The Behavior of Tax Avoidance for Profit-seeking Enterprises

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Abstract

This research discusses the tax avoidance behavior of profit-seeking enterprises and the correlation with their corporate characteristics and measures the level of tax avoidance by the difference between the statutorytax rate (17%) and the effective tax rate (ETR). The analysis results show that 41.5% of profit-seekingenterpriseshave ETRs less than the statutory tax rate, and the average effective tax rate of the account is less than the statutory tax rate by 1.49%. Furthermore, for those with net sales revenue between NTD 25 million and 30 million, it is more likely that tax avoidance is conducted in order to meet the conditions for the adoption of an audit by reviewing declaration, they use a certain ratio of net income (expansion rate 6%)to calculate income tax, without the need to prove the related expense or cost information. Therefore, the more likely it is to engage in tax avoidance. In contrast, for profit-seeking enterprisesthat usea tax return reviewed by a CPA, their account certificates are checked by the CPA after the declaration. Tax authorities only check on the book examination, thus reducing their engagementin tax avoidance behavior. The other expenses are higher and the inventory is lower which have greater tax avoidance. Finally, the higher ratio of shareholders and the highertax avoidance if the interest generated by financing loans is not calculated and the distribution of interest earned on those loans made by shareholders to the company is reduced.

Keywords: Tax Avoidance,Effective Tax Rate (ETR),Tax Returns.

1. Introduction

Corporate tax avoidance through tax regulations and tax avoidance strategies reduces the incidence of taxation or tax effect of deferred taxes. Tax avoidance is an important corporate strategy (Cai and Liu, 2009; Hanlon and Heitzman, 2010). Dyreng, Hanlon and Maydew (2008) indicate in the United States under federal nominal tax rates of up to 35% that about 25% of companies will maintain a long-term effective tax rate of less than 20%. However, only about 25% of the actual tax rate is higher than 35%. For a decade, the United States tax rate was higher than that of most other developed countries, showing that many firmsare actively involved in tax avoidance.

Profit-seeking enterprises in Taiwan file business income taxes primarilyin three methods. They coveraudit by reviewing declaration on tax return under the standards issued by the Ministry of Finance (audit by reviewing declaration), audit by reviewing accounting books (above 30 million or below 30 million), and audit by CPA.

Statistics from the Fiscal Information Agency suggests that among the 4,225,530 tax filings from profit-seeking enterprises in Taiwan for 2013 to 2017, 62.19% of these were audited by reviewing declaration on tax returns under the standards issued by the Ministry of Finance.Audit by reviewing accounting books' tax return accounted for 18.11%, while the third highest was 10.07% for audit by CPA.

This study measures the level of tax avoidance by the difference between the statutorytax rate (17%) and the effective tax rate (ETR). The analysis results show that 41.5% of all profit-seekingenterprises have ETRs less than the statutory tax rate, and that the average effective tax rate of the account is less than the statutory tax rate of1.49%. Furthermore, given net sales revenue between $25 million and $30 million, it is more likely that tax avoidance will occur in order to meet the conditions for the adoption ofaudit by reviewing declaration, it uses a certain ratio of net income (6%) calculated income tax, without the need to prove the related expense or cost information, the more likely it is to engage in tax avoidance. In contrast, if profit-seeking enterprises usethe tax return of review by CPA, then their account certificates are checked by a CPA after the declaration, tax authorities only check on the book examination, thus reducingtheir engagement in tax avoidance behavior. The higher the other costs are, the lower is the inventory at the end of the period. Profit-seeking enterprises with higher other expenses and lower ending inventory will generally have a lower tax income and higher tax avoidance. Finally, the higher the ratio of shareholders is, the higher is the amount of borrowing from shareholders, and the higher is the tax avoidance if the interest generated by financing loans is not calculated and the distribution of interest earned on the loans made by shareholders to the company is reduced.

This study samples and analyzes five years of data ontax filings from the Fiscal Information Agency.Itis the first research paper that examine a whole set of tax filings and assessments from profit-seeking enterprises.Theanalysis is conducted on records from nearly one million profit-seeking enterprises each year based on tax dataassessed by the authorities. This big data analysis is the main focusof this study.In addition, itcalculates the adjustment in incomes and taxes by referring to the profits and losses stated in income tax filings and the actual numbers on the balance sheets of profit-seeking enterprises. This is the second focusof this study.

The paper proceeds as follows. Section 2 presents a literaturereview of corporate tax avoidance and the hypotheses' development. Section 3 describes the research design, data selection, and the measure of corporate tax avoidance. Section 4showsthe regression results. Section 5offersthe study's conclusions, contributions, and limitations.

2. Literature Review and Hypotheses' Development

2.1 Theories of Corporate Tax Avoidance

Corporate tax avoidance activity has two alternative perspectives on the motivations and effects of this activity. Several studies investigated corporate tax avoidance as an extension of other tax-favored activity, such as the use of debt.

Graham and Tucker (2006) identify size and profitability as positively associated with the use of tax shelters and argue that tax shelters serve as a substitute for interest deductions in determining capital structure. An alternative theoretical approach emphasizes the interaction of these tax avoidance activities and the agency problems inherent in publicly held firms. According to this view, tax avoidance activities can create a shield for managerial opportunism and the diversion of rents.

Desai and Dharmapala (2006) and Desai, Dyck and Zingales (2007) emphasize that corporate tax avoidance entails distinct costs, which may outweigh the benefits to shareholders, given the opportunities for diversion that these vehicles provide.

While the traditional view of corporate tax avoidance suggests that shareholder value should increase with tax avoidance activity, the alternative view provides a more nuanced prediction. Specifically, firm governance should be an important determinant of the valuation of purported corporate tax savings. While the direct effect of tax avoidance is to increase the after-tax value of a firm, these effects are potentially offset, particularly in poorly governed firms, by the increased opportunities for managerial rent diversion. Thus, the net effect on firm value should be greater for firms with stronger governance institutions.

2.2 Empirical View of Tax Avoidance Activities

Tax avoidance articles dating back to Scholes, Wilson and Wolfson (1990) have continued and been developed in a number of relevant studies. First, there is strongevidence that tax avoidance behavior comes from a variety of different tax strategies, from simple strategies, such as holding tax-exempt government bonds, to complex strategies, such as debt to equity hybrid securities, transnational profit transfer and allocation (cross-border avoidance strategies), establishment of intangible asset holding companies, and overseas development (Engel, Erickson and Maydew, 1999; Drying and Lindsey, 2009; Drying, Lindsey and Horneck, 2013; Brown, 2011).

