

Preliminary thesis report

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1.0 Introduction to research topic

According to Dobbins and Jacob (2016) the corporate tax level affects investments in two main ways - a lower required rate of return for profitable investments, as confirmed by Goh et al (2016), and higher after tax cash flows. Djankov et al (2010) also found that lower levels of corporate taxes lead to higher investments, which is in line with basic economic theory. Since investment decisions have been found to be sensitive to cash flow variations (Fazzari, Hubbard and Petersen 1998), and tax avoidance affects the cash flow of a company, we wish to explore whether a change in the level of corporate taxes due to tax avoidance has the same influence on investments as a change in the level of corporate taxation due to changes in the tax code of a country.

It is important to emphasize that tax avoidance does not necessarily imply firms are engaging in anything improper. Tax avoidance is the legal utilization of the tax regime to one's own advantage, to reduce the amount of tax that is payable by means that are within the law. By contrast, tax evasion is the general term for efforts not to pay taxes by illegal means. Put in other words, the difference between tax avoidance and evasion is the thickness of a prison wall (Dang and Sharma, 2011). In practice, of course, there are many gray areas where the dividing line is not clear, and sometimes the tax authorities may inappropriately characterize particular cases (Slemrod and Yitzhaki, 2002). Over the last 25 years, corporate tax avoidance has received much attention. For example, evidence of corporate tax avoidance led to the tax reform act of 1986, the largest overhaul of the U.S. tax code in history (Dyreng, Hanlon and Maydew, 2008).

2.0 Motivation for the subject and literature review

Separately, tax avoidance and firm investments are topics which have been researched extensively, and are common issues in every business education. There are several factors affecting the extent to which companies choose to engage in corporate tax avoidance, or abstain from doing so. Richardson, Taylor and Lanis (2015) used information on Australian listed companies in a period spanning the global financial crisis in 2008 and found that the extent of corporate tax avoidance increased significantly during the global economic crisis. They postulated that the

need to conserve capital or to meet the minimum capital needs of the firm is especially important in periods of financial distress so that the firm can maintain credit ratings, meet the requirements of debt covenants or to continue as a going concern. Furthermore, they argue that in times of distress the benefits from tax avoidance activities, in the form of increased cash flows outweigh the risks. This assumption is in line with the fact that tax avoidance is beneficial to equity owners, but also risk engendering. On one hand, Goh et al. (2016) find that the cost of equity is lower for tax-avoiding firms. This effect is stronger for firms with better outside monitoring, firms that likely realize higher marginal benefits from tax savings, and firms with higher information quality. The results suggest that equity investors generally require a lower expected rate of return due to the positive cash flow effects of corporate tax avoidance (Goh et al. 2016). On the other hand, Hasan et al. (2014) provide comprehensive empirical evidence that firms exhibiting greater corporate tax avoidance incur higher bank loan cost. The results suggest that banks perceive tax avoidance activities as engendering significant risks and, accordingly, banks charge higher loan spreads when lending to firms with greater tax avoidance. This applies not only to interest rates and spreads, but also to non-price loan terms and debt covenants.

To get an insider view on the decision to engage in corporate tax avoidance, Graham et al (2014) analyzed responses from nearly 600 corporate tax executives to investigate firms' incentives and disincentives for tax planning. The executives indicate that reputation is very important, with 70 percent of firms rating it as important or very important in their decision to avoid a tax planning strategy and 58 percent of firms rating the risk of adverse media attention as important or very important. However, the reputational effect of tax avoidance or tax sheltering has been hard to identify. A different trio of researchers, Gallemore, Maydew and Thornock (2014) did not find much evidence that firms or their top executives face significant reputational costs from involvement in tax sheltering. The only exception is a temporary decline in stock price around tax shelter revelations that fully reverses within 30 days. Graham et al (2015), argues that these findings are only partly correct because it does not account for the adverse reputational consequences' deterring effect on the decision to engage in tax avoidance. In other words, whether reputational concerns constrain tax planning is not

measurable in archival tests of tax shelter firms, because strategies that firms do not employ due to reputational concerns are not observed.

From an outside perspective, a study on Chinese firms by H. Cai and Q. Liu (2009) reveals that firms in highly competitive market segments are more likely to engage in tax avoidance. The results highlight the importance of industrial characteristics in understanding firms' tax avoiding behaviour, and provides strong evidence that in a market environment with poor institutional infrastructure, competition may very well encourage socially wasteful activities as firms use all possible instruments to gain competitive advantage.

Fazzari, Hubbard and Peterson (1988) discovered that firms' investment decisions are highly affected by the available cash flow, due to the opportunity for cheap internal financing, as opposed to the alternative of seeking financing from external sources. Later, both Dobbins and Jacobs (2016) and Djankov et al. (2010) confirmed these findings, and specifically found the effect of corporate income taxes on the level of investments to be both statistically and economically significant.

