Estimating the effect of corporate income tax reductions: A comparative case study on the capital structure of financial corporations

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We investigate the effects of a corporate income tax rate change on financial corporations' capital structure. We perform two case studies on financial corporations located in Austria and the Netherlands to answer this question. Our results indicate that there is a positive effect of a change to the corporate income tax rate on the capital structure of financial corporations. Austrian and Dutch financial corporations lowered their debt-to equity ratios on average by a little over 30 % compared to constructed synthetic controls.

The impact of taxes on the capital structure of firms is a topic that has received extensive research. Since Miller and Modigliani expanded their capital structure theory in 1963 to account for taxes, researchers have tried to estimate this effect. Previous findings are contradictory, where some find a causal relationship between taxes and capital structure, and others do not.

The trend of tax reforms decreasing the statutory corporate income tax rate started in the mid-1980s with the United Kingdom and the United States as pioneering countries. This trend has lasted up until now and does not seem to subside. The OECD average corporate income tax rate was reduced from 47.5 % in 1981 to 25 % in 2015. Consequently, there should be huge potential for studies regarding these tax changes.

The corporate income tax is a distortive tax, i.e. it leads to inefficiency. We are interested in the distortion that originates from the ability to deduct interest expenses from the tax base. In almost all countries, cost of equity receives no such benefit. Previous research on the impact of corporate income taxation on capital structure has mainly been regarding non-financial corporations. Leverage of financial corporations closely track the business cycles, and variation in the stock market is likely the prime driver of this effect. Looking past this, however, it seems that the capital structure of financial corporations follow a decreasing trend. The average debt-to-equity ratio is almost halved from over eight in 1995 to well under five in 2014. This makes a causal relationship between corporate income tax and capital structure of financial corporations seem plausible.

We want to examine if the reductions to the corporate income tax rate led to a significant reduction of the average debt-to-equity ratio of the financial corporations. For this research, itis expedient to compare the countries that changed their statutory corporate income tax rate to countries that did not, thus conducting a comparative case study. However comparing at an aggregated level is complicated due to the lack of valid comparisons, because countries are very heterogeneous. To overcome this obstacle we employ the synthetic control method, where we use a weighted average of control countries that resembles the country of interest in terms of certain characteristics. The intuition is that this "synthetic control" is thought to represent the country of interest, in the absence of a change to the corporate income tax rate, better than any control country alone.

As our first case study, we have chosen Austria's Tax Reform Act of 2005. This tax reform resulted in a reduction of the corporate income tax rate from 34% to 25%. As a result Austria went from being one of the higher taxed to one of the lower taxed countries in the OECD. As our second case study, we have chosen the Netherlands who completed a significant reduction to the corporate income tax rate in the years 2005, 2006 and 2007. Over this period, the tax rate was decreased from 34.5 % to 25.5 %.

We base our analysis on data from 2000 to 2010, and we use nine OECD-countries as controls. We construct a counterfactual outcome for both countries, where no change to the corporate income tax rate occurred. We do this by constructing a weighted average of control countries unaffected by such a change to the corporate income tax rate.

We find that both Austrian and Dutch financial corporations on average lowered their debt-to equity ratios a little over 30 % compared to their synthetic controls.

To test the significance of our estimates we conduct placebo tests to see if we get results of similar magnitude when considering countries that did not implement such tax reforms. The results of these test are, however, ambiguous. We find an effect of taxes on capital structure to be significant when conducting a one-sided hypothesis test, but we do not when conducting a two-sided test. Our results are robust when we place different restrictions on the synthetic control. The fact that we get results of similar magnitude for both Austria and the Netherlands assures us that our results are quite robust. Consequently, we find that there is a strong indication of corporate income taxes positively affecting the capital structure of financial corporations.