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Transfer Pricing in Emerging and Developing Countries

A Proposed Framework For Economic Analysis for Tax Administrations and Multinationals

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Proposed Framework for Foreign Comparables Selection and Adjustment

Framework Paper¹

Accompanied by an Empirical Paper

Sébastien Gonnet²

Bert Steens³

Christof Beuselinck⁴

Matthias Petutschnig⁵

¹ The Framework Paper is published on www.tped.eu website.

² TPED President

³ School of Business and Economics of Vrije Universiteit (VU) Amsterdam

⁴ IESEG School of Management, Paris

⁵ WU – Vienna University of Business and Economics

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Abstract

Our study provides tax administrations of emerging and developing countries and multinationals operating in these countries an economic framework for the determination of arm's length and compliant transfer pricing arrangements.

Our findings infer from economic modelling and empirical evidence that, in the absence of reliable domestic comparable companies (also called "comparables"), foreign comparables should not be rejected a priori, and that there are merits to using foreign comparables from countries with a similar country risk profile. Selecting comparables that are operating in countries geographically close to the country of incorporation of the tested party, even though appealing and widely used in practice, seems to be less helpful. Our results also suggest that using comparables from countries with a different (typically lower) risk profile necessitates country-risk adjustments.

At a time when revenue mobilization is a key development priority and essential to finance investments in human capital and infrastructure, application of such framework should benefit tax administrations, then equipped with an economically sound approach to review transfer pricing arrangements of multinationals. With the proposed approach, multinationals should also benefit from more objectivity and increased reliance on economic arguments by tax administrations.

An interesting consequence of our study is the suggestion that simplification in transfer pricing – for instance fixed returns for certain "baseline" activities, as recently suggested by the OECD - is not out of reach and that large datasets of comparables may well provide insightful proxies for an economically sound estimation. If such simplified measures are adopted at international levels, the inherent risks of operating in the developing countries will need to be accounted for, with for instance higher than average baseline profits in these countries.

We acknowledge that further analyses are welcome to confirm our preliminary findings. Nevertheless, the importance of the subject for worldwide transfer pricing practices convinces us to report these initial findings and to stress the importance of further research.

We are committed to engage with interested stakeholders (for instance, international or regional organizations) to further enhance the contents and impact of the analyses.

Contents of Framework Paper

- Abstract 4
- 1. Introduction..... 6
- 2. Context 7
- 3. Economic analysis..... 9
- 4. Proposed framework for foreign comparables selection..... 12
 - 4.1. General Framework..... 12
 - 4.2. Applying the framework..... 13
- 5. Proposed method for estimating country risk adjustments 17
 - 5.1. Definitions 17
 - 5.2. Rationale and conditions for applying country risk adjustments in transfer pricing 18
 - 5.3. Calculation of country risk adjustments for Transfer Pricing 19
- 6. The role of country risk adjustments for the determination of “baseline” profit margins in Transfer Pricing..... 21

1. Introduction

The arm's length principle, the internationally agreed standard for the determination of the price of transactions within multinational enterprises (MNEs), is based on the use of prices set for comparable transactions between non-related companies as a benchmark for the intra-group price determination. Therefore, it is necessary to obtain publicly available information regarding the price of such comparable transactions. However, the quality and quantity of publicly available data on comparable transactions and/or comparable companies ("Comparables") is highly diverse. For some industries and some geographical regions (North America, Europe, Australia, Japan, etc.) the data is readily available in a high quality and in a high quantity. Yet for some industries and also for specific geographic regions (for instance, Africa) the data is very scarce.

The lack of comparables is a well-known issue, notably discussed in detail in a report published in 2017 by the Platform of Cooperation on Tax (IMF, OECD, UN, World Bank)⁶ that calls for more research⁷ on comparability adjustments in the field of transfer pricing.

The aim of this research is to provide some of the research and analyses, which the Platform for Cooperation on Tax had called for.

More specifically, we assess whether using foreign comparables for evaluating the arm's length nature of transfer prices charged or paid by companies in countries that lack comparables is economically sound and can be safely relied upon by both the tax administrations as well as the taxpayers involved. We suggest a framework for developing and evaluating foreign comparables for companies in developing countries and propose reference margins and comparability adjustments, which are both economically sound and practically feasible. The approach that is based on these comparables is straightforward and easy to apply, which is a clear advantage, especially at a time when simplification measures are called for by tax administrations, taxpayers and international organizations.

⁶ The Platform for Collaboration on Tax (PCT) – a joint initiative of the International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD), United Nations (UN) and World Bank Group – has published a toolkit to provide practical guidance to developing countries to better protect their tax bases. The toolkit, "Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses", specifically addresses the ways developing countries can overcome a lack of data needed to implement transfer pricing rules. This data is needed to determine whether the prices the enterprise uses accord with those which would be expected between independent parties. The guidance will also help countries set rules and practices that are more predictable for business.

⁷ Undertake further research and spread available good practices on measures that may be taken to use existing data more effectively. Such guidance might include the challenges, and options for using data from foreign markets, the use of data drawn from widened search criteria, and the use of comparability adjustments. There is limited evidence on the impact of geographic differences on profitability. This is an area which could benefit from further research, and the suggested mechanism for increasing the pool of data, described at point 1 above, may provide data to support such research (Toolkit for Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses, by the Platform of Cooperation on Tax, page 84).

The findings of the study are published by TPED, a Paris-based non-profit organization. For the purpose of the project, TPED has partnered with Prof. dr. Bert Steens, full professor at the School of Business and Economics of Vrije Universiteit (VU) Amsterdam, Prof. Christof Beuselinck from IESEG School of Management and LEM France, and Prof. Matthias Petutschnig, from WU – Vienna University of Business and Economics, all members of TPED. Econometric analyses have been carried out by economists from TP qube, a Paris-based company applying statistical and text mining techniques to develop innovative transfer pricing solutions. Our findings are presented in two Papers: (1) a “Framework Paper” which provides the background of the Research, its relevance to both tax administrations and multinational corporations and a proposed framework for application; (2) an “Empirical Paper” which provides the financial and economic foundations of our analyses and all the empirical and statistical analyses.

We do not view the evidence from the empirical analyses we present as final proof and believe that further analyses should be performed to confirm these preliminary findings. Our current research indeed requires some further analyses and specifications that we describe in the Empirical Paper.

The research study is part of the “Comparability Adjustments Research Program”, initiated and led by TPED to develop new insights in this subject matter and share them through publications, conferences and courses⁸. This study follows a literature review of comparability adjustments in transfer pricing prepared by Prof. Matthias Petutschnig and Stefanie Chroustovsky, LL.M from WU – Vienna University of Business and Economics.⁹

2. Context

In general, the arm’s length analysis is preferably based on domestic or regional data. Tax administrations from emerging/developing countries usually also prefer that taxpayers use domestic comparables¹⁰. This seems perfectly appropriate and is legitimate and fully understandable. Yet, in many countries, especially emerging markets, it is often impossible to retrieve such data due to the absence or scarcity of (reliable) financial information of independent companies operating in that country.¹¹ Despite the complete absence or scarcity of domestic comparables, there is often a

⁸ <http://tped.eu/category/research-on-comparability-adjustments>

⁹ Petutschnig, M, and Chroustovsky, S., Comparability Adjustments A Literature Review, WU International Taxation Research Paper Series No. 2018-08, 1 Oct 2018

¹⁰ “it generally makes sense to begin a search for comparables with information available concerning the local geographic market of the tested party since with such information there is typically no need to consider the impact of geographic market differences” (Toolkit for Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses, by the Platform of Cooperation on Tax, page 41).

reluctance by tax administrations to accept foreign comparables, especially if such comparables originate from countries with differences in economic circumstances that are perceived as being substantial (e.g., comparables from “developed countries” used to benchmark companies located in “developing countries”).

This has a number of negative consequences for both the tax administrations and the taxpayers in these countries. On the one hand, taxpayers are unsure as to whether foreign comparables can or cannot be reliably used and whether country-risk adjustments are economically sound and accepted by tax administrations. On the other hand, tax administrations face severe difficulties in reviewing and reassessing intra-group arrangements, in the absence of comparable data. In practice, when dissatisfied with the comparables presented to them, they either reject the comparables and suggest others, challenge certain parameters of their application, for instance the cost base method or potentially select another method.