The noted growth in corporate tax avoidance activity has given rise to speculation concerning the motivations and effects of this activity. Past studies investigated corporate tax avoidance as an extension of other tax-favored activity, such as the use of debt. Graham and Tucker (2006) construct a sample of firms involved in 44 corporate tax shelter cases over the period 1975-2000. They identify characteristics of size and profitability that are positively associated with the use of tax shelters and argue that tax shelters serve as a substitute for interest deductions in determining capital structure.

Another approach emphasizes the interaction of these tax avoidance activities and the agency problems inherent in publicly held firms. Desai and Dharmapala (2006) and Desai et al. (2007) give an emerging paradigm that emphasizes the links between firms' governance arrangements and their responses to taxes. Desai and Dharmapala (2009) discuss the interaction between tax shelters and various forms of managerial opportunism, illustrating that straightforward diversion and subtle forms of earnings manipulation can be facilitated when managers undertake tax avoidance activity.

As many companies undertake tax avoidance activities, Armstrong, Blouin and Larker (2012) point out that most managers are encouraged to reduce their company's tax burden. Robinson, Sikes and Weaver (2010) showthat some enterprises view their accounting department as a profit center instead of a cost center.

Drying, Hanlon and Maydew (2008) indicate that 25% of corporations are below the long-term effective tax rate of 20% in the U.S., and that some 25% of enterprises with more than ten years of an effective tax rate higher than 35% avoid public scrutiny and criticism from others in regards to tax avoidance activities (Markle and Shackelford, 2011).

2.3 Tax Avoidance and Tax Returns

Profit-seeking enterprises in Taiwan file business income taxes primarily in three methods. These methods are audit by reviewing declaration on tax return, audit by reviewing accounting books, and assessed and certified returns by certified public accountants. Few enterprises qualify for tax filing by foreign companies, sole proprietorships, or partnerships.

Audit by reviewing declarations on tax returnsis mainly chosendue to incomprehensive books and the desire to avoid inspections from the National Taxation Bureau. Any small- to medium-size enterprise (SME)with annual revenue and non-operating income totaling NTD 30 million or less may opt for adjusting the net margin for audit by reviewing declarations on tax returns.This may be relevant even if the finalized net margin on the book falls below the net margin reported for tax purposes (e.g., 2% net margin on the accounts, but 6% net margin in the tax assessment). Audit by reviewing declarations on tax returnsunder the standards issued by the Ministry of Finance is not applicable to an SME with annual revenue and non-operating income exceeding NTD 30 million. However, if the income filed for tax purposes exceeds the standard incomes in the industry, thenthe National Taxation Bureau will still assess the taxes based on the filed amount.

Alumina and Lopez-Rodriguez (2018) explore the relationship between Spanish audit authorities' examination of corporate audits with declared income of more than 6 million Euros and corporate tax compliance. Their study finds that companies were motivated to declare their income below the threshold of 6 million Euros, suggesting that inspections should be strengthened to smaller businesses. Cheng et al. (2019) use the rapid model to explore whether there is a rapid phenomenon in expanding the written audit system in China and find that there is an abnormal sharp phenomenon in the number of manufacturers near the threshold value. This implies the expansion of written audit profit-seeking business with an average annual underestimate of NTD 700,000 income.

Wu and Chen (2020) mention the necessity of an audit by reviewing declarations on tax returns in order to save tax assessment costs. However, taxable incomes under the standards issued by Taiwan's Ministry of Finance are based on estimates, rather than revenues less costs and expenses. This is not consistent with the principle of honest tax filing encouraged by the income tax assessment system. Moreover, the low coverage of random inspections by tax authorities on an audit by reviewing declarations on tax returns under the standards issued by the Ministry of Finance essentially provides protection for those profit-seeking enterprises without complete accounting records. Finally, tax revenues take a hit if profit-seeking enterprises file taxes by declaring a net margin lower than the actual margin.

Audit by reviewing accounting books refers to the National Taxation Bureau's access of accounts and books of profit-seeking enterprises via due diligence in order to check against the tax filings and to determine taxes payable. If profit-seeking enterprises wish to avoid this, then they can hire certified public accountants to audit tax filings by first going through company accounts.

CPAs review and audit tax filings of profit-seeking enterprises according to tax laws and use generally accepted auditing principles. They inspect whether transaction records and accounting approaches are compliant with tax laws to certify the taxable incomes and submit filings on behalf of profit-seeking enterprises. Therefore, the National Taxation Bureau typically reviews these tax declarations on paper.

There are currently thresholds on the applicability of audit by reviewing declaration on a tax return under the standards issued by the Ministry of Finance. Only profit-seeking enterprise with total net revenues and non-operating incomes below NTD 30 million (excluding profits from transaction of land and fixtures or any tax-exempt incomes) can opt for this tax filing route. The tax authorities typically review papers only for the tax filings submitted via declaration under the standards issued by the Ministry of Finance. The inspection rate is lower than regular tax filings. Therefore, profit-seeking enterprises suppress their revenues to below the NTD 30 million threshold in order to qualify for audit by reviewing declaration on a tax return under the standards issued by the Ministry of Finance. Hence, this study develops the following hypothesis.

H1:The net sales revenues arecloser to NTD 30 million, the higher is the tax avoidance behaviorfor profit-seeking enterprises.

Allingham and Sandam (1972) examine the effect of tax avoidance and evasion from the perspective of taxpayers. Their study finds that higher random inspection rates and penalty rates by the tax authorities mitigate the occurrence of tax avoidance and evasion. However, the impact of a tax rate increases on the occurrence of tax avoidance and evasion depends on the net result after the canceling out of income effects and substation effects for taxpayers. Gratz, Reengine and Wilde (1986) compare tax authorities to a game participant in the examination of the policy about random inspections and the offsetting effects on the decision by taxpayers to not file taxes honestly. The research findings indicate that random inspections on low individual incomes stated in tax filings are related to penalties and low tax rates imposed by the tax authorities. The influencing factors of false tax filings include moral ethics of the society, penalties, taxation assessment costs, tax rates, and income distributions of taxpayers.

Chen (2006) conducts an empirical study that utilizes the Tobit regression model. That study examines the effects of inspections on tax filings from the tax authorities on missed or understated tax filings by profit-seeking enterprises. The results indicate that penalties imposed by the tax authorities deter taxpayers from missing or understating their tax filings. However, an audit by reviewing declarations on tax returns has adverse impacts on tax compliance. Given the minimum inspections for conclusion by the tax authorities, it is necessary to examine the gambling mentality and the incomplete accounts of profit-seeking enterprises. Huang, Lin, and Huang (2012) suggest that the Taiwan's National Taxation Bureau should focus on the inspection ratio and increase penalties or forward the cases of severe tax avoidance and evasion to prosecutors' offices, in order to discourage tax avoidance and evasion, maintain taxation fairness, and boost tax revenues.

