested party to the same terms (i.e., number of days outstanding for payables, receivables, and inventory) using interest rates that appropriately incorporate the above risks.

> " Differences in accounting practices among countries still remain "

C. Other adjustments

When non-domestic comparables are being selected, a potentially wide range of other adjustments have to be evaluated to improve comparability with the domestic tested party. The potential comparability issues that need to be considered include location savings, effects of fluctuations in foreign exchange rates, differences in regulatory regimes, local economic conditions, and specifics of the local accounting practices. These types of adjustments must be applied on a case-by-case basis depending on the specific differences between the geography in which the tested party operates and where the comparables are located. Some of such adjustments are described below.[13]

1. Accounting adjustments

Despite the ever-broadening adoption of uniform accounting standards such as IFRS by different countries, differences in accounting practices among countries still remain. Hence, it is important to investigate whether the differences in the accounting standards between the country where the tested party is located and the countries of the comparables will materially affect the reliability of the benchmarking analysis. Material differences in accounting standards

and practices between the tested party and third-party comparables may lead to measurement errors, unless appropriate adjustments are made. In some cases, the differences in accounting standards, such as the lack of a clear distinction between direct costs and indirect costs, may justify the usage of net-margin-based method rather than a gross-margin-based method. However, even when using the net-margin-based method, such as TNMM,[14] some accounting differences may still impact comparability, such as different depreciation periods or treatment of employee's stock options, which affect the operating profit. In some situations, it might be impossible to identify all the differences in accounting standards and accordingly adjust third-party accounts in foreign countries on the basis of publicly available information. This, clearly, is a weakness of the comparability analysis involving data from different countries.

2. Economic cycle adjustment

The impact of the Great Recession of 2008, although significant, varied greatly across industries and countries. Thus, care must be exercised while considering such global economic impact, as the market behaviour in the country of the tested party and in the country of the potential comparable (if different from the tested party's) could be significantly different. For example during the meltdown of the global economy in 2008-2009, some of the banks and automobile companies reported substantial domestic losses, yet managed to earn profits in emerging/developing economies. The adjustment that accounts for differences in the magnitude of impact of an economic crisis on different economies could take a form of a regression analysis.[15] The reliability of such an approach depends largely on the number of observations, and the quality of the underlying data.

III. Conclusion

This article provides guidance on how to carry out necessary adjustments when non-domestic comparables are used due to the lack of local comparables (or lack of reliable data for the local companies). The second article of the series (to be published later this year) will provide practical application and examples.

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NOTES

[1] While we acknowledge that the existence and reliability of domestic comparables may vary from one country to the other, the article intends to be rather generic as opposed to focusing on a specific region or group of countries.

[2] "G-8 Leaders Communiqué" by Lough Erne, White House Press Releases and Documents, June 2013.

[3] Paragraph 1.36 of the OECD Guidelines and Paragraph 5.1.1. of the U.N. Transfer Pricing Guidelines.

[4] UN.Transfer Pricing Guidelines, Paragraph 5.3.4.12.

[5] OECD Transfer Pricing Guidelines, Paragraph 3.35.

[6] UN Transfer Pricing Guidelines, Paragraph 5.3.2.4.4.

[7] There is also no consensus among tax authorities in different countries about the reliability of different comparability adjustments. For example, according to the country-specific section of the U.N. Guidelines drafted by the Indian representatives (Chapter 10), the Indian revenue authorities are sceptical about using the Capital Asset Pricing Model (CAPM) for undertaking risk adjustments.

[8] The article "Adjusting for Differences in Risk Levels Between Tested Parties and Comparable Firms", by P. Urken, A. J. Barbera, and J. D. Cole (Transfer Pricing Report, May 2003) discusses how an adjustment in the cost of capital through stock's beta as captured in cost of equity can be used to adjust for risk between the tested party and the comparable companies. Another article "An Econometric Adjustment for Risk", by S. L. Curtis, C. Marriott, and I. Nutsubidze (Transfer Pricing Report, May 2010) shows that the level of risk borne by the companies is a significant factor affecting their returns. Therefore, comparables should be selected based on the risk they bear vis-à-vis the tested party. The cost of capital adjustment proposed in our article accounts for inter-regional differences in cost of debt, risk free rate, equity risk premium, tax rate, and level of financial leverage and, potentially, may also account for differences in systematic risk between the tested party and the comparable companies if the comparables are publicly traded and the betas of their stocks are known.