Additionally, there is little official guidance for the process of choosing foreign comparables and adjusting them to the economic circumstances of the domestic market. Available transfer pricing guidelines, notably the OECD Transfer Pricing Guidelines or the U.N. Transfer Pricing Manual, do not necessarily provide a strict position on the usage and adjustment of foreign comparables, and the Platform for Cooperation on Tax called for more research in this particular field. Available literature on the subject is slim¹², as evidenced by a recent literature review on comparability adjustments by Petutschnig and Chroustovsky (2018). From a practitioners’ perspective it can be noted that whenever foreign comparables are used or accepted, domestic tax administrations prefer the use of comparables from close neighboring countries. Some exceptions exist but are scarce, for instance South-Africa¹³ takes a more liberal stance and allows to use comparables from the U.S.A., Australia or the U.K.

¹¹ “Available statistics and academic research on the availability of information on comparables corroborate the difficulties reported by many developing countries” (Toolkit for Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses, by the Platform of Cooperation on Tax, page 12). Beuselinc C., Elfers F., Gassen J. & Pierk J. (2019): Accounting by Private Firms: Empirical Evidence, Data, and Research Perspectives. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3496543

¹² Petutschnig, M., and Chroustovsky, S., Comparability Adjustments A Literature Review, WU International Taxation Research Paper Series No. 2018-08, 1 Oct 2018. Though, we note some recent developments: Ednaldo Silva, Founder of RoyaltyStat, also a member of TPED, in his 2018 working paper as well as in a prior publication refers to adjustments for location savings referring to advantageous positions arising in different geographic markets which can lead to economic benefits that need to be adjusted for.

¹³ SARS Income Tax Practice Note 7 of 1999 (“In the light of the difficulties (...) in obtaining information on uncontrolled transactions in South Africa, the Commissioner will accept the use of foreign country comparables (e.g., data from the Australian, United Kingdom and United States markets) (...).” (Practice Note 7, para 11.2.1).

Therefore, the relevant context of our research is determined by, on the one hand, some reluctance to accept foreign comparables for the proper use of the arm's length principle, and, on the other hand, clear guidance by stakeholders (notably international organizations) for tax administrations and taxpayers.

3. Economic analysis

We apply explanatory analytics to investigate the relation between idiosyncratic country-specific risks¹⁴ of the location of a company (proxied by the sovereign rating of the country as an indicator for the specific economic circumstances of each country), and the profitability of the company. If, as suggested in literature¹⁵, companies located in riskier countries are on average more profitable than their counterparts in less risky countries, the risk factor (proxied by the sovereign rating) may be used as a comparability criterion and a segmentation factor in the context of searches of foreign comparables outside the domestic country where the tested party operates.

Here we summarize the most important results of our analysis. For further results and sensitivity analyses we refer to the Empirical Paper appended to this Paper.

Our analyses cover the application of the Transactional Net Margin Method ("TNMM") to establish the arm's length nature of a transaction indirectly, by ensuring that the entity under scrutiny earns a net profit margin on that transaction which is in line with the net margins of comparable independent companies performing similar activities.

Our analysis relies on publicly available financial information of independent ("stand alone") comparable companies. We have selected one sector, the food processing sector, as the test necessitates comparability of other key determinants of profitability for a company, typically its industry (food) and positioning in the value chain of such industry (processing).

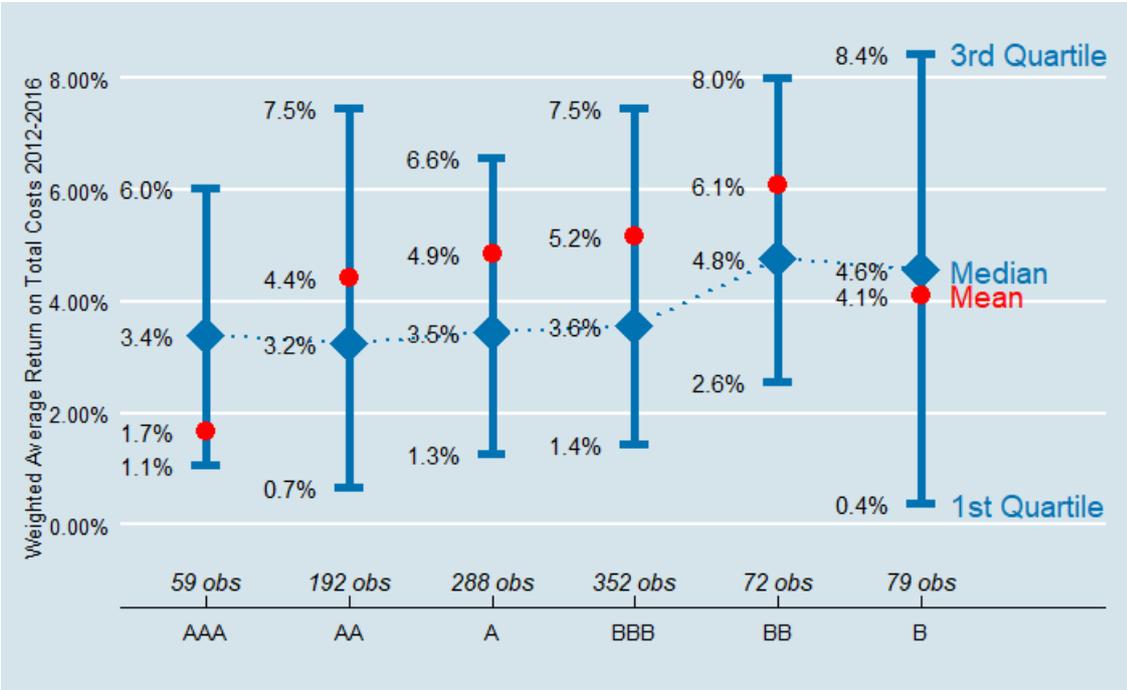
Food processing was chosen as the test/pilot sector for two reasons. First food processing operations are widespread and present in all continents and in most countries of the world. Second, local food processors typically sell locally and are exposed to local economic circumstances. We recommend expanding the industry scope based on the findings of our analyses.

¹⁴ Pereiro defines country risk as « *an aggregate of country-idiosyncratic risk components : risk derived from social and/or political turmoil, the chance of expropriation of private assets by the government, the potential of emergence of barriers to the free flow of cross-border capital streams, the possibility of currency devaluations, the chance that the government will not pay its international lenders, the risk derived from inflation, or in extremis, from a hyperinflation* ». (Pereiro, Valuation of Companies in Emerging Markets – A practical approach)

¹⁵ For a review, see Damodaran, Aswath, Country Risk: Determinants, Measures and Implications – The 2019 Edition (July 23, 2019). Available at SSRN: <https://ssrn.com/abstract=3427863>.

Our dataset, further described in the Empirical Paper, comprises data from 1,042 independent companies operating in the food processing industry worldwide. Companies operating in the food processing industry can be considered relatively homogenous in terms of functions, assets and risks. Figure 1 presents the interquartile range and mean of the profitability of the independent companies in our dataset, categorized by the sovereign rating of the country where they are located.

Figure 1 - Interquartile range of the profitability of independent companies in the food processing industry, split by sovereign rating



For the sovereign rating categories BB until AAA the average profitability is larger for riskier countries than for less risky countries. However, the B category shows a lower mean but also a very wide interquartile range. The pattern for the categories BB until AAA are consistent with our hypothesis of higher profitability levels in riskier countries. We formally test this hypothesis using univariate and multivariate statistical parametric and non-parametric tests. Univariate tests do not support this hypothesis, whereas multivariate tests bring some evidence of a statistically significant relation between the profitability of a company and the sovereign rating of the country where it is located. More precisely, we computed OLS-estimates and their significance levels using our firm-level dataset,

by regressing the profitability of a company¹⁶ on a vector of explanatory and control variables, including dummy variables for the sovereign credit rating categories.¹⁷

Although the OLS regression model only explains the variance of the profitability to a limited extent, we do find a statistically significant relationship between the risk of a company's country, proxied by its sovereign rating¹⁸, and a company's profitability, proxied by its return on total costs ("ROTC")¹⁹. While country risk adds to the explanation, other macroeconomic variables do not or hardly explain company profitability. This is notably the case for a company's geographical region. In our tests, sovereign ratings outperform the geographical regions, as explanatory factors for profitability. While regional segmentation, as opposed to risk segmentation, is common in transfer pricing (for instance, benchmarking a French company with European comparables; benchmarking an Indonesian company with pan-Asian comparables), our research provides a new perspective on country risk as a comparability criterion, and sovereign ratings as relevant measures for country risk for transfer pricing purposes.

