Book-Tax Difference and Value Relevance of Taxable Income: Malaysian Evidence

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This study investigates the gap between financial accounting income and taxable income (i.e. book-tax difference) and the value relevance of corporate taxable income in providing information on the quality of reported earnings for Malaysian listed firms during the tax years 2000 to 2004. The large gap between the financial accounting income and taxable income resulting from tax planning activities is reflected in firms' effective tax rates (ETRs), a proxy for firms' actual tax burdens. Thus, lower ETRs indicate high tax planning activities undertaken by the sample firms, and vice-versa for firms with higher ETRs. This study uses a tax-based earnings quality indicator, that is, the ratio of after-tax taxable income to reported income (ATTI) to investigate the quality of corporate earnings.

The study provides empirical evidence that firms report higher financial accounting income to shareholders and lower taxable income to tax authorities during the years 2000 to 2004. The significant and positive relation statistical results between firms' after-tax taxable income (ATTI) and market value of equity provided indicate the value relevance of taxable income as both an earnings quality indicator and a performance measure. Thus, the empirical results suggest investors appear to fully comprehend the quality-related information in taxable income. This study concludes that first, tax planning activities contribute to a large gap between financial accounting income and

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taxable income; and second, taxable income contains useful information on the quality of reported earnings.

Keywords: Tax Planning, Accounting Income, Taxable Income, Earnings Quality, Malaysia, Effective Tax Rates

Introduction

The expanding divergence between the financial accounting income and taxable income (i.e. book-tax difference) has attracted much attention in recent years (Manzon and Plesko, 2002; Mills, Newberry and Trautman, 2002; Desai, 2003; Hanlon and Shevlin, 2005). These studies have indicated a growing gap between financial accounting income and taxable income since 1990. Prior studies have also examined gap between financial accounting income and taxable income in addressing a number of accounting issues, such as, tax planning (Manzon and Plesko, 2002; Desai, 2003; Plesko, 2004; Rohaya, Nor'Azam and Barjoyai, 2008), the quality of reported earnings (Hanlon, 2003) and earnings management (Phillips, Pincus and Rego, 2003; Rohaya, Nor'Azam and Zanariah, 2007).

Literature has also revealed that large gap between income reported to shareholders and income reported to tax authorities as a symptom of the deterioration of earnings quality (such as Lev and Nissim, 2002; Frank, Lynch and Rego, 2004; Desai, 2005; Hanlon and Shevlin, 2005). Other studies documented the importance of taxable income as a benchmark of the quality of reported earnings (Mills et al., 2002). This is following the high-profile cases of failure of reported earnings to reflect economic reality in cases such as Enron, Tyco, Worldcom and Xerox. In these cases, investors overlooked the important indicator of earnings quality, that is, taxable income when assessing the firm s' performance (Lev and Nissim, 2002; Desai 2005). For example, Enron did not pay income taxes for several years prior to bankruptcy in 2001, but at the same time reported high earnings (Hanlon, 2005).

In addition, financial analysts and tax regulators have documented an increase in tax planning activities (or aggressive tax reporting), and concurrent increase in corporate accounting scandal (or aggressive financial reporting) (Frank et al., 2004). The underlying assumption in preparing the financial statements is that managers exercise discretion to manage the financial accounting income upward without increasing the taxable income (Mills and Newberry, 2001). Thus, these activities will generate large difference between financial accounting income and taxable income. This study is based in Malaysia, where the gap between financial accounting income and tax income is determined by the divergence of firm s' effective tax rates (ETRs) from the statutory or official tax rate – which is fixed by the government at 28% during the tax years 2000 to 2004. Previous studies have measured ETRs as the ratio of the firm s'

income tax expense (either current or total tax expense) to pre-tax income (such as Gupta and Newberry, 1997; Rohaya et al., 2008). Thus, a lower firm's ETR (i.e. ETR below the statutory tax rate of 28%) indicates a large gap between financial accounting income and taxable income which suggests high tax planning activities undertaken by the firms.