[9] WACC stands for "Weighted Average Cost of Capital".

[10] PLI stands for "Profit Level Indicator".

[11] In fact, the interquartile range after the cost of capital adjustment might decrease implying a lower associated risk – a counter-intuitive result.

[12] "Risk-Adjustments to the Comparables Range", S. L. Curtis and J. F. Ruhashyankiko, *Transfer Pricing International Journal* (August 2003).

[13] A review of publications that discuss the adjustments for location savings is provided in "Location Specific Advantages - Principles", S. Gonnet, P. Fris, T. Coriano, *Transfer Pricing International Journal* (June 2011). Examples of practical application of the location savings adjustments are provided in "Location Specific Advantages – Case Studies," S. Gonnet, M. Ikeya, V. Starkov, *Transfer Pricing International Journal* (July 2011).

[14] TNMM stands for "Transactional Net Margin Method".

[15] An example of such an analysis is given, for instance, in "Transfer Pricing in Troubled Times", N. Mori, N. Mert-Beydilli, and G. Poole, *Tax Management Transfer Pricing Report* (May 2009).

Comparability adjustments

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In the absence of suitable local comparables in emerging and developing economies – Case Studies

This series of two articles explores the options for improving comparability in cases where domestic comparables are not available. Following a request by the G8 summit held in June 2013, the OECD has just published a paper on Transfer Pricing Comparability Data and Developing Countries, which discusses four possible approaches to addressing the concerns over the lack of data on comparables expressed by developing countries, among which there is a discussion on the use on non-domestic comparables and comparability adjustments.

In the first article,[1] we presented theoretical approaches, while in this second article we provide practical application and examples. As mentioned in the first article, the lack of local comparables is often addressed by practitioners by using suitable comparables from other jurisdictions. Yet, when such comparables come from countries with significantly different economic conditions than the country of the tested party, some adjustments to account for these differences are called for. This article discusses practical application of comparability adjustments for cases when non-domestic comparables have to be used by presenting two case studies.

- The first case study discusses calculation of an arm's length distribution margin for a related party in the Sub-Saharan region of Africa, focusing more specifically on how to account for the differences associated with accounts receivable and the resulting differences in credit risk supported between the tested party and the comparables that were identified in Europe.

- The second case study describes the adjustment based on the cost of capital and provides an illustration of how this adjustment could be used to compute both the median and the end points of the arm's length range of return on capital employed for two emerging markets (China and India) when the comparables come from a developed market (the US).[2]

Case Study A

Adjustments for differences in working capital

A Multinational Corporation (MNC) operates its main product design and manufacturing facilities in a country A, a developed country. In order to enter a new market, such as Sub-Saharan Africa, the MNC group establishes a subsidiary in a country B within the region. The main role of the entity located in country B is marketing and sales of the goods developed and manufactured by the entity in country A.

The group employs a Resale Price Method, where the transfer price is set by employing a target discount factor applied to the distributor's sales to unrelated customers. The discount factor is inferred from the results of independent comparables.

The group has a consistent transfer pricing policy worldwide, and would like to employ the same transfer pricing policy in the country B located in the Sub-Saharan region.

As is often the case when dealing with operations in emerging countries, independent comparables with suitable financials are not available in the country B, consequently other approaches need to be considered. One such approach is to consider another region where comparables with available financial data may be found (e.g., in Europe), select functionally suitable comparables, and perform appropriate adjustments.

Below, we provide the description of the adjustment related to differences in accounts receivable.[3] Although this adjustment is common in transfer pricing, the differing levels of credit market risk between the region of the tested party (i.e., Sub-Saharan Africa) and the region where the comparables are derived from (i.e., Europe) add an additional layer of complexity to this case.

Rationale for the accounts receivable adjustments

In the case at hand, given the lack of local comparables, European comparable companies were identified.

These comparable companies operate in a safer economic environment. Most of them have long-standing relationships with their customers, have been operating for a long time, and have credit assessment tools to confirm the financial viability of their existing and potential customers. As a result, the comparable companies have a track record of limited bad debts and relatively fast receivables collection, as reflected in their balance sheets.