Wu and Chen (2020)consider that the written audit system is necessary in terms of saving the cost of the audit, but the expansion of the written audit using the method of deriving the tax income fails to reduce costs and expenses (losses) by income, which is not consistent with the principle of honest declaration of the income tax collection system. Furthermore, if the inspection adopts a low spot check rate (below 10%) for expanding the case of book review and declaration, then this leads to the formation of an umbrella for profit-seeking enterprises of incomplete account book vouchers.

Cheng, Yang, and Han (2020) use the matching method in a sampling of tax filings via audit by reviewing the declaration on a tax return under the standards issued by the Ministry of Finance and the tax filings via other routes by companies with similar characteristics. The sampling pool is companies with revenues between NTD 10 million and NTD 30 million in 2004-2014. The results suggest that NTD 2 billion to NTD 3 billion in taxes for business incomes and individual incomes are avoided or evaded per annum due to income manipulation and cost/expense information under the system of tax filings via audit by reviewing the declaration on a tax return under the standards issued by the Ministry of Finance. The next hypothesis is thus stated as follows.

H2: Profit-seeking enterprises opting for audit by reviewing declaration on a tax return report will exhibit more behavior of tax avoidance.

The taxation system should avoid any disruption to economic activities in society in order to maintain the order of an efficient market. Thus, it is important for tax authorities to uncover false tax filings by enhancing inspection techniques and sources of tax data. Traceability relies on a robust taxation system. In practice, the random inspection rate is between 2% and 10% on an audit by reviewing declaration on a tax return under the standards issued by the Ministry of Finance. This has created a channel for tax avoidance and evasion by profit-seeking enterprises. As it is detrimental to taxation fairness and tax revenues, one of the research objectives of this study is to evaluate whether it is necessary to continue with this system.

In reference to the relationship between company characteristics and tax avoidance and evasion, Lin (2000) explores the influence of tax filings certified by accountants on tax avoidance and evasion by performing an empirical study with the Tobit model. The study finds that the certification from public accountants leads to significantly lower tax avoidance and evasion than regular tax filings. Therefore, the government is advised to lower the threshold for applicability of mandatory certification of tax filings and narrow the coverage for applicability of industries where tax avoidance and evasion are prevalent. At the same time, the government should provide tax incentives to profit-seeking enterprises for certification by public accountants and increase inspections on non-certified tax filings. Huang, Lin, and Chen (2005) look at the selection of tax filing methods and the implementation of the integrated income tax system on corporate tax avoidance and evasion. Their analysis suggests that companies opt for different tax filings methods, because of their own characteristics. When compared to regular tax filings, filing certification by public accountants reduces tax avoidance and evasion before and after the implementation of the integrated income tax system. In other words, certification by public accountants helps to mitigate corporate tax avoidance and evasion. The adoption of the integrated income system also deters corporate tax avoidance and evasion. We now have the third hypothesis.

H3: Profit-seeking enterprises opting for an audit by CPA on their tax return report exhibit less behavior of tax avoidance.

2.4 Factors Influencing Tax Avoidance

The inspection on business income taxes is currently based on computer selections or manually conducted random checks. Computer selections are made by the computer model from data maintained by the Fiscal Information Agency, Ministry of Finance and based on dishonest rates. The cases selected are then forwarded to the tax authorities for inspection.

However, the fairness of selections and inspections is subject to conditions predetermined due to understaffing and inconsistency of the methods with which different tax bureaus carry out checks. Huang and Lin (2009) construct the Tobit model and the Probity model in their analysis of the influencing factors of tax avoidance and evasion by profit-seeking enterprises and the selection and inspection by the National Taxation Bureau. The empirical results indicate that filing certification by public accountants, higher liquidity, and tax incentives lead to reduced income tax avoidance and evasion. However, tax avoidance and evasion are more pronounced among profit-seeking enterprises with higher taxable incomes, high debt ratios, overdue tax filings, and back tax payments upon tax filings.

Chiang and Lin (2007) apply the Delphi method to their study, which involves consulting experts and integrating professional opinions. Their results show that experts generally think the financial reporting from SMEs in Taiwan is unreliable. It is widely believed that SMEs regularly manipulate financial reporting by concealing incomes, inflating expenses, and engaging in related-party transactions. There is a lot of room for improvement for the current accounting system.

Yu and Wu (2015) conduct case studies by dividing the forms of tax avoidance and evasion into missed/understated revenues, inflated operating costs/expenses, multiple incorporations to distribute incomes, circumventing related taxable income sources, and intended errors in industry codes. Wu and Chen (2020b) perform a Probity regression analysis on the business income tax filings received by the National Taxation Bureau of Taipei in 2015. Their results suggest that revenue concentration positively correlates with the abnormal value-added ratio and net income or non-substantial operations. These factors also increase the chance of tax filings via audit by reviewing declarations on tax returns under the standards issued by the Ministry of Finance.

Alumina and Lopez-Rodriguez (2018) examine the relationship between the inspection intensity of the tax authorities and tax compliance by companies that report revenues above Euros Dollar6 million in tax filings in Spain. Their research indicates that companies are motivated to keep reported revenues below the Euros Dollar6 million mark. Hence, the government is advised to expand the scope of inspections to smaller businesses. Cheng et al. (2019) use the leapfrogging model to explore whether the system of the audit by reviewing declarations on tax returns under the standards issued by the Ministry of Finance has leapfrogged in Taiwan. The results highlight the common leapfrogging approach a few companies around the threshold and indicate an understatement of annual revenues by NTD 700,000, on average, for concerned profit-seeking enterprises.

To qualify for an audit by reviewing declaration, profit-seeking enterprises manufacture cost of goods sold (by understating inventory), operating expenses, and other expenses to deflate net margins on the book. This is followed by self-adjustments that only require the reporting of revenues and non-operating incomes to the same net margin required for an audit by reviewing declaration. These are all measures to avoid tax burdens. Therefore, this study infers that the higher the recognized operating expenses, other expenses, and wage expenses are, the higher are the tax amount adjustments for profit-seeking enterprises. This is also true for lower inventories and therefore, higher cost of goods sold.

Many SMEs in Taiwan are one-person companies or family enterprises and tend to mix company bank accounts with shareholders' personal accounts. Relevant transactions are mostly stated in one line "dealing with shareholders" on the balance sheet.