This study examines the extent of divergence of the financial accounting income from the taxable income (book-tax differences) during tax years 2000 to 2004 (where firms' are subjected to current year and self-assessment tax systems), and further examines the value relevance of taxable income as earnings quality indicator and performance measure. This study uses a book-tax difference model and a price earnings model adapted from Lev and Nissim (2002), to examine whether the market value of equity reflect differences in investors' expectations on reported earnings based on the ratio of after-tax taxable income (ATTI) to earnings, that is, earnings quality indicator. Thus, a positive relation between after-tax taxable income (ATTI) and firm's market value of equity indicates taxable income can provide useful information about the quality of reported earnings.

The current study uses firm-level financial data to measure the book-tax difference and the value relevance of taxable income for 294 publicly-traded firms (1470 firm-years) from the years 2000 to 2004. Due to the confidentiality of actual taxable income data, a firm's taxable income is estimated using a current tax expense as reported in a firm's financial statements. The data is analyzed using a pooled cross-sectional ordinary least squares regressions model. For robustness of the results, the sample is also analyzed using a fixed effects specification. The study further classifies the sample into two sub-samples, that is, low ETR samples (i.e. firms that practice aggressive tax planning strategies) and high ETR samples (i.e. firms that practice less-aggressive tax planning strategies). The statistical results provide empirical evidence on the divergence of book-tax differences where firms report higher financial accounting income to shareholders and lower taxable income to tax authorities. Further, the findings provide evidence that taxable income contains useful information on the quality of reported earnings.

The paper is organized as follows. Section 2 reviews literatures on book-tax difference and value relevance of taxable income and development of the hypothesis. Section 3 explains the research methodology. Section 4 presents the results of empirical analyses. Finally, Section 5 summarizes and concludes the research findings.

Literature Review and Development of Hypotheses

Following recent accounting scandals, some have questioned whether a large difference between financial accounting income and taxable income (book-tax difference) indicates low quality corporate earnings (Frank et al., 2004; Hanlon,

2005). Further, this issue has also attracted the attention of policymakers (Desai and Dharmapala, 2005). More recent studies have discussed whether taxable income can be used as an alternative and useful measure of corporate earnings, or at least provide a benchmark to evaluate the quality of corporate earnings (Ayers, Jiang and Laplante, 2007).

Value relevance is defined as the relevance of accounting earnings to investors in the pricing of firms' equity (Hanlon and Shevlin, 2005). Similar to other accounting measures which have significant association with equity market value such as earnings, book values of equity and goodwill (Muhd Kamil, 2005), a firm's taxable income, that is, a proxy for a firm's tax planning effectiveness, is also value relevant if it has a statistical association with a firm's market values or returns (Kelly, 2005). There is extensive literature on the value relevance of financial accounting earnings in the United States (U.S.). However, there is little research examining the value relevance role of taxable income. At the same time, accounting researchers have used estimates of book-tax differences to assess the persistence of corporate earnings, as well as the property of taxable income to provide information about the quality of corporate earnings.

Hanlon and Shevlin (2005) have stated that large book-tax differences indicate lower earnings quality and a future earnings problem. Further, Desai and Dharmapala (2006) used anecdotal evidence from major corporate scandals (Enron, Tyco and Xerox) to show that managers exploit the differences between financial reporting and tax reporting opportunistically thereby reducing the quality of corporate earnings measures for both financial reporting and tax reporting purposes. In addition, an increase in a deferred tax liability might be an indication of deteriorating earnings quality. Therefore, book-tax differences are useful measures to evaluate firms' performances.

In tax planning strategies, firms effectively utilize the different rules between financial reporting and tax reporting which give rise to the gap between financial accounting income and taxable income. The difference between financial accounting income and taxable income is reflected in the permanent and temporary differences which are reported in the firms' financial statements footnotes. The dual objectives of corporate income have also been reported as being responsible for the growing gap between both incomes (Hanlon and Shevlin, 2005). First, corporate income is prepared for financial reporting purposes and it is calculated based on the Generally Accepted Accounting Principles (GAAP). Second, corporate income is prepared for tax reporting purposes, that is, to determine the corporate tax liabilities; therefore, it is calculated in accordance with the tax laws and other Inland Revenue rules and guidelines. Since corporate income is prepared for two different objectives, managers manipulate both incomes to satisfy both users: a high reported financial accounting income to shareholders and creditors designed to boost market value, and low reported taxable income designed to boost cash flows by lowering

tax payments and reported earnings due to lower tax expense (Hanlon and Shevlin, 2005).