According to Modigliani and Miller (1958), a firm's financial status is irrelevant for real investment decisions in a world of perfect and complete markets. In a not so perfect world however, Fazzari, Hubbard and Petersen (1988) emphasizes that the link between financing constraints and investment varies by type of firm. They tested two main hypotheses. First, firms which exhaust nearly all their low cost internal funds should be more sensitive to fluctuations in their cash flow than firms that pay high dividends. And second, Liquidity should have a greater effect on investment for low-dividend firms than for high dividend firms. They found that financial effects were generally important for investment in all firms. But the result consistently indicated a substantially greater sensitivity of investment to cash flow and liquidity in firms that retain nearly all their income. These results are also in line with more recent research by Kaplan and Zingales (1995) and Sean Cleary (1999), who found that less financially constrained firms exhibit greater investment-liquidity sensitivity than those classified as more financially constrained. The high investment-cash flow sensitivities appear to be driven by managers choosing to rely primarily on internal cash flow for investment, despite

the availability of low cost external funds (Kaplan and Zingales 1995).

Hovakimian (2009) adds that the relationship can be explained by the company life-cycle hypothesis. First, given very low starting levels, it should, theoretically, take a long time until cash flows become high enough to serve as a considerable source of financing. Second, without current investments, higher cash flows in the future may not materialize. Thus, firms invest most when their cash flows are lowest using primarily external financing (Hovakimian 2009).

Djankov et al. (2010) tested the effect of corporate taxes on investment and entrepreneurship using information on corporate tax rates for 85 countries. They could present cross-country evidence that corporate tax rates have a large and significant adverse effect on corporate investment and entrepreneurship. Furthermore, they discover that higher corporate tax rates are also associated with lower investment in manufacturing, but not in services, a larger unofficial economy, and greater reliance on debt as opposed to equity finance. In these new data, corporate taxes matter a lot, and in ways consistent with basic economic theory.

Taking advantage of a natural experiment, Dobbins and Jacob (2016) performed a study on whether corporate tax cuts affects investments or not, exploiting the corporate tax cuts in Germany in 2008 where the corporate tax rate was cut from 39% to 29%. They found that firms with limited access to international profit shifting opportunities respond more strongly to a corporate tax cut than firms with foreign operations and the opportunity to shift income across borders. Furthermore, they found stronger investment effects for firms more reliant on internal funding. These firms benefit not only from reduced cost of capital, but also from higher after-tax cash flow. In addition, they find that companies with higher increase in investments, that is, domestic firms with limited profit shifting opportunities, also increase labor expenses more than firms with lower investment responses, that is, firms with more profit shifting opportunities. These results are also tested using a difference-in-difference-in-differences test comparing the result with other EU-economies, to rule out the possibility of the financial crisis' effect on the positive relationship.

As we have determined that the corporate tax level has a significant effect on the level of firm investment, and that firm investment are highly sensitive to cash flow variations, we think it could be interesting to find out whether changes in corporate taxes due to tax avoidance has a similar effect on firm investments or not. The results could help explain some of the motivation behind corporate tax avoidance, and help elaborate on financing decisions for new investments, by clarifying if there is a substitutional effect between debt and equity when companies tend to avoid taxes.

After reviewing some of the literature we have found that there has been conducted little or no research on the relationship between tax avoidance and investments. Hence, we wish to further explore the consequences of tax avoidance related to what the tax savings are used for. As we see it, there are three primary options, (1) It can be used for increased dividends, (2) to increase investments, or (3) it can be kept as cash in the company. If the relationship between tax avoidance and investment is similar to that of corporate taxes and firm investments, we should see a positive relationship between the level of corporate tax avoidance and the level of investments.

4.0 Research question and objectives of the thesis

Using data from Norwegian listed and unlisted companies during the period 2003 to 2014 we want to test the following research question:

- **Does tax avoidance influence investments?**

H0: Tax avoidance has no effect on the level of investments

H1: Tax avoidance has rate an effect on the level of investments

We expect this relation to be positive; more tax avoidance leads to higher investments due to more excess cash. It could also be interesting to investigate in what way this also affect the company's dividends and payout ratio.

To see if there is any relationship between the corporate effective tax rate and the level of investment, we must look at all the factors that may influence the investments and effective tax rate over the period. Based on prior studies and articles reviewed we will get an idea of the control variables we should include in or analysis. This will be discussed further in the Methodology section below.