We infer that, in the absence of domestic comparables, foreign comparables should not be rejected in principle, and that there are merits in using foreign comparables from countries that have a similar country risk profile as the country of incorporation of the tested party. The outcomes of our analysis suggest that selecting comparables originating from countries geographically close to the country of the tested party, even though appealing and widely used in practice, seems to have less relevance than country risk.

Our findings challenge a common intuition and typical transfer pricing practice that comparables from the geographically closest neighboring countries are by definition superior to comparables from other regions. It also provides some scientific foundations for using comparables from outside of the region of the tested company. For instance, Asian or South American comparables could prove to be relevant for African companies, allowing a much larger number of potential comparables.

We infer from these findings a proposed framework for comparables selection, in countries with limited number of available domestic comparables.

¹⁶ Measured as the Return on Total Costs (RoTC), defined as the EBIT divided by the Total Costs (themselves computed as Turnover minus EBIT). The RoTC is a standard measure of profitability used in transfer pricing studies.

¹⁷ We used a segmentation in three homogenous groups to limit the effects of small size samples: AAA/AA, A and BBB/BB/B.

¹⁸ A sovereign credit rating is an independent assessment of the creditworthiness of a country or sovereign entity. Sovereign credit ratings can give investors insight into the level of risk associated with investing in the debt of a particular country, including any political risk.

¹⁹ The Return on Total Costs is calculated as follows : Operating Profit (or Earning Before Interests and Taxes)/Turnover. It is typically used an appropriate Profit Level Indicator for manufacturing operations within the transfer pricing discipline.

4. Proposed framework for foreign comparables selection

4.1. General Framework

Based on the findings of our empirical results so far, we propose a framework for foreign comparables selection to be specifically applied in countries lacking local comparables. As this is common for developing countries we designed the framework to meet requirements relevant for these countries. The framework includes the Country Risk (proxied by the country sovereign rating) as a key factor for selection. Despite inconclusive statistical results on the significance of regional segmentation for transfer pricing purposes, we still add regional segmentation to the framework, given the general preference by both tax administrations and taxpayers to use comparables from neighboring countries. But, in our framework, we add the risk factor, meaning that a geographically close country with a largely different sovereign risk rating may be used only as a “last resort” option, and preferably after (risk-) adjustments. The framework assumes that other comparability criteria such as functional and product similarities need to be met.

The proposed framework does not warrant that additional adjustments should not be considered: we are well aware that certain local market considerations have a significant impact on the profitability of domestic firms that the proposed framework does not necessarily capture. For instance, in Africa, firms within the same industry but located in other (neighbor) countries may face substantially different profitability patterns given, for instance country-specific anti-dumping rules, or food and safety requirements.

The proposed framework is based on the following decision tree for selecting comparables. The decision tree can be summarized by the following four steps:

1. Use of domestic comparables. *If unsuccessful,*
2. Use a regional panel from countries with similar levels of risk. *If unsuccessful,*
3. Use a panel outside the tested party’s Region (for instance Rest of the World) including from countries with a similar level of risk. *If unsuccessful,*
4. Use a panel including countries with dissimilar risk levels and adjust for the differences in risk.

This adjustment for risk, is referred to as country risk adjustment in transfer pricing literature²⁰.

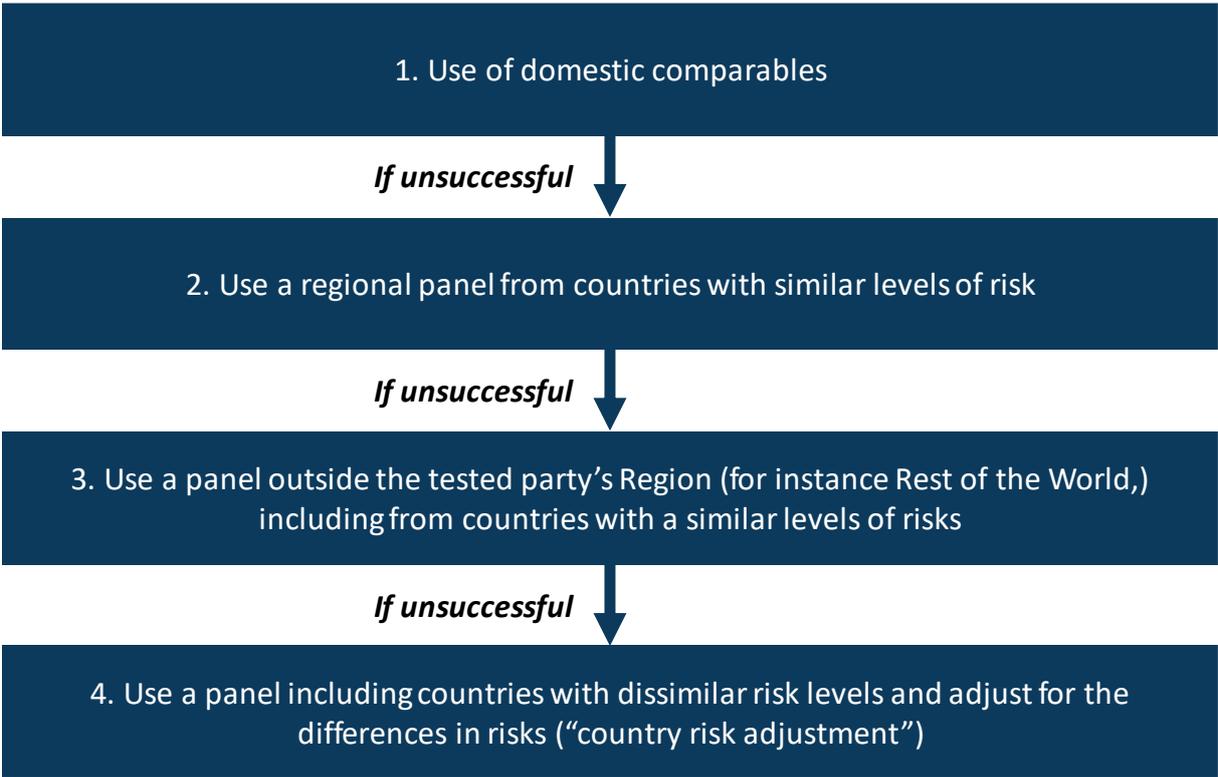
Within the proposed framework, we note that country risk adjustments (applied to selected comparables) are relevant only in specific circumstances, notably in step 4, in case of large variations

²⁰ A toolkit to provide practical guidance to developing countries to better protect their tax bases” (page 135). The Platform for Collaboration on Tax (PCT) – a joint initiative of the International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD), United Nations (UN) and World Bank Group.

between the sovereign rating of the country of incorporation of the tested party and that of the comparables.

The framework is illustrated by the graph below:

Figure 2 – TPED proposed framework for foreign comparables selection



4.2. Applying the framework

We illustrate the use of the Framework by a case study within the industry selected for empirical and statistical tests: the cocoa processing in Ghana²¹

The cocoa processing sector in Ghana was selected by TPED, since it represents a large economic sector of a large African country. Detailed information on the sector is also publicly available. In their Enterprise map of Ghana²², Sutton and Kpentey (2012) provide an overview: as of 2012, of the main industrial sectors in Ghana. The overview includes sector profiles, and an individual description of the

²¹ It is worth noting that the results presented in the Paper are used only in the context of TPED's Research project and should not be used in other contexts. Results presented are illustrative.

²² Sutton, J., and B. Kpentey, An Enterprise Map of Ghana, International Growth Center, 2012.

largest companies (both private and part of a multinational group) operating as cocoa processors in Ghana.

We note that transfer pricing applied in the cocoa processing sector may very well involve market prices either determined by international markets or by local regulatory cocoa sector boards. The method used then qualifies as the “Comparable Uncontrolled Price” and not the Transactional Net Margin Method (TNMM) which involves looking at margins of cocoa operators as opposed to export prices. The case study below is therefore made for illustrative purposes and does not aim at concluding that one method is superior than another in this specific sector.