Ayers et al. (2007) have also suggested that the difference between financial accounting income and taxable income can be used as an indication of low earnings quality. Further, Lev and Nissim (2004) argued that corporate earnings are of high quality when they are expected to recur in the future. The authors associated earnings quality with earnings persistence, and suggested that taxable income provides information on earnings quality because the tax rules do not allow many of the estimates allowed under the Generally Accepted Accounting Principles (GAAP). Lev and Nissim (2004) found that the ratio of taxable-to-reported income (a higher ratio indicates higher book-tax conformity) is positively correlated with earnings quality. Their findings also suggested that the ratio of taxable-to-reported income predicts future earnings up to five years ahead, and the information in the taxable income is incremental to that in accruals and cash flow.

From a tax perspective, taxable income should provide useful information and can be used as a valid benchmark to determine the quality of corporate earnings. First, the measurement of taxable income is not as flexible as for accounting income because tax laws limit the deductibility of certain expenditures, such as depreciation, entertainment expenses and provision for doubtful debts (Landry and Chlala, 2005). Thus, taxable income is less likely to be subjected to falsification compared to financial accounting income. In addition, Lev and Nissim (2004) have also suggested that using taxable income as a reference to ensure the reliability and consistency of financial accounting income. Hence, taxable income should reflect the firm's economic performance for its decision makings. Second, the taxable income figure reflects management's optimism because it is lower than financial accounting income. That is, management hesitates to artificially inflate taxable income, unlike earnings and cash flow (Landry and Chlala, 2005). Therefore, taxable income should provide information about the quality of reported earnings and should be used by shareholders to measure a firm's performance. Hanlon, Kelley and Shevlin (2005) defined information content as the ability of financial accounting income and estimated taxable income to summarize information that affects stock returns.

Hence, the current study investigates the gap between income reported to shareholders and income reported to tax authorities (using book-tax difference model); and further examines the value relevance of taxable income as an indicator of earnings quality and an alternative measure of performance (using price earnings model). Two hypotheses are developed which are stated in alternative form as follows:

H_1: There is a gap between income reported to shareholders (higher) and income reported to tax authorities (lower).

H_2: A firm's share price is positively related to after-tax taxable income (earnings quality indicator).

Research Methodology

Sample Selection

The sample used in this study was extracted from Thomson data stream and Thomson One-banker database (as of 21 September 2005). As of this date, there were 757 listed firms on the first and second board of Bursa Malaysia. The collection of data was based on the respective sectors as defined by Bursa Malaysia industry classification, of which firms were categorized according to their main activities. The sample consisted of firms from ten sectors as follows: 1) industrial products; 2) trading and services; 3) consumer products; 4) properties; 5) plantation; 6) construction; 7) technology; 8) infrastructure; 9) hotel; and 10) mining. Other sectors such as Banks and other financial institutions, trust and insurance were excluded from the final sample because they are subject to different regulations and face a different set of accounting rules and reporting standards (Ayers, et al., 2007). Furthermore, these industries are subject to different tax treatment.

The statistical analysis of the study was based on a balanced panel data where the same firms were observed over a number of years. The use of panel data was important in this study, as it allowed for simultaneous conditioning of the observed and unobserved firms' characteristics which also affected the variations in corporate ETRs (Feeny, Harris and Gillman, 2002; Ahmed, 2003). Examples of firms' unobserved characteristics were management strategy, tax specific effects and corporate culture. Therefore, to create the 2000-2004's balanced panel data, firms must have non-missing financial information for the five-year of the investigation periods. Firms with negative pre-tax income were deleted and negative current tax expense was recoded to zero. After the process of checking, filtering and recoding of data, the balanced panel sample used in this study comprised 294 firms (1470 firm-years) for the period 2000-2004, which represented 64% of the total market capitalization (based on firms' market value as of 2004) of publicly-traded firms at Bursa Malaysia as of 2004 (excluding non-industrial template). Table 1 summarizes the sample selection procedures.

In the additional analysis, the full balanced panel sample was further partitioned into two sub-samples based on firm's level of ETRs. The first group comprised firm-years with low ETR (consists of 728 firm-years) i.e. firms that had ETR from 0% to 20.4% (the industry average ETR). The second group comprised firm-years with high ETR (consists of 742 firm-years) i.e. firms that had ETR above the industry average ETR i.e. from 20.5% and above.