On the other hand, the tested party is a relatively new entity with newly acquired customers and limited tools to assess the financial capacity of its existing and prospective customers. The tested party also faces a higher level of political, market, and credit risks within the region. This is reflected in a significant amount of accounts receivable, higher cash requirements, more lenient repayment requirements to establish its client base and higher potential for bad debt.

Therefore it is economically justifiable to make an adjustment for the difference in risks between the comparables and the tested party.

Unadjusted results

The unadjusted profit results of the sample of European distributors are provided in Table 1:

Table 1: 3-year weighted average RoS*	
	Return on sales (European comparables)
First Quartile	6.4%
Median	**8.9%**
Third Quartile	15.4%
* European comparables	

As discussed above, these profit margins take into account payment terms of companies operating in Europe. Therefore, the comparables operate in a safer (less risky) and more stable business environment. The need for an adjustment arises because operating profit observed in uncontrolled transactions (at the level of the comparables) does not incorporate any risk premium that would typically be observed in emerging countries to reflect for the above described uncertainties and market characteristics.

Adjustments performed

Working capital adjustments performed for comparables operating in the same countries or regions as the tested party involve assessing the differential in accounts receivable and remunerating this difference with an appropriate interest rate that takes into account credit risk.

In the case at hand, the companies operate in a region where not only the economic circumstances, but also the underlying credit risk, are significantly different from the tested party, requiring an account-

ing for the differences in the level of accounts receivable between the tested party and the comparables, as well as differences in the interest rates between the regions of the tested party and the comparables[4].

For simplicity purposes we divide the adjustment into two distinct steps:

1. The first step consists of adjusting the accounts receivable of the comparables down to zero and applying a Eurozone interest rate to the differential, which results in lower revenues for the comparables and a lower margin (in line with the lower risks associated with carrying no accounts receivable)

2. The second step consists of adjusting the accounts receivable of the comparables up from zero to the level of the tested party and applying to them an interest rate of the Sub-Saharan country or region, which increases the revenues for the comparables and results in a higher margin (in line with the higher risks associated with carrying higher accounts receivable in the Sub-Saharan region)

The two-step approach is necessitated by differences in local credit conditions. For example when evaluating 3 month short term sovereign bond yields across various countries, we note significant variations in sovereign rates. Similarly, when evaluating short term corporate rates one would see significant differences. Chart 1 shows a comparison of three month sovereign bond rates across a sample of randomly selected countries:

Chart 1:
3 month sovereign bond yield indices for 2013

Source: Data was extracted from Bloomberg L.P.
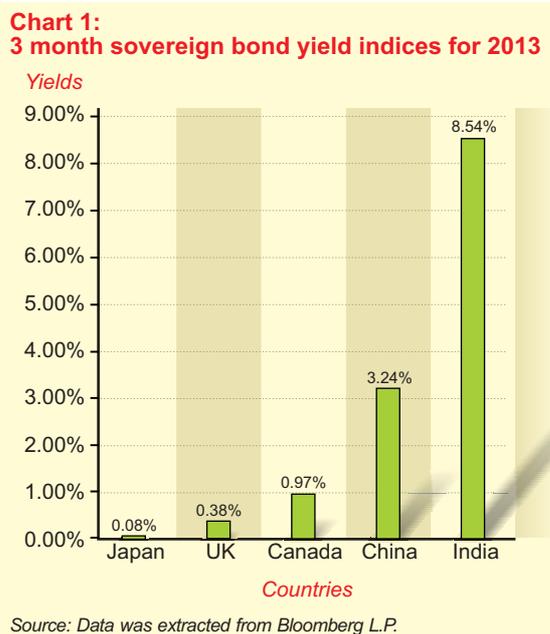
The first step is described below:
- *Equation 1: Balance sheet adjustment*

$$\Delta AR_T = (0 - Comparables\ Days\ AR) * \frac{Sales}{365}$$

Where:

ΔAR_T = change in accounts receivable when setting the target (T) days accounts receivable to zero

Comparables Days in AR is the days in accounts receivable of the European comparables

The "0" is the target days receivable to remove the impact of days receivable
- *Equation 2: Income statement adjustment*

$$\Delta Sales_T = \Delta AR_T * \frac{i_{non\text{-}domestic}}{1+(i_{non\text{-}domestic} * \frac{Comparables\ Days\ AR}{365})}$$