We provide below key takeaways from the case study:

- Domestic Comparables are lacking even for one of the largest export sectors of one dynamic African economy, cocoa processing in Ghana: there is no comparable Ghanaian Company, for which financial information is available on the database.
- African comparables in countries with similar exposure to country risks are too few in this industry to be reliably exploited: extending the search yields 13 potential comparable companies.
- There is a sufficient number of comparable companies based in countries with a similar level of risks, notably in Europe (for instance Eastern Europe countries) as well as Asia. Such comparable companies may involve similar levels of activities, functions performed, and assets employed (notably know-how and equipment), and exposed to similar industry-related risks (for instance, raw materials risks), but also the same country exposure, as they are based (and operate at least a part of their activities) in countries with similar country ratings.
- There are also numerous comparable companies based in countries with a lower level of risks, notably in Europe (Western part) as well as Asia. Such comparable companies may involve similar levels of activities, functions performed, and assets employed (notably know-how and equipment), and exposed to similar industry-related risks (for instance, raw materials risks), but are exposed to a lower amount of country risks. Country risk adjustments can be applied to adjust for differences in country risks.

Table 1 below provides details on the number of comparable companies²³ by category resulting from applying the four-step approach of our Framework.

²³ Study performed on the Bureau Van Dijk database, using independent companies (companies with a BvD independence rating of A) with a turnover above one million euro, and available descriptive information. Data were retrieved in July 2018. For more details, refer to the Empirical Paper.

Table 1 – Illustration of proposed framework for foreign comparables selection in the absence of domestic comparables (food processing case)

	Step of the Framework	Number of countries	List of country(countries) involved	Number of potential comparable companies by Step	Cumulative number of potential comparable companies	Country risk adjustment
1.	Use of domestic comparables (Ghana rating is B)	1	Ghana	0	0	none
2.	Use an African panel including companies from countries with a similar risk levels of Ghana i.e., higher risk category (BBB/BB/B ratings)	4	Egypt, Kenya, Nigeria, South Africa	13	13	none
3.	Use a Rest of the World (non-African) panel including companies from countries with a similar risk levels of Ghana i.e., higher risk category (BBB/BB/B ratings)	28	Bahrain, Bangladesh, Bosnia and Herzegovina, Brazil, Bulgaria, Colombia, Croatia, Cyprus, Greece, Hungary, India, Indonesia, Italy, Jamaica, Macedonia, Oman, Pakistan, Peru, Philippines, Portugal, Romania, Russian Federation, Serbia, Sri Lanka, Thailand, Turkey, Ukraine, Viet Nam	490	503	none
4.1.	Use a Rest of the World (non-African) panel including companies from countries with a dissimilar risk levels of Ghana i.e., lower risk - Medium risk category (AAA/AA/A rating)	35	Australia, Austria, Belgium, Canada, Chile, China, Czechia, Denmark, Finland, France, Germany, Hong Kong, Iceland, Ireland, Israel, Japan, Korea (Republic of), Latvia, Lithuania, Malaysia, Netherlands, New Zealand, Norway, Poland, Saudi Arabia, Singapore, Slovakia, Spain Sweden, Switzerland, Taiwan, United Arab Emirates, United Kingdom, United States of America, .	539	1,042	yes

5. Proposed method for estimating country risk adjustments

In our proposed framework, we note that country risk adjustments are not applicable at all steps and for all foreign comparables. Such adjustments should in our opinion be considered only within step 4, the last step, in cases of large variations between the sovereign rating of the country of incorporation of the tested party and that of the comparables.

In any case, the adjustments must not be applied mechanically, and their relevance needs to be considered on a case-by-case basis. We provide below examples of virtually risk-free contract operations (for instance contract manufacturing in a country), where the local subsidiary of an MNE is prevented from any strategic, operational or financial risks and is not exposed to the same extent of risks as the other independent local market players, thus questioning the need for adjusting upwards its remuneration due to higher local risks.

Additionally, we provide below definitions of country risk adjustments, rationale and conditions for application, and illustrations of country risk adjustments calculations.

5.1. Definitions

Country risk adjustments in the transfer pricing context can be defined as economic adjustments allowing to account for differences between the local economic circumstances (for instance, of an emerging / developing country) under which a local Company, which is part of an MNE operates, and the economic circumstances (for instance, of a developed country/region) of independent companies, when such independent companies are used as ‘comparables’ to set or test the intra-group price or margin of a local MNE company. A typical illustration covers adjustments made to the net profit indicator (under the Transactional Net Margin Method) of comparables operating in developed countries and used to set or test net margins of group companies, in emerging or developing countries, in the lack of local comparables. Differences in economic circumstances may include the degree of competition, political risk exposure, credit market conditions (in particular, the risk of default), access to borrowing, consumer purchasing power, regulatory differences, economic conditions in the industry, level of inflation, exchange rate fluctuations, differences in payment terms, and other business and market-related risks. Within this definition, country risk adjustments exclude differences in location specific costs of production or other location savings²⁴.

²⁴ *Silva*, Adjusting transfer pricing comparables to reflect location savings, 2018; *Silva*, Pygmalion Comparables: Why Data from the „Center“ Does Not Apply for „Periphery“, BNA Tax 23/2015, 1 (1 et seq).

Country risk adjustments are grounded in finance theory and its underlyings have been discussed in depth in finance literature outside of the transfer pricing context.

“When investors invest in China Mobile, Infosys or Vale, they may be rewarded with higher returns but they are also exposed to additional risk. When Siemens and Apple push for growth in Asia and Latin America, they clearly are exposed to the political and economic turmoil that often characterize these markets”²⁵

Corporate finance academics developed methods and tools for investors and more broadly the finance community to account and value for such additional risks. For instance, under the Capital Asset Pricing Model (CAPM), the calculation of the Weighted Average Cost of Capital of a company operating in an emerging country may involve, in lack of local financial data, country risk premium adjustments.

5.2. Rationale and conditions for applying country risk adjustments in transfer pricing

We recommend building on the findings from the field of corporate finance to identify financially reliable solutions to the determination of country risk adjustments in transfer pricing.

Any country risk adjustments in the context of transfer pricing will be imperfect, as all financial valuation metrics have their limitations, especially when data is available only to a limited extent. As an illustration, Pereiro in *The Beta Dilemma in Emerging Markets*²⁶ indicates that while the *“Capital Asset Pricing Model (CAPM) has provided both equity investors and corporate officers making direct investment decisions with a way to estimate present values and expected returns on investments, it is not a straight-forward exercise to apply in the absence of reliable data for emerging-market firms and needs professional and personal judgment”*. In the opinion of the authors, the same goes with the country risk adjustments. These will not necessarily be perfect, but their imperfection should not be a reason for their disqualification.

But, in any case, the application of corporate finance theory to transfer pricing needs to be well framed and implemented.

Country risk adjustments have merits only if they are well articulated, given the transfer pricing environment in which they apply, and need to be applied under certain conditions only:

- They may be applied only to companies that are actually exposed to the country risks. If the subsidiary of an MNE is fully operating under the ‘protection’ of the Group (for instance, as a toll manufacturer transforming the principal’s materials into products and selling all its

²⁵ Damodaran, *Country Risk: Determinants, Measures and Implications – The 2016 Edition*

²⁶ Pereiro, *The Beta Dilemma in Emerging Markets*, *Journal Of Applied Corporate Finance*, 2010 (Universidad Torcuato Di Tella)

production to the principal, which also bears the funding, foreign-exchange and interest risks associated with the subsidiary's activities), this local company is not exposed to the same extent of risks as the other local market players. In such circumstances, the additional risks (compared to for instance a stand-alone entity acting independently in the European market) need to be assessed properly, as in some circumstances these additional risks may be rather limited or inexistent. We note though, even when a local entity operates under the "protection" of the group, the entity still operates locally and may face additional risks (e.g., systematic risks) compared to peers in developed countries, implying the need to cover such risks by an additional remuneration.

- Country risk adjustments also are preferably applied in industries and for functions within these industries, where typical benchmarking analyses can be reliably applied, such as benchmarking of manufacturing, distribution or service in certain industrial sectors. The reliability of such adjustments, in other sectors such as the extractive sector is more questionable given the cyclicity, volatility, location specific factors, the limited amount of financial information disclosed in the sector etc.; in these sectors, such adjustments may likely be less reliable.
- The question as to whether such adjustments should apply to the ex-ante price/margin setting or ex-post price/margin testing is also a relevant one. In transfer pricing, ex-ante price setting refers to the transfer pricing policy that a company uses to set transfer prices among group companies. If the group is using the Transactional Net Margin Method (TNMM), and targets a certain level of net profit for a subsidiary operating in an emerging/developing country, the price is based on an expected margin (based on budgets) that the local company may or may not earn depending on the local circumstances. The ex-post testing is a different dynamic: under the TNMM, the actual profitability is tested, typically against that of comparable companies. In theory, the expected return of an investment in a riskier country is higher than in a lower risk country, not necessarily the actual return. So theoretically, the ex-ante target price/margin is increased by the relevant country risk premium. For practical reasons, the application of such adjustments to ex-post prices/margins could also be a sound solution.