If a company lends to shareholders or other parties, then such lending is recognized under current assets on the balance sheet. If shareholders lend to the company, then such lending is recognized as a current liability on the balance sheet. If dealings with shareholders are stated as a liability, then this means the company is short on cash and shareholders provide funding to the company. If the company does not pay interest to shareholders, then it can be deemed that interest does not accrue and therefore not paid to shareholders. In other words, shareholders do not report interest incomes in their filing of personal income taxes. This often results in shareholders lending to the company to reduce their own interest incomes. If profit-seeking enterprises choose not to distribute earnings, then this may result in some confusion between shareholders' personal accounts and the enterprises' account. If the capital flows are known by the National Taxation Bureau, then there are risks that inspections by the tax authorities will follow.

Other control variables that affect corporate tax avoidance (ETR) include profitability, debt ratio, and company size (Gupta and Newberry, 1997; Hsu and Liu, 2018; He, Ren and Toffler, 2020). Gupta and Newberry (1997) document that ETRs are negatively associated with a firm's leverage and positively associated with firm performance (Return on Assets).

DeAngelo, DeAngelo and Skinner (1994) point out that companies with high debt ratios often have financial crises and may reduce their power of payables in order to negotiate debt covenants', Lin and Huang (2001) investigate the relationships between corporate ETR and corporate characteristics, including firm size, R&D expenditure, financial leverage, capital intensity, inventory concentration, percentage of shares owned by directors and supervisors, profitability, long-term equity investment, and the number of subsidiaries.

Cao and Cui (2017) propose a new model for determining the effective tax rate, which incorporates the accounting-tax conformity theory, and identify an ETR determinant variable with more consistent results than previous typical ETR determinants, such as size, return on assets, leverage, and capital intensity. Yang and Guo (2017) studies the impact of the small and medium-sized enterprises (SMEs) on tax evasion and finds that their debt ratio is higher, the tax evasion is greater. Elena, Roberto and Antonio (2021) lookat the determinants of ETR in emerging economies and state that size, leverage, asset composition, and profitability affect the corporate tax burden.

3. Research Design

3.1 Empirical Model and Variable Measurements

This study explores tax avoidance in for-profit businesses and their impact on corporate characteristics. Thelogistic regression is performed to examine the correlation between the behavior of tax avoidance and company characteristics. The regression model (1) is established as follows:

$$TaxAvo_{it}=\beta_0+\beta_1EM_{it}+\beta_2TA_{it}+\beta_3CPA_{it}+\beta_4OpeExp_{it}+\beta_5OthExp_{it}+\beta_6Salary_{it}+\beta_7INV_{it}$$
$$+\beta_8WithDraw_{it}+\beta_9ROA_{it}+\beta_{10}DEBT_{it}+\beta_{11}SIZE_{it}+\beta_{12}DYEAR_{it}+\beta_{13}GDP_{it}+\sigma_{it}(1)$$

Taxed denotes the behavior level of tax avoidance and is calculated by the difference between thestatutory tax rate(17%)and the book effective tax rate (ETR_b), TaxAdjis a dummy variable of 1 if the value of 17%-ETR_bis positive and 0 if not;ETR_b is aratio of the book income tax expense dividend by the pre-tax

book income;ETR_t is a ratio of the appraisedincome tax expense dividend by the pre-tax income;and EM denotes earnings management by profit-seeking enterprises,

It is a dummy variable of 1 if the profit-seeking enterprise reports net revenue of between NTD 25 million and NTD 30 million or 0 if not. A positive correlation is expected between earnings management and income adjustments by profit-seeking enterprises. variable TA denotes the tax filings via audit by reviewing declaration on a tax return under the standards issued by the Ministry of Finance. This is a dummy variable of 1 if taxes are filed via an audit by reviewing declaration on the tax return under the standards issued by the Ministry of Finance and 0 if not. A positive correlation is expected between tax filings via audit by reviewing declaration on tax return under the standards issued by the Ministry of Finance and income adjustments by profit-seeking enterprises. Lastly, CPA denotes tax filings via audit byaCPA and is a dummy variable of 1 if filed via audit by a CPA and 0 if not.

Operating expense ratio (OpeExp), other expense ratio (OthExp), and wage expense ratio (Salary) are calculated with the recognized amounts on the book divided by net revenues. A positive correlation is expected between expense ratios and income adjustments. INV denotes inventory ratio, measured byreported inventory amount divided bynet revenues. An inverse correlation is expected between expense ratios and income adjustments. WithDraw denotes the ratio of dealing with shareholders, measured bythe amount of dealing with shareholders recognized as a liability divided by the amount of total assets. A positive correlation is expected between dealing with shareholders and adjustment of incomes. Finally, the control variables include ROA as profitability, measured throughannual incomes divided by total assets. A positive correlation is expected between profitability and income adjustments. The symbol DEBT denotes the debt ratio, measured viatotal debts divided by total assets. A positive correlation is expected between debt ratios and income adjustments. The symbol SIZE denotes firm size, measured bythe natural logarithm of total assets. The symbol DYEAR denotes the integration of housing and land taxes. It is a dummy variable of 1 if the sampling period is either 2016 or 2017 and 0 if not. The symbol GDP is the control variable for economic growth.

3.2 Data Sources

This paper utilizessources from the Fiscal Information Agency's business income tax data in 2013-2017 (for a period of five years) ofprofit-seeking enterprises. The data consist of unidentified tax filings, tax assessments, and balance sheets of taxpaying profit-seeking enterprises.

There is a total of 4,225,530 business income tax filings and appraised filesfor 2013-2017 firm-year data.The distribution is by year of tax filings from profit-seeking enterprises. During the five years, 2,627,878 tax filings (62% of total sample) were made via audit by reviewing declaration on a tax return under the standards issued by the Ministry of Finance, and 765,400 tax filings (18% of the total sample) with reported revenues of below NTD 30 millionwere reviewed on paper. Finally, tax files certified by public accountants accounted for 10% of the total sample.

The process of sample screening runs as follows. The first step was to eliminate missing variables (industry codes and balance sheet variables) and unreasonable values (e.g., negative values for balance sheet items or cost of goods sold). Finally, 4,161,972 firm-year data observations were collected for the sampling period of five years.

4. Empirical Results

4.1 Descriptive Statistical Analysis

Table 1 shows the distribution of tax filings from profit-seeking enterprises with individual tax offices. The tax filings logged with NTBNA over the five sampled years totaled1,429,701 (34% of the total sampled), 996,046 (24%) with the National Taxation Bureau ofCentral Area (NTBCA), 830,754 (10%) with the National Taxation Bureau of Taipei (NTBT), 456,919 (10.98%) with the National Taxation Bureau of the Southern Area (NTBSA),and 448,550 (10.78%) with the National Taxation Bureau of Kaohsiung(NTBK).