Where:

$\Delta Sales_T$ is the adjustment to sales after removing the impact of accounts receivable

ΔAR_T is the impact on accounts receivable estimated as part of the balance sheet adjustment

$i_{(non\text{-}domestic)}$ is the short term interest rate reflecting the underlying credit risk (in Europe)

After having removed the working capital related effects of operating in the European market from the comparables accounts, the next step is to introduce the working capital related impact of operating in the more risky developing market. It corresponds to adjusting the comparables' accounts receivable (that have been adjusted to zero) up to the level of the tested party's accounts receivable, and applying an interest rate corresponding to the country/region of operations of the tested party. In particular, an interest rate should be chosen that represents a typical short term financing of receivables in the local market (i.e., country B). The approach to obtain such a rate would typically depend on the available credit market data for a particular country and industry. Then, formulas similar to the above can be employed again.

- *Equation 3: Balance sheet adjustment*

$$\Delta AR_{LT} = (Target\ Comparables\ Days\ AR - 0) * \frac{Adjusted\ Sales}{365}$$

Where:

ΔAR_{LT} = change in accounts receivable when setting days of accounts receivable to the tested party days of receivables

Target Comparables Days AR is the days in accounts receivable of the tested party

The "0" is accounts receivable of the comparables following the above described first step of the adjustment

- *Equation 4: Income statement adjustment*

$\Delta Sales_{LT} = \Delta AR_{LT} * i_{local}$

Where:

$\Delta Sales_{LT}$ is the adjustment to sales by adjusting the accounts receivable in line with the local target company

ΔAR_{LT} is the impact on accounts receivable estimated as part of the balance sheet adjustment

i_{local} is the short term interest rate of the local market in which the target company operates (Sub-Saharan region)

Adjusted Results

Table 2 provides the adjusted comparables data after adjustments.

This economic analysis shows that comparable distributors operating in Europe earn a return on sales between 6.4 percent and 15.4 percent, with a median return of 8.9%. This range, however, does not reflect arm's length results appropriate for the tested party operating in Sub-Saharan Africa. The results adjusted to the tested party's level of accounts receivable and the local market credit conditions do represent such arm's length range of returns as the adjustments account for the higher accounts receivable and greater credit risks in the tested party's country. Based on these adjustments, the target return on sales should be between 11.6 percent and 20.5 percent, with a median return of 13.5 percent.

It should, however, be noted that the above adjustment does not account for the increased volatility that may be observed in profit margins of companies that operate in emerging markets. An analysis adjusting for volatility between markets can be relied upon as an alternative approach.

Case Study B

Cost of capital adjustment[5]

As the name implies, the cost of capital adjustment corrects for the differences in costs of capital across different geographic regions in which the comparables and the tested parties operate. This adjustment is necessary because the profitability of a company is directly related to its cost of capital, and companies operating in markets with different costs of capital will have different profitability requirements. In case there are significant differences in cost of capital, margins observed for the comparables in a non-domestic location will not appropriately reflect those that can be expected for the tested party. Thus, an inter-country cost of capital adjustment is required to account for the fact that the comparables are based in a developed country, for example, in the US, whereas

	Pre-adjusted weighted average return on sales	Adjusted to "Zero" accounts receivable thereby removing local/European market credit conditions: Weighted average return on rales	Adjusted to tested party level of accounts receivable and local/ Sub-Saharan market credit conditions: Weighted average return on sales
Table 2: Three-year weighted average return on sales (unadjusted, adjusted)			
Comparable 1	17.2%	16.8%	22.7%
Comparable 2	8.0%	7.4%	13.3%
Comparable 3	9.9%	9.0%	13.8%
Comparable 4	5.8%	5.2%	11.1%
Comparable 5	69.0%	68.3%	69.9%
Comparable 6	5.6%	4.4%	9.7%
1st Quartile	**6.4%**	**5.7%**	**11.6%**
Median	**8.9%**	**8.2%**	**13.5%**
3rd Quartile	**15.4%**	**14.8%**	**20.5%**

the tested party is based in an emerging country, such as China or India. In general, the cost of capital varies not only across countries but also over time and the cost of capital adjustment described below attempts to capture both.