5.3. Calculation of country risk adjustments for Transfer Pricing

When the conditions of its application are met, various computations are available to estimate the incremental higher expected return that a local subsidiary in a riskier (say developing) country should be earning, compared to companies in less risky (say developed) economies:

- Some practitioners²⁷ have suggested using the CAPM model, to estimate the adjustment to the return of each single comparable in developed economies to local emerging/developing countries' circumstances. Under this approach, the differential between the WACC "comparable" (comparable/developed economy) and the WACC "tested" (target local country/emerging-developing economy) multiplied by the Capital Employed of the Comparable company provides the additional Return on Capital Employed that such comparable in an emerging/developing country would be expected to earn, all other things being equal. Under this approach, both the WACC (comparable/developed economy) and the WACC (target local country/emerging-developing economy) need to be computed. We note that various approaches are available to calculate the WACC in emerging/developing countries given the lack of reliable data²⁸.
- Some practitioners²⁹ have also suggested the use of country risks premium, as a proxy for estimating the country risk adjustment. Under this approach, the incremental return that each comparable in a developed economy should be earning equals to the difference between the country risk premium of the tested party in the emerging/developing country and that of its country of origin, multiplied by the Capital Employed of the comparable company. The computation provides the additional return that each comparable company would expect to earn, if it were to operate in an emerging/developing country, all other things being equal.

A short illustration of the two above approaches is provided below:

Assume comparables from UK companies ("UK comparable companies") selected for the purpose of benchmarking a tested party in Ghana ("Ghana company"). "Target" remuneration of tested party in Ghana is based on foreign European comparables financials increased by the incremental profit that an investor would require from investing in a riskier country.

In both approaches (the first – "WACC– approach"; and the second – "country risk premium approach"), the operating profit of the tested Ghanaian company is calculated as follows:

$$\text{Operating Profit Ghana company} = \text{Operating profit UK comparable companies} + \text{Incremental Operating Profit (Risk)}$$

²⁷ Gonnet S., Pletz A., Starkov V. (2014). "Comparability Adjustments in the Absence of Suitable Local Comparables in Emerging and Developing Economies". Transfer Pricing International Journal, special issue – Bloomberg BNA.

²⁸ Pereiro, L.E. (2002). "Valuation of Companies in Emerging Markets – A practical approach", Wiley. Koller, T., Goedhart, M., Wessels, D. (2015). "Valuation – Measuring and Managing the Value of Companies", Wiley (pp. 705 – 729).

²⁹ EY - Prix de transfert en Afrique : comment réaliser un benchmark local dans les pays pour lesquels il n'existe pas de bases de données ?

Under the “WACC” approach, the incremental profit for risk is calculated as follows:

$$\text{Incremental Operating Profit (Risk)} = (\text{WACC adjusted}_{\text{Ghana}} - \text{WACC not - adjusted}_{\text{UK}}) \times \text{Capital Employed (UK Comparable)}$$

Under the country risk premium approach, the incremental profit for risk is calculated as follows:

$$\text{Incremental Operating Profit (Risk)} = (\text{Country Risk Premium}_{\text{Ghana}} - \text{Country Risk Premium}_{\text{UK}}) \times \text{Capital Employed (UK Comparable)}$$

We note that under the latter approach, only country risk premiums (which are macroeconomic data) need to be computed, not the detailed company specific WACC. These data are notably computed by Aswath Damodaran from the NYU Stern School of Business and may be found on his webpage³⁰.

6. The role of country risk adjustments for the determination of “baseline” profit margins in Transfer Pricing

In the empirical study, we have used large datasets of aggregate comparable companies financials. This approach can be replicated to other functions and/or industries and may serve the current objective of to set fixed returns for certain “baseline” activities, as recently suggested by the OECD³¹. Using the approach described above would allow baseline reference margins to be based on functionally comparable companies and would account for the specific circumstances of a specific country’s environment, using when necessary the above country risk adjustment.

We trust that the above approach provides a viable alternative to the setting of arbitrary fixed margins, without a scientific foundation, as has been the case in the past in certain countries. Importantly, it can be applied to a number of industries/functions in all countries in the world, notably those without domestic comparables.

Under the proposed approach, baseline reference margins

- can be determined for a set of relevant industries of the country for certain functions within this industry (manufacturing, distribution, etc.);
- use functionally comparable companies and account for the specific circumstances of a specific country’s environment;

³⁰ <http://pages.stern.nyu.edu/~adamodar/>

³¹ We note the current call for comments by the OECD in the Public Consultation Documentation named “Secretariat Proposal for a Unified Approach under Pillar One » where « *Amount B of the “Unified Approach” seeks to explore the possibility of using fixed remunerations, reflecting an assumed baseline activity* » (October – November 2019).

- can also take into account additional factors, such as the size, the maturity or the importance of IP (for example, if size is determined to be a relevant factor in a certain industry, different computations could be made for different turnover levels);
- are grounded on economics: benchmark data and adjustments to the data;
- can be determined at a relatively low cost;
- can be updated regularly to reflect changes in business conditions.

Simplification in transfer pricing – for instance fixed returns for certain “baseline” activities, as recently suggested by the OECD – is, in our view, not out of reach and that large datasets of comparables may well provide insightful proxies for an economically sound estimation. If such simplified measures are adopted at international level, the inherent risks of operating in the less developed regions of the World will need to be accounted for, with for instance higher than average baseline profits in these countries.

Relation Between Country Rating and Firm's Profitability: Implications for the Application of the Arm's Length Principle



Relation Between Country Rating and Firm's Profitability: Implications for the Application of the Arm's Length Principle

Empirical Paper³²

Thibaut Roques³³

Sébastien Gonnet³⁴

Bert Steens³⁵

Christof Beuselinck³⁶

Matthias Petutschnig³⁷

³² The Paper is part of a research program carried out by Transfer Pricing Economists for Development (TPED), answering the call for research initiated by the Platform for Cooperation on Tax. This paper is a companion paper to TPED's article "Proposed Framework for Foreign Comparables Selection and Adjustment". The study is published on www.tped.eu website and SSRN (<https://papers.ssrn.com/>).

³³ TP Qube Co-Founder

³⁴ TPED President

³⁵ School of Business and Economics of Vrije Universiteit (VU) Amsterdam

³⁶ IESEG School of Management, Paris

³⁷ WU – Vienna University of Business and Economics

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Contents of Empirical Paper

- I. Introduction..... 27
- II. Hypothesis development..... 29
- III. Data 31
- IV. Methodology 33
- V. Results 35
 - A. Univariate tests 35
 - B. Multivariate tests 36
- VI. Conclusion 38
- Appendix A – Summary statistics for key variables in our sample..... 42
- Appendix B – Standard & Poor’s rating scale 42

In a globalized economy, transfer pricing estimations are key in valuing international transactions between related entities of multinational corporations (MNCs) and the use of uncontrolled comparables methods are widespread. In the absence of uniform guidelines on the optimal identification for comparable companies, however, it remains a concern that poor selection choices may lead to biased estimates, which in turn may systematically bias international revenue flows. Using a sample of uncontrolled companies operating in the food processing industry, this paper provides some initial empirical evidence that entities located in countries with higher sovereign risks exhibit higher profitability levels vis-à-vis comparable entities in lower sovereign risk countries. After controlling for sovereign risks, the geographical region in which the company is incorporated does not seem to play a role. The current findings imply that the search for foreign independent comparable companies should be organized by sovereign credit rating risk rather than geographic proximity. From a taxation perspective, our findings also suggest that insufficiently controlling for country-level sovereign risk biases high-risk countries' corporate tax revenues downwards.

I. Introduction

Transfer prices for transactions between related companies located in different geographies rank amongst the biggest taxation and operational challenges of multinational companies already for many years.³⁸ Because these transactions impact the taxable income of the firms in their respective countries, their prices are subject to fiscal rules. The internationally agreed standard for the determination of the price of transactions within multinational enterprises (MNEs) is the arm's length principle³⁹. The arm's length principle relies on various methods to be implemented, the most common being the Transactional Net Margin Method ("TNMM")⁴⁰.