Table 1: Tax Filings from Profit-seeking Enterprises by National Taxation Bureau

National Taxation Bureau	Taipei (NTBT)	Northern Area (NTBNA)	Central Area (NTBCA)	Southern Area (NTBSA)	Kaohsiung (NTBK)	Total
Foreign Enterprise	7,515	1,934	1,110	235	515	**11,309**
Audit by CPA	171,770	143,919	59,120	21,819	21,339	**417,967**
Blue Tax Return	276	119	84	39	84	**602**
Audit by Accounting Books over $30 Million	21,844	54,921	50,533	24,830	30,503	**182,631**
Audit by Accounting Books below $30 Million	260,098	285,214	127,783	45,173	38,318	**756,586**
Proprietorship & Partnership	37,270	75,393	52,819	23,077	10,681	**199,240**
Public Enterprise	40	54	19	49	13	**175**
Audit by Reviewing Declaration	331,578	868,072	704,570	341,682	347,084	**2,592,988**
Consolidated Filing Tax Return	359	66	4	16	10	**455**
Midway Change of Fiscal Year	3	9	4	1	3	**20**
Total	**830,754 (19.96%)**	**1,429,701 (34.35%)**	**996,046 (23.93%)**	**456,921 (10.98%)**	**448,550 (10.78%)**	**4,161,972 (100%)**

According to the description statistics in Panel A of Table 2, the rate of ETR_bbeing less than the 17% (statuary tax rate) is 41.47%. Moreover, the mean of the level of tax avoidance behavior (TaxAvo) is 1.49% (17% -Average ETR_b 15.51%).

Data extracted from the financial reports of profit-seeking enterprises aresummarized by Panel B of Table 2. The average cost of goods sold (COGS) ratio was 59%, gross profit (GP) margin was 28%, operating expense ratio (OpeExp) was 30%, wage ratio (Salary)

was 10%, and other expense ratio (OthExp) was 12%. The other expense ratio was 1/3 of the operating expense ratio and 2% higher than the wage ratio. The booked net income margin (NI) was only 5%. However, ROA (return on assets), which is calculated byannual income divided by total assets, was 15%. This indicates the understated profitability of profit-seeking enterprises. Finally, the average debt ratio (DEBT) of all the sampled profit-seeking enterprises was 40%, and their average firm size (SIZE) was NTD 134,555,667.

Table 2: Description Statistics

Panel A: Regression Variables (N=4,161,972)				
Variables	Min.	Mean	Std Dev	Max.
TaxAvo (0,1)	0	41.47	0.49	100
ETR_b (%)	0	15.51	18.74	100
ATR (17%-ETR_b) (%)	-83	1.49	18.74	17
EM (%)	0	2.32	0.15	100
TA (%)	0	62.30	0.48	100
CPA (%)	0	10.04	0.30	100
OthExp (%)	0	11.68	18.61	100
OthRev (%)	0	1.58	9.91	100
OpeExp (%)	0	29.97	30.16	100
WithDraw (%)	0	9.64	22.88	100
Salary (%)	0	9.83	19.19	100
INV (%)	0	13.52	27.36	100
ROA (%)	0	16.11	23.26	100
DEBT (%)	0	40.33	38.25	100
SIZE (log)	0	14.76	2.12	29.58
GDP (%)	1.47	2.82	1.11	4.72
Panel B:Tax Filing Data (N=4,161,972)		NTD		
Variables	Min.	Mean	Std Dev	Max
Income_b	-62,390,799	7,219,719	546,052,908,518	1.11E+15
TaxIncome_b	-48,034,221,873	2,010,436	243,007,280	2.79E+11
TaxIncome_t	-48,031,308,860	2,147,064	243,511,950	2.79E+11
IncomeA	0	144,213	8,830,977	6.96E+09
TaxAdj	0	24,516	1,501,266	1.18E+09
TaxExp_a	0	462,077	40,265,087	4.75E+10
TaxExp_t	0	477497	40,361,329	4.75E+10
NSale_b	-95,766,882	62,330,736	7,099,718,958	1.11E+13
COGS_b	-215,939,859	50,679,208	4,383,251,058	3.54E+12
OpeExp_b	-15,223,768	6,546,612	163,756,939	9.22E+10
ASSET	1	13,455,667	12,825,795,530	7.01E+12
LIABILITY	-705,262,026	107,752,044	29,385,723,733	5.49E+13

Note: Variables Definition:

ATRdenotes the ratio of adjusted income tax and is calculated by the 17% - ETR_b. ETR_b is the ratio of the book income tax expense dividend by the pre-tax book income.ETR_t is the ratio of the appraise income tax expense dividend by the pre-tax income.TaxAdj denotes the behavior level of tax avoidance, and is a dummy variable of 1 if the ATR value is positive and 0 if not.EM denotes earnings management by profit-seeking enterprises; it is a dummy variable of 1 if the profit-seeking enterprise

reports a net revenue of between $25 million NTD and $30 million NTD, and 0 if not. TA denotes the tax filings via audit by reviewing declaration on tax return under the standards issued by the Ministry of Finance. This is a dummy variable of 1 if tax is filed via audit by reviewing declaration on tax return under the standards issued by the Ministry of Finance and 0 if not. CPA denotes the tax filings via audit by CPA, and is a dummy variable of 1 if tax is filed via audit by CPA and 0 if not. Operating expense ratio (OpeExp), other expense ratio (OthExp) and wage expense ratio (Salary) are calculated with the recognized amounts on the book divided by net revenues. INV denotes inventory ratio, measured with reported inventory amount divided by net revenues. WithDraw denotes the ratio of dealing with shareholders, measured with the amount of dealing with shareholders recognized as a liability divided by the amount of total assets. Finally, the control variables include ROA as profitability, measured with annual incomes divided by total assets. The symbol DEBT denotes the debt ratio, measured with total debts divided by total assets. The symbol SIZE denotes firm sizes, measured with the natural logarithms of total assets. The symbol DYEAR denotes the integration of housing and land taxes. It is a dummy variable of 1 if the sampling period is either 2016 or 2017 and 0 if not. The symbol GDP is the control variable for economic growth.

As shown by the descriptive statistics by regional tax offices in Table 3, the lowest average effective tax rate(ETR_b) was with NTBT (10.66%). NTBT had the highest average tax avoidance behavior(TaxAvo)at63.81%, and the level of tax avoidance (ATR_b) was 6.34%. The lowest average tax avoidance behavior (TaxAvo) was 31.32% in NTBSA. The highest average ETR_b was 18.55% in NTBK.