We demonstrate the cost of capital adjustment for two different emerging countries' capital environments (i.e., China and India) using an illustrative set of 16 independent US publicly traded durable goods distribution companies. When carrying out cost of capital adjustment, we chose the US as the benchmark country and China and India as "target" countries to which the adjustments are made. We also chose December 31 as the fiscal year end (i.e., the fiscal year end for the hypothetical tested party in either country). The numerical examples below are prepared using a five-year (2008-2012) weighted average Return on Capital Employed (ROCE) as the PLI.

The operating profit of each comparable in each year was adjusted to account simultaneously for inter-period and inter-regional differences in the constituent elements of the cost of capital, such as the cost of debt, the risk-free interest rate, the equity risk premium, the corporate tax rate, the level of financial leverage, and the betas of the stocks of the comparable companies,[6] as follows:

- *Equation 5*

Adjustment to operating profit = $(\text{WACC}^T - \text{WACC}^C)$ $\times$ Capital Employed

Where:

WACC^T = pre-tax weighted average cost of capital (WACC) of a comparable company C adjusted to the market conditions of the target country T (e.g., China or India) and adjusted to the target fiscal year end, i.e., December 31 of 2008-2012, computed as follows:

$$\text{WACC}^T = \left\{ \frac{\text{LGB Rate}^T_i + \left(\text{Beta} * \text{ERP}^T_i\right)}{1 - \text{T}^T_i} \right\} * \left(1 - \frac{\text{D}^C_j}{\text{C}^C_j}\right) + \frac{\text{D}^C_j}{\text{C}^C_j} * \text{CB Rate}^T_i$$

i = the month of the fiscal year end for the tested party (i.e., December

j = the month of the fiscal year end for the comparable company C

LGB Rate^T_i = the 10-year government bond rate in the target country in month i

Beta = 1

ERP^T_i = equity risk premium in the target country in month i (source: Morning Star Cost of Capital Report)

$\text{D}^C_j / \text{C}^C_j$ = debt to capital ratio for comparable C in month j

CB Rate^T_i = corporate bond yield in the target country in month i

T^T_i = corporate tax rate in the target country in month i

WACC^C = weighted average cost of capital of comparable company C in its own country (i.e., the U.S. in this case) and its own fiscal year end, found a follows:

$$\text{WACC}^C = \left\{ \frac{\text{LGB Rate}^C_j + \left(\text{Beta} * \text{ERP}^C_j\right)}{1 - \text{T}^C_j} \right\} * \left(1 - \frac{\text{D}^C_j}{\text{C}^C_j}\right) + \frac{\text{D}^C_j}{\text{C}^C_j} * \text{CB Rate}^C_j$$

LGB Rate^C_j = the 10-year government bond rate in the comparable's country in month j

Beta = 1

ERP^C_j = equity risk premium in the comparable's country in month j

CB Rate^C_j = corporate bond yield in the comparable's country in month j

T^C_j = corporate tax rate in the comparable's country in month j

Table 3 shows the five-year (2008-2012) weighted average ROCE for the 16 US companies with and without Cost of Capital (WACC) adjustment.

From Table 3 we see that the interquartile range without cost of capital adjustment is from 1.4 percent to 25.7 percent with a median of 12.5 percent. Once a cost of capital adjustment has been made to China's capital environment, the outcome remains very similar to the original one. The interquartile range becomes 1.7 percent to 26.1 percent with a median of 12.9 percent. When a cost of capital adjustment is made to India's capital environment, the interquartile range shifts up to become between 10.9 percent and 39.0 percent with a median of 24.7 percent.[7]

When the cost of capital adjustment is made from a country with a lower cost of capital to a country with a higher cost of capital, profitability range given by the returns of comparables shifts up, consistent with the basic finance theory of risk-return trade-off which implies that an investor investing in a riskier investment would *ex ante* expect a higher return.