The TNMM seeks to compare the net margin in controlled transactions (transactions between related companies) with the net margin in uncontrolled transactions (transactions between independent companies). Its implementation thus relies on finding independent companies with similar functions, assets and risks, whose net profitability levels consequently serve as a relevant benchmark.

³⁸ See e.g. EY's global transfer pricing surveys, pp.1 *"Since 1995, Ernst & Young has surveyed multinational companies (MNEs) on international tax matters, with special emphasis on what continues to be the number one international tax issue of interest to them – transfer pricing"*.

³⁹ The arm's length principle is set forth in article 9 of the OECD Model Tax Convention as follows: *"where conditions are made or imposed between the two enterprises in their commercial or financial relations which differ from those which would be made between independent enterprises, then any profits which would, but for those conditions, have accrued to one of the enterprises, but, by reason of those conditions, have not so accrued, may be included in the profits of that enterprise and taxed accordingly"* OECD (2017).

⁴⁰ Also called Comparable Profits Method ("CPM") in the US.

The search for comparable independent companies is fraught with complexities, in particular in countries where financial information at firm-level is scarce. When domestic financial information is not available in a particular country, the current practice consists of using foreign comparable companies and performing adequate adjustments⁴¹. This practice is not well-defined and, to our knowledge, there does not exist universal guidelines on where to find foreign comparable companies, how to specify them and how to identify the necessity of adjustment.

This study aims to provide empirical evidence that may help guide transfer pricing practitioners in finding relevant TNMM comparable companies for firms in countries where such data is lacking, such as emerging or developing countries. The standing practice is in most cases to simply look for companies in neighboring countries⁴². For example if data is missing for one European country (say Germany) the practice would be to look for foreign comparable companies in neighboring countries (for example other EU-15 or EU-28 countries).

In this study, we evaluate determinants for comparability that enable practitioners to go beyond the traditional practice of prioritizing geographical proximity.

We argue that if a country-specific factor other than geographic proximity contributes in explaining the profitability of independent companies, it could be used in determining the most appropriate country panel in which to search for foreign comparable companies. In this paper, we propose and test how the implicit riskiness of the country of incorporation (proxied by the sovereign rating of the country as an indicator for the specific economic circumstances of each country), can help fine-tuning the ex post profitability comparison in independent companies. If sector peers located in riskier countries are on average more profitable than their counterparts in less risky countries, it would seem logical to start searching for foreign comparable companies in countries with a similar risk profile as the country in which the company is incorporated. Alternatively, in case foreign comparable companies from a country with a different risk profile are observed compared to the country in which the tested party is located, adjustments shall be advised.

Our study is timely and important for a number of reasons. *First*, as discussed above, there is lack of insights in how to adjust properly for profitability comparables when two economic settings face different economic risk. *Second*, because economic risks are inherently higher in emerging versus more mature markets, our study can help emerging and developing countries' governments, as their tax administrations are then equipped with an economically sound approach to review transfer pricing

⁴¹ See Petutschnig (2018).

⁴² See TPED's companion article.

arrangements of multinationals. This is essential at a time, when revenue mobilization is a key development priority and essential to finance investments in human capital and infrastructure.⁴³

While this is widespread academic evidence that government's tax revenue loss is often the result of tax-efficient income and debt shifting and technical tax avoidance schemes, there is very little evidence on the root causes. The use of downward-biased peer comparable profit levels within the application of the TNMM could be one of these root causes.⁴⁴ Yet at the same time, there are voiced concerns that developing countries are lacking comparative advantage in collecting tax revenues compared to mature economies as there are fewer databases for comparable transactions for verifying transfer prices between related parties.⁴⁵ Moreover, there are very few – if any at all – documentation requirements or the country is very lax in enforcing existing requirements. It is on the first part that the current study can add important new insights and help curing one part of the problem, namely improving the current TNMM estimation procedures.

The remainder of the study is organized as follows. The next section presents the hypothesis formulation. Section 3 presents the data and research design. Section 4 presents the empirical findings and section 5 concludes.

II. Hypothesis development

Profitability and risk are intertwined. Entrepreneurs seeking higher profit levels have to be ready for higher risk levels. Enterprises challenged by higher risks need to achieve higher returns in order to keep investors interested. The good old and still dominantly used Capital Asset Pricing Model (CAPM) predicts that the required return on equity is a function of the risk free rate, a geography and activity specific risk factor (beta) and the market risk premium.⁴⁶ Various extensions of the model were introduced to take into account additional determining factors. The debate on their relative performance vis-à-vis the original CAPM is still inconclusive.⁴⁷ The applications of the original model and the extended models have in common that they explain returns by risks and in particular country-related risks and assume a positive relationship.

⁴³ See for e.g Cobham et al. (2015), Cobham et al. (2017), Crivelli et al. (2016).

⁴⁴ Fuest et al. (2011).

⁴⁵ Cobham et al. (2014).

⁴⁶ See Sharp (1964), Lintner (1965) and Bhatti et al.(2013).

⁴⁷ Koller, et al. (2015), Bhatti and Mirza (2013).

Many studies have been conducted to analyze impacts of country-specific factors and firm profitability.⁴⁸ The results of those studies point at (e.g., political and economical) risk factors relevant for explaining actual and required firm profitability. On the one hand, stable (less risky) countries are associated with a higher entrepreneurial risk appetite (Boubakri et al., 2013), which – leaning on the mainstream corporate finance theory – should lead to higher profit levels. On the other hand, countries that have higher risks (because of political, economic, societal, technological, ecological and demographical developments) can only attract and keep (mostly globally or regionally active) investors when their returns compensate for the higher risk profiles. Harvey (2004), for instance, documents that country risk profiles are associated with future equity returns but only so for emerging economies suggesting that these markets are somewhat segmented from the rest of the world.

The fact that emerging countries are examples of countries that are commonly associated with higher risk profiles is evident in other work as well. For companies operating in emerging markets, Koller et al. (2015: 724) assert that the cost of capital will get closer to the global cost of capital after adjusting for local inflation and capital structures, but recommend to add a country risk premium to the WACC for valuing enterprises under a business-as-usual scenario. Although analysts typically apply the sovereign risk premium as a proxy for the country risk premium, Koller et al. (2015) warn for its tendency to overestimate the country risk premium. This can be the case for certain industries, e.g., for the consumer goods industry and raw materials industry. Typical cash flow patterns of firms operating in these industries have low correlation with local government bond payments and lower volatility. The sovereign risk premium is adequate in case the cash flow patterns of the firms involved are highly correlated with the local government bond payments. Alternatively, the country risk premium can be based on the probability of lower cash flows and the potential cash flow reduction as a result of the riskiness (Koller et al., 2015: 725).

When political, economic and other country-specific conditions require adding a country risk premium, the same economic value can only be created when higher profitability levels are achieved. Economic value is created when:

$$ROCE > WACC \quad [1]$$

Which means that:

⁴⁸ See for instance Demir (2007), Ketelhöhn et al. (2011) and Boubakri et al. (2013).

$$NOPAT > WACC \cdot CE \quad [2]$$

Where:

ROCE: return on capital employed

WACC: weighted average cost of capital (after-tax)

NOPAT: net operating profit after tax = *EBIT* minus taxes on *EBIT* (earnings before interest and taxes)

CE: capital employed = fixed operating assets + working capital

Applying a country risk premium increasing the *WACC* to $WACC + \Delta WACC$ requires the minimal required *NOPAT* to increase with $\Delta WACC \cdot CE$ in order to create economic value.

Consequently, we hypothesize that sustainable profitability levels in high risk countries are on average higher than for low risk countries.

H1: Profitability levels of sustainable firms in high-risk countries are higher than those in low-risk countries.

III. Data

Our empirical analysis should rely on data that are commonly accessible to transfer pricing analysts and build on current best practices followed by transfer pricing practitioners.

We use a firm-level dataset covering 1,042 companies from the Bureau Van Dijk Orbis database. The Orbis database is one of the most commonly used databases by taxpayers and tax administrations for comparable companies' searches⁴⁹. The set of companies was selected by (1) applying criteria on the Orbis database that are standard practice for transfer pricing studies and (2) further restricting this dataset to the industry we want to investigate.

The criteria that are standard practice for transfer pricing purposes are as follows:

⁴⁹ The Orbis database is developed and maintained by Moody's Analytics company Bureau Van Dijk.