5.0 Methodology

To answer our research question, we plan to use a linear regression analysis in Stata. It is important to clarify at the outset what we define as “tax avoidance.” Following the prior literature, tax avoidance is measured as the level of effective tax rate. As in Dyreng et al. 2008, we define tax avoidance broadly to encompass anything that reduces the firm’s taxes relative to its pretax accounting income. Currently we plan to use CASH ETR as measure of the level of tax avoidance, measured as the firm’s cash taxes paid divided by pre-tax accounting income. Investments, which is the variable we want to explain, will be our dependent variable. Like Hovakimian (2009), we will measure this as capital expenditures divided by total assets. Our objective is to see how CASH ETR as an independent variable are affecting the level of investments, correcting for other variables influencing our dependent variable.

Following the prior literature there are several firm-level control variables that affect corporate investment decisions and that should be included in our model. We expect that more profitable firms invest more because of greater opportunity to fund investments internally (Fazzari, Hubbard and Petersen, 1988; Lamont 1997) and include EBIT over the prior year’s total assets as a ratio. Since firms with higher sales also probably invest more (Fazzari and Petersen, 1993), we include sales over the prior year’s total assets as a proxy for growth opportunities. Further as suggested by Dobbins and Jacob, 2016, we should additionally include the ratio of labor costs to the prior year’s total assets as well as the ratio of total debt to the prior year’s total assets to control for leverage. Since smaller firms have better investment opportunities (Carpenter and Petersen, 2002) they also include the variable $\ln(TA)$ (accounting for the size of the firm).

Currently the variables we want to include in our analysis are:

Y: Investments

x1: CASH ETR

x2: EBIT/Total Assets (t-1)

x3: Sales/Total Assets (t-1)

x4: Labor costs/Total Assets (t-1)

x5: Debt/Total Assets (t-1)

x6: $\ln(TA)$

It could also be useful to control for unobservable differences between years and industries, using firm-fixed effects and year-fixed effects (Stock and Watson, 2012). Fixed effects have the advantage of possibly reducing the likelihood of having omitted variable bias, but it also has the disadvantage of possibly reducing the likelihood of finding statistically significant results. To assess whether fixed effects helps reduce OVB or not, we will use a Hausman test.

To estimate and conclude that these variables have an actual impact on our dependent variable, we need to test each variable and see if they are statistically significant. Usually this will be done through the student t-test and F-test. The t-test analyze the significance of each coefficient and the intercept, while the f-test tests the overall model. The t-test has the null hypothesis that the coefficient/intercept is zero. If the variable is not statistically different from zero, this may conclude that the variable should not be included in our analysis. However, this decision will be based on a more in depth analysis where we must look at descriptive statistics and check for multicollinearity problems. In the F-test, the null hypothesis is that the independent variables have no influence on the dependent variable, which is the same as checking whether R^2 is equal to zero or not. By looking at R^2 we will be able to see how much of the variability in our dependent variable that is explained by each variable, and how much of the variation in the dependent variable that is explained by our regression model. However, if you increase the number of fitted coefficients in your model, R-square will increase although the fit may not improve in any practical sense. To avoid this situation, we will probably use the degrees of freedom adjusted R-square statistic.

Given the fact that there is a reverse causality relation between Cash ETR and Investments, might cause problem in the OLS regression (Cingolani, Luciana and Crombrugghe, Denis de, 2012).

$$(1) \quad INV_i = \beta_0 + \beta_1 \times CASH\ ETR_i + u_i$$

$$(2) \quad CASH\ ETR_i = \beta_0 + \beta_1 \times INV_i + v_i$$

To deal with this potential problem, we will perform a two stage least square analysis, using an Instrumental variable. The instrumental variables approach (IV) is without doubt the most widely used technique to deal with simultaneity problems in econometric specifications (Cingolani, Luciana and Crombrugghe, Denis de, 2012).

Data collection:

Our analysis will mainly be based on secondary data, from publicly available income statements and tax papers, and will be collected from BI's databases and resources. We will discuss this further with our supervisor to be more specific in where, and what to look for.

6.0 Plan for thesis progression

January

Due to the exchange semester before Christmas we applied for an extension of the deadline for submitting the Preliminary Master Thesis Report by writing an email to the thesis coordinator. We got an approval from our supervisor Ignacio Garcia de Olalla Lopez, and the new deadline will be 1st March 2017.

February

Finishing the Preliminary Thesis, and start thinking about where and what information we need. Start conversations with our supervisor.

March

Gathering data and start the analysis. Writing the methodology part and estimating the data collection.

April

Hopefully, our analysis starts to show some results and we will begin to write about it.

May

The first part of this month will probably be used to study for the exams in May.

June

Take an overview over the whole master thesis to see if we have missed anything. Correct spelling mistakes and parlance. Hopefully we will be able to finish our thesis in the first period of June.

September 1, DEADLINE

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