In the case of the five National Taxation Bureau Districts, the net sales revenue for profit-seeking enterprises between NTD 25 million and NTD 30 million (EM) ratio was about 2%, with a maximum ratio of about 3% in NTBK. The largest number of auditing by reviewing declaration cases (TA) used by profit-seeking enterprises was 77% at NTBK, decreasing northwards in order, and 39.91% at NTBT. The largest number of tax return by CPA auditing cases (CPAs) was 21% by NTBT, which then declined south in order, and only 5% of profit-seeking enterprises under the jurisdiction at NTBK were less than 5% using audit by CPA. The operating expense rate (OpeExp) was the largest under the jurisdiction of NTBT at about 39%, decreasing south in sequence. Other expenses (OthExp) and inventory rate (INV) did not differ significantly among NTB in the five districts. Salary was the highest under the jurisdiction of NTBT and lowest under the jurisdiction of NTB of the Southern District (NTBSA). The owner(shareholder) transaction ratio (WithDraw) was the highest under the jurisdiction of Kaohsiung NTB (NTBK) and lowest under the jurisdiction of Central NTB (NTBCA).

Table 3: Description Statistics by 5 National Taxation Bureaus

National Taxation Bureau	Taipei (NTBT)	Northern Area (NTBNA)	Central Area (NTBCA)	Southern Area (NTBSA)	Kaohsiung (NTBK)
TaxAvo (%)	63.81%	41.20%	30.94%	31.32%	34.64%
ETR_b (%)	10.66%	15.38%	17.06%	18.35%	18.55%
ATR_b(17%-ETR_b) (%)	6.34%	1.62%	-0.06%	-1.35%	-1.55%
EM (%)	1.92%	2.36%	2.26%	2.43%	3.00%
TA (%)	39.91%	60.72%	70.74%	74.78%	77.38%
CPA (%)	20.68%	10.07%	5.93%	4.78%	4.76%
OpeExp (%)	38.69%	30.19%	25.85%	25.37%	27.01%
OthExp (%)	12.00%	11.51%	11.68%	11.93%	11.32%
Salary (%)	15.91%	10.03%	6.72%	6.58%	8.13%
INV (%)	14.61%	13.43%	12.69%	12.95%	14.26%
WithDraw (%)	10.73%	9.74%	8.10%	9.11%	11.25%
ROA (%)	10.22%	15.37%	19.20%	20.99%	17.50%
DEBT (%)	47.51%	38.75%	38.53%	38.70%	37.67%
SIZE(log)	15.11	14.75	14.61	14.49	14.77%
GDP (%)	2. 82%	2.82%	2.82%	2.82%	2.82%
Total	**830,753**	**1,429,701**	**996,046**	**456,919**	**830,753**

Note: Reference Table 2 note.

In Table 4about 10% of the profit-seeking enterprises had tax filings certified by public accountants, and their annual reported incomes averaged NTD 36.9 million, or the highest among the sub-groups. This was followed by the average annual reported incomes ofNTD 15.14 millionfor profit-seeking enterprises with net incomes below the NTD 30 million thresholdthat opt for regular tax filings. The lowest average of the reported annual incomes, at NTD 220,000 only, were for profit-seeking enterprisesthatreported annual incomes below NTD 300,000and filed taxes viaaudit by reviewing declaration on a tax return under the standards issued by the Ministry of Finance. Their average annual income levels were less than half of those for sole proprietorships or partnerships.

Table 4 offers a comparison of the four main declaration methods (visa audit by reviewing declaration, net income of more than NTD 30 million audit by accounting books, net income of less than NTD 30 million audit by accounting books, and audit by CPA). For profit-seeking enterprises with net income of more than NTD 30 million audit by accounting books, the average effective tax rate (ETR_b) was 25.59%, and the rate of tax avoidance behavior (TaxAvo) accounted for only 16.34% of the sample. The secondhighest ETR_bwas the adoption via audit by reviewing declaration on a tax return. The average was17.52%,which is equivalent to the statuary tax rate of 17%.

For profit-seeking enterprises with net income of less than NTD 30 million andaudit by accounting books, the average effective tax rate (ETR_b) was 9.66%, and the tax avoidance behavior (TaxAvo) accounted for only 60.68% of the sample. If the net income is less than NTD 30 million for profit-seeking enterprises hadthe accounting book vouchers can be perfected and audited by the accounting books declaration, then this

24

can significantly reduce the effective tax rate.

Table 4: Description Statistics by Main Tax Return

Tax Return Variables	Audit by CPA	Audit by Accounting Books over NTD 30 Million	Audit by Accounting Books below NTD 30 Million	Audit by Reviewing Declaration
TaxAvo (%)	65.09%	16.34%	60.68%	33.65%
ETR_b (%)	10.23%	25.59%	9.66%	17.52%
ATR_b (17%-ETR_b) (%)	6.77%	-8.59%	7.34%	-0.52%
EM (%)	3.68%	0.62%	4.35%	1.62%
TA (%)	0%	0%	0%	100%
CPA (%)	100%	0%	0%	0%
OpeExp (%)	27.88%	15.89%	32.47%	30.65%
OthExp (%)	7.45%	5.23%	10.07%	13.39%
Salary (%)	13.81%	4.98%	13.63%	8.46%
INV (%)	19.72%	11.17%	15.50%	12.22%
WithDraw (%)	11.60%	9.63%	10.70%	8.81%
ROA (%)	4.90%	17.45%	6.12%	20%
DEBT (%)	60.26%	54.66%	45.36%	33.87%
SIZE (log)	18.03	17.18	15.16	14.02
GDP(%)	2.82%	2.83%	2.82%	2.83%

Note: Reference Table 2 note.

The second objective of this study is to explore the correlation between income adjustments in different tax filing methods and the characteristics of the profit-seeking enterprises. A regression analysis is performed to test the hypotheses. Table 5 presents the descriptive statistics of the regression variables for all the sampled profit-seeking enterprises (N=4,161,972). The mean (median) of the ratio of tax avoidance behavior(TaxAvo)was 41.47%(0%). In other words, about over 50% of the profit-seeking enterprises sampled did not engage in tax avoidance behavior.

Among the explanatory variables, only 2% of profit-seeking enterprises reported net revenues between NTD 25 million and NTD 30 million (EM), and 62% of profit-seeking enterprises adopted tax filings via audit by reviewing declaration on a tax return under the standards issued by the Ministry of Finance (TA). Furthermore, 10.04% of enterprises adoptedtax filings via audit bya CPA (CPA). The mean (median) operating expense ratio (OpeExp) was 29.97%(18.56%), other expense ratio (OthExp)was 11.68%(5.58%), wage expense ratio (Salary)was 9.83%(1.86%), inventory ratio (INV)was 13.52%(0%), and the ratio of dealing with shareholders (WithDraw)was 9.64%(0%).