- **Active companies** – This filter is applied in order to avoid including in our sample inactive companies or companies in bankruptcy procedures as our hypothesis focuses on sustainable profitability.
- **Independent companies** – The profitability of companies that are part of larger groups may be influenced by intragroup transactions. These companies are thus excluded from transfer pricing analyses, as their profitability would not necessarily reflect the profitability an independent party would obtain. In practice, Orbis includes for each company a synthetic independent indicator, which is widely used by practitioners. For the purpose of our study, only companies with a BvD independence indicator above A- (A+, A, A-) were retained⁵⁰. Besides, companies with only unconsolidated accounts available and with subsidiaries owned between 50% and 100% or with an unknown percentage were excluded⁵¹.
- **Availability of financial data** – In order to compute the profitability ratios, companies must have EBIT and Turnover data, for all years in the period 2014-2016.
- **Size** - Companies must have an average turnover superior than 2 MEUR for the period 2012-2016 which is also consistent with our focus on sustainable profitability.
- **Descriptive information** - All firms must have a website and overview information. This step is required for transfer pricing analyses, in order for practitioners to review in detail potential comparable companies.

Our second step is to restrict this dataset to the industry we want to study. The choice of industry is informed by the availability of financial data for companies in this industry all over the globe, as well as the broad comparability of companies performing operations in the industry. We chose to focus on the food processing industry and companies in the 2-digit NACE Code number 10 “Manufacture of food products” were selected. We however believe that this analysis could be extended to other industries.

To build our database we merge sovereign rating of the country where they were located in with the company-level data.. To do so, we used the most recent sovereign rating performed by Standard and Poor’s at the time of the analysis. We acknowledge that this index is potentially not a perfect indicator,

⁵⁰ Companies are considered independent by Bureau Van Dijk if their BvD independence indicator is A- or higher, meaning that no individual shareholder holds more than 25% of the shares of the company (directly or indirectly).

⁵¹ The profitability of independent companies with subsidiaries and unconsolidated accounts can be distorted by intragroup transactions.

as companies can be present in multiple countries, suggesting that the sovereign risk they face is somewhat balanced between several countries.

We present below descriptive statistics for key variables of our sample.

Table 1 - Descriptive statistics for RoTC and Turnover of the dataset

Variable	Number of observations	Mean	1 st quartile	Median	3 rd quartile
Return on Total costs (W.A. 2012-2016)	1,042	4.7%	1.29%	3.59%	7.3%
Turnover in MEUR (2012-2016)	1,042	518.6	10.3	28.1	115.9

IV. Methodology

Our goal is to empirically study whether firms in riskier countries exhibit higher profitability than otherwise similar firms. For this purpose, we statistically test *H1*. The profitability metrics we use is the Return on Total Costs (*ROTC*). The *ROTC* is defined as the *EBIT* divided by the Total Costs (*TC*, *TC* to be computed as the Turnover minus the *EBIT*). The *ROTC* is a standard measure of profitability applied in transfer pricing analysis. We use more specifically the 5-year weighted average *ROTC* between the years 2012 and 2016. Using equations 1 and 2, it can be easily derived that *ROTC* needs to exceed $(WACC_{bt} \cdot CE)/TC$ in order to create economic value ($WACC_{bt}$ = weighted average cost of capital before tax). Adding a country risk premium would mean that the minimally required *ROTC* increases with $(\Delta WACC_{bt} \cdot CE)/TC$.

The sovereign rating of a country is a synthetic index of the likelihood that a country defaults. Sovereign ratings are used as a proxy for the riskiness of a country. Methodology and scale differ across data providers. The Standard and Poor’s methodology we use has a scale from AAA to D (in-default). The scale is provided in Appendix.

Our main focus is thus to analyze how the *ROTC* of a company may be influenced by the sovereign rating of the country where it is located. The main intuition of this paper is presented in the graph below:

Figure 1 – Interquartile range of the profitability of independent companies in the food processing industry, split by sovereign rating



This graph presents the interquartile range and mean of the profitability of independent companies, based on the sovereign rating of the country where they are incorporated. Firms are clustered by sovereign ratings, from the least risky sovereign ratings on the left (AAA rated) to the most risky sovereign ratings on the right (B rated). This graph provides preliminary evidence that companies located in riskier countries do indeed exhibit higher profitability. For the sovereign rating categories BB until AAA the average profitability is larger for riskier countries than for less risky countries. However, the B category shows a lower mean but also a large interquartile range, a result that may be caused by unobserved characteristics in this univariate representation. Nevertheless, the pattern for the categories BB until AAA are consistent with our hypothesis of higher profitability levels in riskier countries.

We now proceed by applying a number of univariate and multivariate tests. The univariate tests include test for equality of means and test for equality of interquartile ranges. The multivariate tests are performed using ordinary least squares (OLS) with various specifications. As the data exhibit a strong heteroskedasticity, we also include robust regression estimates of the standard errors.

V. Results

In the rest of this analysis and in order to create groups of homogenous sizes, we group companies in three categories: firms in countries with a sovereign rating of AAA or AA, firms in a country of sovereign rating A, and firms in a country of sovereign rating BBB, BB or B.

A. Univariate tests

We first analyze in Table 2 the differences of profitability we observe between groups of companies segregated by sovereign country risk. The first three columns report the mean for the profitability for each group and the last column reports the test statistic and the corresponding p-value in parenthesis.

Table 2 – Results of the test for equality of means⁵²

Variable	AAA/AA	A	BBB/BB/B	Kruskal-Wallis chi-squared (p-value)
Return on Total Costs	3.8%	4.9%	5.1%	2.4314 (0.2965)

In Table , we present the results of testing the equality of interquartile ranges. This test has been performed out in a similar setting by the OECD and described in the toolkit released by the Platform for Collaboration (2017), in appendix 11. The first three columns report the interquartile range for the profitability for each group and the last column report the statistic of the interest and the p-value in parenthesis.

Table 3 – Results of the test for equality of interquartile ranges⁵³

Variable	AAA/AA	A	BBB/BB/B	Chi square (p-value)
Return on Total Costs	[0.8% 7.0%]	[1.3% 6.6%]	[1.5% 7.7%]	5.1444 (0.5254)

Both tests are not statistically significant and suggest that in a univariate way, there is no evidence that high-risk and low-risk country RoTC observations are statistically different from each other. However, it may be important to control for firm-specific characteristics when these are not comparable across country-groups. We therefore now focus on multivariate tests below.

⁵² The test performed is a Kruskal-Wallis test as the Shapiro-Wilk test strongly suggest that our data is not normally distributed.

⁵³ The test performed is a Kruskal-Wallis test (instead of an ANOVA) as the Shapiro-Wilk test strongly suggests that our data is not normally distributed.

B. Multivariate tests

We reproduce the results for regressions using the *RoTC* as the dependent variable and robust standard errors in Table 3. Columns (1) and (2) display estimates for the regressions where the only dependent variables used are dummies for sovereign ratings, and the logarithm of the company's turnover. Column (1) displays results by computing robust standard errors. Columns (3) and (4) display estimates for regressions including also dummy variables for the regions in which the company is incorporated⁵⁴. Column (3) reports our estimates based on robust standard errors⁵⁵.

⁵⁴ The classification by regions is performed using the same classification as the World Bank (retrieved in February 2019 on the World Bank website).

⁵⁵ We use standard errors that are robust for heteroscedasticity and autocorrelation.

Table 4 – Regression results⁵⁶

	<i>Dependent variable:</i>			
	<i>RoTC – Weighted average 2012-2016</i>			
	(1)	(2)	(3)	(4)
Rating A	0.015*	0.015**	0.015*	0.015**
	(0.008)	(0.007)	(0.008)	(0.007)
Rating BBB/BB/B	0.022***	0.022***	0.019***	0.019***
	(0.007)	(0.007)	(0.007)	(0.007)
Log(Turnover)	0.007***	0.007***	0.008***	0.008***
	(0.001)	(0.001)	(0.002)	(0.002)
Region - Europe			0.008	0.008
			(0.006)	(0.006)
Region – Latin America			0.052	0.052***
			(0.032)	(0.019)
Region – Middle East and North Africa			0.008	0.008
			(0.012)	(0.029)
Region – North America			0.011	0.011
			(0.036)	(0.017)
Region – South Asia			0.013	0.013
			(0.010)	(0.010)
Region – Sub-Saharan Africa			-0.024	-0.024
			(0.037)	(0.024)
Constant	-0.044**	-0.044***	-0.053**	-0.053***
	(0.019)	(0.017)	(0.026)	(0.019)
Observations	1,042	1,042	1,042	1,042
Robust standard errors	Yes	No	Yes	No
R ²	0.029	0.029	0.039	0.039
Adjusted R ²	0.026	0.026	0.030	0.030
F Statistic	10.342***	10.342***	4.617***	4.617***

⁵⁶ VIF estimates indicate that the values of the independent variables are not strongly correlated with each other and that our results do not suffer from multicollinearity.

