# Debt shifting in response to international tax incentives: Evidence from European multinational corporations

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**Understanding tax-efficient leverage structures is an important concern both for multinational corporations and for tax authorities. The previous literature has established that corporate financing structures depend on both tax factors and non-tax considerations, such as bankruptcy costs and agency costs. Using a large sample of European multinationals, I find that all tax saving mechanisms proposed in the previous literature are empirically relevant, and that large corporations exploit these mechanisms to a larger extent than small corporations.**

I use a model specification proposed by Møen, Schindler, Schjelderup and Tropina (2011), which considers the optimal capital structure of a multinational firm, accounting for both tax and non-tax costs and benefits of debt. More specifically, I consider the sensitivity of firms' leverage to national and international corporate tax rates, represented by three tax mechanisms – the standard debt tax shield mechanism, an external debt shifting mechanism and an internal debt shifting mechanism.

The model's predictions are tested on a large sample of European multinational firms and their majority-owned European affiliates during the years 2003 to 2014. I obtain historical ownership data on European firms from the firm-level Orbis database, and use the firm-level Amadeus database to find financial data.

The empirical results show that the affiliates' leverage depends both on the host country corporate tax rate and the corporate tax rates faced by all other affiliates that belong to the same multinational corporation. As a hypothetical example, consider a multinational corporation that consists of two affiliates – one foreign subsidiary and the parent firm. The two affiliates are of equal size and the foreign subsidiary is located in a country with a higher corporate tax rate than the parent firm. Assume that the subsidiary's host country increases the corporate tax rate by 10 percentage points while keeping everything else constant. According to my estimates, the effect of such a tax change will be an increase of 2.42 percentage points in the subsidiary's debt-to-asset ratio, and a decrease of 0.27 percentage points in the parent firm's debt-to-asset ratio.

My analysis shows that controlling for international debt shifting is highly important when examining multinational firms' leverage responses to tax changes. This is due to correlation between the variables associated with the various mechanisms, and implies that many previous studies that examine firms' leverage responses to tax have produced biased estimated. My analysis also reveals that adjustments for historical ownership changes among subsidiaries and parent firms are important. Several previous studies claim that misclassified ownership relations are not a major concern.

I also find that European affiliates that belong to multinational firms with majority-owned affiliates outside Europe are more indebted. Moreover, these affiliates seem to be less responsive to international tax incentives than affiliates that belong to multinational firms with only European affiliates. The obtained results can be explained by a potential measurement error in the international debt shifting variables that arises due to disregarding financial and tax data on affiliates outside Europe. Finally, I find that large multinational firms are relatively more likely to engage in international debt shifting than small multinational firms.

International debt shifting is likely to create efficiency losses due to the costs of implementing the strategies and due to deviations from the firms' optimal leverage ratios based on non-tax considerations. In addition, nominal tax rates could have been lower in absence of debt shifting behaviour. In order to reduce international debt shifting by multinational firms, an international harmonization of effective corporate tax rates seems necessary. Another mechanism to fight tax avoidance is the introduction of a common consolidated corporate tax base for multinational firms' activities in different countries. Specific policy mechanisms should also be targeted towards the largest multinationals. A final policy lesson that may be derived from my findings is that anti-tax avoidance rules, such as thin capitalization regulations or earnings stripping rules, may be relaxed in the aftermath of a financial downturn. This is because I find that the incentive to use more leverage or engage in external debt shifting decreases when firms have losses to carry forward.

Overall, increased transparency of tax information and more stringent requirements for multinational firms are necessary to ensure a fair tax system. If tax authorities do not implement mechanisms to reduce international debt shifting in response to tax incentives, multinational firms will continue to exploit loopholes in regulations and use debt extensively to shift profits and avoid taxes.