Among other control variables, return on assets(ROA) reported a mean (median) of 16.11%(6.20%).

The mean (median) of the debt ratio (DEBT) was 40.33%(29.25%), while firm size (SIZE)was 14.76%(14.65%).

The number of observations under the integrated housing and land taxes (DYEAR) in 2016-2017 was about 41% of the total sample.

The average economic growth (GDP) was 2.8% during the sampling period (2013-2017).

Table 5: Description Statistics by All Profit-Seeking Enterprises

Variables	Mean	Std Dev	Median	Minimum	Maximum
TaxAvo (%)	41.47	49.27%	0	0	1
EM (%)	0.02	0.151	0	0	1
TA (%)	0.62	0.485	1	0	1
CPA (%)	10.04	0.301	0	0	1
OpeExp (%)	29.97	30.158	18.56	0	100
OthExp (%)	11.68	18.608	5.58	0	100
Salary (%)	9.83	19.195	1.86	0	100
INV (%)	13.52	27.361	0	0	100
WithDraw (%)	9.64	22.879	0	0	100
ROA (%)	16.11	23.256	6.20	0	100
DEBT (%)	40.33	38.248	29.25	0	100
SIZE (log)	14.76	2.122	14.65	0	29.58
DYEAR (0,1)	0.41	0.492	0	0	1
GDP (%)	2.82	1.111	2.48	1.47	4.72

Note: Reference Table 2 note.

4.2 Correlation Coefficient Test Results

Table6 summarizes the statistical analysis on the correlation coefficients in the regression. At the upper-right corner are Pearson coefficients, while at the lower-left corner are Spearman coefficients. According to the tests on Spearman coefficients, there is a negative and significant correlation between the tax avoidance behavior ratio (TaxAvo) and the earnings management sub-group (EM)and between tax filings via audit by reviewing declaration on a tax return under the standards issued by the Ministry of Finance (TA). There is a positive and significant correlation between the tax avoidance behavior ratio (TaxAvo) and tax filings via audit bya CPA (CPA), but it does not conform to the expected direction and needs further regression analysis to verify.

The Pearson coefficient tests indicate that the tax avoidance behavior(TaxAvo) positively correlates with the operating expense ratio (OpeExp), other expense ratio (OthExp),salary expense ratio (Salary), inventory ratio (INV), debt to asset ratio (DEBT), firm size (SIZE), and the ratio of dealing with shareholders (WithDraw). The tax avoidance behavior(TaxAvo) negatively correlates with the ratio of profitability(ROA) and theimplementation period of the integrated housing and land income tax (DYEAR). The coefficients with other variables are between -0.451 and 0.726(below 0.8), and hence the collinearity problem is not too significant.

Table 6: Correlation Coefficient Test Results

	TaxAvo	EM	TA	CPA	OpeExp	OthExp	Salary	INV	WithDraw	ROA	DEBT	SIZE	DYEAR	GDP
TaxAvo	1	-0.060**	-0.204**	0.160**	0.181**	0.077**	0.205**	0.137**	0.036**	-0.339**	0.169**	0.008**	-0.032**	0.010**
		(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
EM	-0.060**	1	-0.061	0.030**	-0.053**	-0.047**	-0.025**	-0.008**	0.004**	0.026*	0.038**	0.117**	-0.006**	0.003**
	(<.0001)		(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
TA	-0.204**	-0.061**	1	-0.430**	0.029**	0.118**	-0.092**	-0.061**	-0.047**	0.215**	-0.217**	-0.451**	-0.003**	0.003**
	(<.0001)	(<.0001)		(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
CPA	0.160**	0.030**	-0.430**	1	-0.023**	-0.076**	0.069**	0.076**	0.029**	-0.161**	0.174**	0.514**	-0.004**	-0.001**
	(<.0001)	(<.0001)	(<.0001)		<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.2624
OpeExp	-0.012**	-0.036**	0.044**	-0.029**	1	0.670**	0.634**	0.137**	0.002**	-0.043**	0.082**	-0.135**	0.014**	-0.002**
	(<.0001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.0005)
OthExp	0.165**	-0.030**	0.194**	-0.132**	0.726**	1	0.244**	0.080**	-0.030**	0.007**	-0.051**	-0.179**	0.007**	0.004**
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Salary	0.017**	0.046**	-0.204**	0.165**	0.526**	0.136**	1	0.136**	0.010**	-0.086**	0.144**	0.001**	0.013**	-0.004**
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.0048)	(<.0001)	(<.0001)
INV	0.035**	0.036**	-0.124**	0.149**	0.105**	0.007**	0.238**	1	0.220**	-0.236**	0.294**	0.172**	-0.012**	0.001**
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.0154)
WithDraw	-0.011**	0.015**	-0.119**	0.112**	0.002**	-0.057**	0.073**	0.208**	1	-0.123	0.401**	0.108**	-0.005**	0.001
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.0847)
ROA	0.542**	0.047**	0.341**	-0.203**	0.074**	0.277**	-0.001*	-0.079**	-0.117**	1	-0.134**	-0.365**	-0.005**	0.005**
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.017)	(<.0001)	(<.0001)		(<.0001)	(<.0001)	(<.0001)	(<.0001)
DEBT	-0.060**	0.050**	-0.222**	0.179**	0.115**	-0.013**	0.258**	0.335**	0.366**	-0.025**	1	0.171**	0.006**	-0.004**
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)	(<.0001)	(<.0001)
SIZE	0.027**	0.143**	-0.448**	0.446**	-0.114**	-0.210**	0.240**	0.249**	0.204**	-0.309**	0.201**	1	-0.007**	-0.001
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)	(0.0614)
DYEAR	0.011**	-0.006**	-0.003**	-0.004**	0.013**	0.002**	0.006**	-0.022**	-0.006**	-0.008**	0.009**	-0.007**	1	-0.062**
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)
GDP	0.001**	0.002**	0.003**	-0.002**	-0.001	0.008**	-0.006**	0.001**	0.001	0.004**	-0.007**	-0.002**	0.008**	1
	(0.0033)	(<.0001)	(<.0001)	0.0029	0.177	(<.0001)	(<.0001)	(0.003)	(0.072)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	

Notes: Reference Table 2 note. Right upper corner is the Pearson Correlation Coefficient (P value), Left lower is Spearman Correlation Coefficient (P value). **, and * indicate coefficients significant at the 1%, and 5%.