Note:

$p < 0.1$; $p < 0.05$; $p < 0.01$

Multivariate tests controlling for firm size (Log(Turnover)) and regional dummies bring evidence of a statistically significant and positive relation between the profitability of a company and the sovereign rating risk of the country where it is located. The coefficients indicate that being located in a A-rated country requires for a 1.5% RoTC upward adjustment and even 1.9% to 2.2% when firms are located in BBB, BB or B-rated countries.

VI. Conclusion

We present in this paper mixed results of testing our hypothesis that firms located in riskier countries tend to exhibit higher profitability levels. Univariate tests for equality of means and interquartile ranges do not add support to our hypothesis. In contrast, multivariate tests tend to provide support the existence of a premium. The coefficients we find indicate that firms in A-rated countries have a higher profitability on average than firms in AAA/AA-rated countries, and firms in BBB/BB/B-rated countries have a higher profitability on average than firms in A-rated countries. When using the group containing firms in AAA/AA/A-rated countries as a baseline, these coefficients are statistically robust. In contrast, after controlling for sovereign risks, adding dummy variables for the region in which companies are incorporated does not seem to add much explanatory power (using robust standard errors, none of the beta coefficient is statistically significant).

We fully acknowledge that further analyses should be performed to confirm these preliminary findings. Further analyses comprise among others: testing our hypothesis for other industries, adding additional control variables, testing additional relevant proxies for the country risk premium (including sovereign bond data), comparing operational profit levels after subtracting relevant proxies for the country risk premium, and using pooled datasets (i.e. using firm-years observations).

Nevertheless, the importance of the subject for worldwide transfer pricing practices convinced us to report these initial findings and to stress the importance of further research. If these findings were confirmed by further analyses, they would have a significant impact on transfer pricing studies. They would imply that the search for foreign independent comparable companies may start with countries with the same sovereign credit ratings rather than close neighbors. Besides, if foreign comparable companies are selected from countries with a different riskiness, profitability adjustments will be required and need to be advised.

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Appendix A – List of countries and credit ratings

The table below presents the list of countries for which at least one company was used in the course of our work, as well as the associated sovereign credit rating published by Standard and Poor's (latest credit rating at the time of the analysis) (the rating of Ghana, the country of the case study is B).

Country / Region	S&P sovereign rating	Country / Region	S&P sovereign rating
Australia	AAA	Nigeria	B
Austria	AA	Norway	AAA
Bahrain	BB	Oman	BB
Bangladesh	BB	Pakistan	B
Belgium	AA	Peru	BBB
Bermuda	A	Philippines	BBB
Bosnia and Herzegovina	B	Poland	A
Brazil	BB	Portugal	BBB
Bulgaria	BBB	Romania	BBB
Canada	AAA	Russian Federation	BBB
Chile	A	Saudi Arabia	A
China	A	Serbia	BB
Colombia	BBB	Singapore	AAA
Croatia	BB	Slovakia	A
Cyprus	BBB	South Africa	BB
Czechia	AA	Spain	A
Denmark	AAA	Sri Lanka	B
Egypt	B	Sweden	AAA
Finland	AA	Switzerland	AAA
France	AA	Taiwan	AA
Germany	AAA	Thailand	BBB
Greece	B	Turkey	B
Hong Kong	AA	Ukraine	B
Hungary	BBB	United Arab Emirates	AA
Iceland	A	United Kingdom	AA
India	BBB	United States of America	AA
Indonesia	BBB	Viet Nam	BB
Ireland	A		
Israel	AA		
Italy	BBB		
Jamaica	B		
Japan	A		
Kenya	B		
Korea (Republic of)	AA		
Latvia	A		
Lithuania	A		
Macedonia	BB		
Malaysia	A		
Netherlands	AAA		
New Zealand	AA		

Appendix B – Standard & Poor’s rating scale⁵⁷

Long-Term Issuer Credit Ratings*	
Category	Definition
AAA	An obligor rated 'AAA' has extremely strong capacity to meet its financial commitments. 'AAA' is the highest issuer credit rating assigned by S&P Global Ratings.
AA	An obligor rated 'AA' has very strong capacity to meet its financial commitments. It differs from the highest-rated obligors only to a small degree.
A	An obligor rated 'A' has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.
BBB	An obligor rated 'BBB' has adequate capacity to meet its financial commitments. However, adverse economic conditions or changing circumstances are more likely to weaken the obligor's capacity to meet its financial commitments.
BB, B, CCC, and CC	Obligor's rated 'BB', 'B', 'CCC', and 'CC' are regarded as having significant speculative characteristics. 'BB' indicates the least degree of speculation and 'CC' the highest. While such obligors will likely have some quality and protective characteristics, these may be outweighed by large uncertainties or major exposure to adverse conditions.
BB	An obligor rated 'BB' is less vulnerable in the near term than other lower-rated obligors. However, it faces major ongoing uncertainties and exposure to adverse business, financial, or economic conditions that could lead to the obligor's inadequate capacity to meet its financial commitments.
B	An obligor rated 'B' is more vulnerable than the obligors rated 'BB', but the obligor currently has the capacity to meet its financial commitments. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitments.

⁵⁷ Source: Standard and Poor’s. Retrieved at https://www.standardandpoors.com/en_US/web/guest/article/-/view/sourceld/504352.

CCC	An obligor rated 'CCC' is currently vulnerable and is dependent upon favorable business, financial, and economic conditions to meet its financial commitments.
CC	An obligor rated 'CC' is currently highly vulnerable. The 'CC' rating is used when a default has not yet occurred but S&P Global Ratings expects default to be a virtual certainty, regardless of the anticipated time to default.
SD and D	An obligor is rated 'SD' (selective default) or 'D' if S&P Global Ratings considers there to be a default on one or more of its financial obligations, whether long- or short-term, including rated and unrated obligations but excluding hybrid instruments classified as regulatory capital or in nonpayment according to terms. A 'D' rating is assigned when S&P Global Ratings believes that the default will be a general default and that the obligor will fail to pay all or substantially all of its obligations as they come due. An 'SD' rating is assigned when S&P Global Ratings believes that the obligor has selectively defaulted on a specific issue or class of obligations but it will continue to meet its payment obligations on other issues or classes of obligations in a timely manner. A rating on an obligor is lowered to 'D' or 'SD' if it is conducting a distressed exchange offer.
<p>*Ratings from 'AA' to 'CCC' may be modified by the addition of a plus (+) or minus (-) sign to show relative standing within the rating categories</p>	

Research team

Lead - TPED

TPED is a Paris-based Non-Profit Organization aiming to promote the development and sharing of business economics knowledge in transfer pricing notably in emerging and developing countries. Members of TPED are experienced economists, both from academia and consulting, as well as transfer pricing experts from emerging and developing countries. With strong ties with universities, TPED initiates, supervises, and publishes economic studies conducted by universities. This approach allows to combine the rigor and objectivity of academic research, with the support of multi-disciplinary experienced TPED members, so that to ensure the relevance and usefulness of the research conducted and its results.

Academic partners⁵⁸

Prof.dr. Bert Steens, Full professor at the School of Business and Economics of Vrije Universiteit (VU) Amsterdam,

Prof. Christof Beuselinck from IESEG School of Management and LEM France,

Prof. Matthias Petutschnig, from WU – Vienna University of Business and Economics.

Modeling partner - TP qube

TP qube is made of economists and digital entrepreneurs with an experience in transfer pricing and in the development of innovative statistical solutions. TP qube has developed innovative tools aiming at improving the way benchmarks are performed in Transfer Pricing. TP qube's solutions are built on predictive statistical models and text mining techniques.

⁵⁸ All three academic partners are also members of TPED.



Transfer Pricing Economists for Development
Not-For-Profit Organization
Paris
www.tped.eu
Contact: sebastien.gonnet@tped.eu