However, in higher-risk countries there is also a higher probability to both lose and gain more, so one would expect to find a wider interquartile range of returns when making adjustments to a higher-risk country. Thus, one shortcoming of the cost of capital adjustment discussed above is that it does not take into account such volatility of market outcomes i.e., it does not explicitly adjust the width of the interquartile range to the target country's risk environment. Thus, a more appropriate adjustment technique should widen the range as well as increase the median and standard deviation when the target country has a higher level of risk than the country where the comparables are located. One such method for risk adjustment can be found in the article by Curtis and Ruhashyankiko[8] which shows that under the assumption that comparables' returns are normally distributed, adjustments can be made to the standard deviation of the outcomes to calibrate the range of the comparables' profitability results. Such an adjustment would complement the cost of capital adjustment discussed above and ensure that increased risk will be reflected in increased standard deviations and larger predicted interquartile ranges. However, the empirical analysis conducted in that article calculates the risk-return adjustment in the context of the US market only. Expanding this analysis beyond the US market is a topic of further research.

Conclusion

In application of profit-based methods of transfer pricing analysis, cases when comparables are not available in the country of the tested party may present challenge to practitioners. This series of two papers is aimed at describing some options for improving comparability when comparables from other jurisdictions are used to calculate profitability range of a local tested party. This series discusses, from the

Table 3: Five-year weighted average ROCE with and without cost of capital adjustment*			
Company Name	ROCE without Cost of Capital Adjustment	ROCE with Cost of Capital Adjustment (China)	ROCE with Cost of Capital Adjustment (India)
Company 1	13.7%	13.9%	23.7%
Company 2	26.9%	27.0%	36.9%
Company 3	40.8%	41.6%	53.4%
Company 4	-2.2%	-2.2%	4.5%
Company 5	1.4%	1.4%	9.4%
Company 6	-5.8%	-5.5%	7.6%
Company 7	53.5%	53.9%	66.8%
Company 8	-15.1%	-14.5%	-3.1%
Company 9	11.4%	11.8%	25.6%
Company 10	1.5%	2.0%	15.7%
Company 11	24.5%	25.1%	41.0%
Company 12	1.8%	2.4%	12.4%
Company 13	16.1%	16.3%	29.7%
Company 14	14.5%	15.5%	29.2%
Company 15	11.1%	11.4%	22.9%
Company 16	58.3%	58.9%	74.3%
First Quartile	*1.4%*	*1.7%*	*10.9%*
Second Quartile (Median)	*12.5%*	*12.9%*	*24.7%*
Third Quartile	*25.7%*	*26.1%*	*39.0%*
Mean	**15.8%**	**16.2%**	**28.1%**
Standard deviation	**20.7%**	**20.8%**	**22.0%**
Width of Interquartile Range	**24.3%**	**24.4%**	**28.1%**
* Note: The data are for the years 2008-2012			

theoretical and practical perspectives, several such adjustments including the working capital adjustment, adjustment for the difference in the cost of capital among countries, adjustment related to the differences in accounting standards, and adjustment for the economic cycles. The applicability of these adjustments to a particular case will depend on facts and circumstances, and, thus, such adjustments should be used judiciously.

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NOTES

[1] "Comparability adjustments in the absence of suitable local comparables in emerging and developing economies", Bloomberg BNA's *Transfer Pricing International Journal, Vol.14, No.7, July 2013.*

[2] The authors acknowledge that returns on capital in different countries may have different volatilities, which may impact the width of the interquartile ranges when an adjustment for the difference in the cost of capital is made between different countries. However, this type of adjustment is not illustrated in this paper.

[3] Other adjustments, such as adjustments for accounts payable and inventories may be necessary, as well as adjustments associated with the differences in the cost of capital between the regions, as discussed in section B of this article.

[4] It should be noted that to manage the risk factors that firms operating in emerging markets are exposed to, an additional functional return in some circumstances may need to be considered.

[5] A detailed account of the theoretical motivation behind the cost of capital adjustment is provided in the first article of the series, "Comparability adjustments in the absence of suitable local comparables in emerging and developing economies", Bloomberg BNA's *Transfer Pricing International Journal, Vol.14, No.7, July 2013.*

[6] In the examples shown below, betas for all the companies have been assumed to be 1. The market beta for the companies, if available, may also be used.

[7] The larger cost of capital adjustment for India than for China is due to the higher yields on the government and corporate bonds in India as well as higher expected equity risk premium in India than in China.

[8] "Risk-Adjustments to the Comparables Range", S. L. Curtis and J. F. Ruhashyankiko, BNA's *Transfer Pricing International Journal* Vol.4, No.8, August 2003.