4.3   Regression Analysis Test Results

This study explores the correlation between forprofit-seeking enterprises'tax avoidance behavior and theircharacteristics. We use the logistic regression to examine the empirical hypotheses. First, the results of Table 7 analysis show that the regression coefficient of the earnings management group (EM) is 0.698, showing that net sales revenue of profit-seeking enterprises is between NTD 25 million and NTD 30 million, and that in order to meet the conditions for the adoption of audit by reviewing declaration on a tax return, they are more likely to engage in tax avoidance (TaxAvo) at a statistically significant level (chi-squarevalue 5,933, p-value<.0001), thus supporting Hypothesis 1. The regression coefficient of the audit by reviewing declaration group (TA) is 0.764. Is shows that the adopts the expanded written audit declaration, so that income tax is calculated according to a certain ratio of operating income (expansion rate 6%), without the need to prove the relevant expense cost information. When it is the higher the adjusted income, the more likely it is to engage in tax avoidance (TaxAvo) and reach a statistically significant level (chi-square value 73,641, p value <.0001), thus supporting Hypothesis 2. The regression coefficient of the auditing by the CPA group (CPA) is -1,255, which shows that profit-seeking enterprises use accountantsto review accounting books, their account certificates are checked and declared by accountants. The tax authorities will approve from tax return declaration and their tax avoidance behavior (TaxAvo) is reduced and reaches a statistically significant level (chi-square value 74,151, p value <.0001), thus supporting Hypothesis 3.

According to the regression results on other control variables, the regression coefficient between the other expense ratio (OpeExp) and the behavior of tax avoidance ratio (TaxAvo) is -0.006 and statistically significant. This indicates that the higher the other expense ratio is, the loweris tax avoidance behavior. This result runs contrary to expectations, as it may be subject to operating expenses items that are greater than the amount of income tax that can be checked, the risk of falsely reporting expenses is low, and therefore using operating expenses to adjust the amount of income is reduced. The regression coefficient between the other expense ratio (OthExp) and the behavior of tax avoidance ratio (TaxAvo) is 0.001 and statistically significant. This suggests that the higher the other expense ratio is, the higher is tax avoidance behavior.

The regression coefficient between the salary expense ratio (Salary) and the behavior of tax avoidance ratio (TaxAvo) is -0.013 and statistically significant. This suggests that the higher the salary expense ratio is, the lower is the tax avoidance behavior. When salary fees may be paid, withholding tax amounts can be checked, and there is a lower risk of falsely reporting expenses. The higher the inventory ratio (INV) is, the higher is the cost of goods sold. The correlation with the tax avoidance ratio (TaxAvo) is -0.002 and statistically significant. This shows there is agreater behavior of tax avoidance. The higher ratio of dealing with shareholders (WithDraw) is associated with SMEs whose funding sources are limited, whereas when the borrowing from shareholders is high, no interest is incurred. As this also reduces the interest payable to shareholders, it leads to a high amount of tax avoided and evaded and thereforehigh-income adjustment. The correlation coefficient with the ratio of dealing with shareholders (WithDraw) is 0.004, which is statistically significant.

According to the regression results on other control variables, the higher the profitability (ROA) is, the lower is the behavior of tax avoidance (TaxAvo). The higher the debt ratio (DEBT) is, the higher is the tax shield, and hence the higher is the tax avoidance behavior ratio (TaxAvo). After the integration of housing and land income taxes (DYEAR), the income from transactions of land and real estates is included into the taxable income for profit-seeking enterprises and increasesthe likelihood of income adjustments and leads to high tax avoidance behavior(TaxAvo). The regression result is consistent with expectations and statistically significant. The higher the economic growth (GDP) is, the lower is the behavior of tax avoidance(TaxAvo).

Table 7：Logistic Regression Result_TaxAvo

Variables	Pred. Sign	Coefficient Estimated	Std Dev.	Chi-Square	Pr>|t|
Intercept	?	-5.294	0.013	178625	<.0001
EM (%)	+	0.698**	0.009	5933	<.0001
TA (%)	+	0.764**	0.003	73641	<.0001
CPA (%)	–	-1.255**	0.005	74151	<.0001
OpeExp (%)	+	-0.006**	0.000	6341	<.0001
OthExp (%)	+	0.001**	0.000	113	<.0001
Salary (%)	+	-0.013**	0.000	21055	<.0001

INV (%)	−	-0.002[**]	0.000	1719	<.0001
WithDraw (%)	+	0.004[**]	0.000	6579	<.0001
ROA (%)	−	0.054[**]	0.000	355421	<.0001
DEBT (%)	+	-0.007[**]	0.000	40261	<.0001
SIZE (log)	+/−	0.347[**]	0.001	210632	<.0001
DYEAR (0,1)	+/−	0.201[**]	0.002	7367	<.0001
GDP (%)	+/−	-0.026[**]	0.001	621	<.0001

Note: Reference Table 2 note.

5. Conclusion and Suggestions

This study explores the correlation between for profit-seeking enterprises tax avoidance and their financial characteristics and tests empirical hypotheses with regression analysis. First, when net sales revenue of profit-seeking enterprises is between NTD 25 million and NTD 30 million, they are more likely to exhibit tax avoidance in order to meet the conditions for the adoption of an expanded written audit. For the use of audit by reviewing declaration tax return group, in order to meet the written audit conditions, these enterprises arealso more likely to engage in tax avoidance. However, tax returns adopt the auditing by CPA group, their accounting books certificate through the CPA check after the declaration, tax authorities only on the written examination, its engaged in tax avoidance behavior reduced.Finally, from the tax filing returns of income statements and balance sheet accounts for profit-seeking enterprises on tax avoidance, we see that the higher the rate of other expenses is, the greater is their tax avoidance. The lower the inventory rate is, the higher is the cost of goods sold, which in turn result in lower taxable income and higher tax avoidance. For a higher ratio of shareholders to profits is for SMEs, their financing channels are less, the amount of borrowing from shareholders is greater, and the amount of tax evasion is higher, which will all help increase their tax avoidance.

This study analyzes tax filing data from the Fiscal Information Agency, Ministry of Finance over a five-year period. The main contribution of this study is the analysis of the big data ontaxfilings from nearly one million profit-seeking enterprises and assessments by the tax authorities. This study also estimates the level of tax avoidance by referring to income statements from tax filing returns and the actual numbers on the balance sheets of profit-seeking enterprises in order to gauge the behavior of tax avoidance, which is 41.47% for an average level of tax avoidance of 1.49%(17%-ETR). This is the second contribution of the study.

The estimates by this study on tax avoidance and evasion based on tax adjustments are conservative at best. Given that it took two years for the tax filings to be assessed, the acquisition of tax assessment files is consequently delayed by two years. In Taiwan, the business income tax rate increasedfrom 17% to 20% in 2018. Therefore, this study selects the sampling period of 2013-2017. These are the research limitations.

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