Estimating Taxable Income and Book-Tax Difference

Since a firm's actual tax return data is not publicly available, this study used tax information available in a firm's financial statements to estimate a firm's taxable

Table 1: Sample Selection Process for Year 2000-2004

Note		Firms
1	Firms available in the data-stream as of 21 September 2005 (excluding financial institutions, insurance and trust)	757
2	Less: Firms with missing data for one or more of the panel years	183
3	Less: Firms with net operating losses for one or more of the panel years	280
4	Balanced Panel Sample	294
5	Firm-years	1470

Note:

1. Total firms (whole population) available in the Thomson data stream and Thomson One-banker (excluding financial and insurance) as of 21 September 2005. These are listed firms at the first and second board of Bursa Malaysia as of 21 September 2005.
2. Firms for which data were not available for five consecutive years i.e. from 2000 to 2004.
3. Firms having negative income i.e. negative earnings before interest and tax (EBIT).
4. Final sample i.e. balanced panel sample of firms having positive income (EBIT) and non-missing information for five consecutive years i.e. from 2000 to 2004.
5. Firm-years are derived from 294 firms for 5 years observation (i.e. 2000-2004).

income. Thus, as informed by the literature, the estimate of taxable income was based on the current portion of income tax expense divided by the statutory tax rate, i.e. in this case is 28% (Manzon and Plesko, 2002; Lev and Nissim, 2004; Frank et al., 2004; Plesko, 2004; Hanlon, 2005; Hanlon and Shevlin, 2005; Hanlon and Krishnan, 2006; Desai and Dharmapala, 2006; Ayers et al., 2007). Researchers have argued that the estimated taxable income based on the financial statements data is 'noisy' because it contains measurement error. However, Hanlon and Shevlin (2005) commented that using estimated taxable income was more appropriate than actual taxable income because the market can only use the publicly available information to assess the share price. Recently, Plesko (2000 and 2006) cited in Ayers et al. (2007, p. 11) provided evidence that taxable income calculated from financial statements is highly and significantly correlated with firm's' actual taxable income. Thus it provides some assurance that taxable income estimated from financial statements is a reasonable proxy for a firm's actual taxable income. Therefore, in this study a firm's taxable income can be estimated from the financial statements as follows:

$$\text{Taxable Income} = \text{Current tax expense} / 0.28 \quad (1)$$

In this study, the book-tax difference is measured as the difference between the estimated taxable income and a firm's pre-tax income. First, the taxable income is estimated by using the model as stated in equation (1) above. Then,

the estimated taxable income is subtracted from a firm's pre-tax income to derive at the book-tax differences. Thus, the difference between pre-tax income and estimated taxable income (whether a large positive or large negative) provides an indication on the pervasiveness of tax planning activities and further the quality of corporate earnings which is stated as follows:

$$BTD = PTI less TI \quad (2)$$

where, BTD is book-tax differences, that is the difference between financial accounting income and taxable income, PTI is the pre-tax income as reported in the firm's financial statements, and TI is estimated taxable income derived from equation (1) above.

Price Earnings Model

Next, to investigate the quality of corporate earnings resulting from book-tax differences, and to examine further the value relevance of taxable income, this study uses price earnings model adapted from Lev and Nissim's (2002) study which is stated as follows:

$$MV_t = \beta 0 + \beta 1 SECTORSDUMMY + \beta 2 BV_t + \beta 3 EARNS_t + \beta 4 ATTI_t + \beta_t \quad (3)$$

where MV is the market value of common equity at the financial year-end scaled by total assets; $\beta 0$ is the intercept; $\beta 1 SECTORSDUMMY$ is sector dummy for ten sectors (industrial products, trading and services, consumers products, properties, construction, infrastructure, plantation, hotel and mining), where the hotel sector is used as a reference sector because of the least number of firms in this sector; $\beta 2 BV$ is book value of common equity at the financial year-end scaled by total assets; $\beta 3 EARNS$ is reported earnings (net income before extraordinary item) scaled by total assets; $\beta 4 ATTI$ is estimated after-tax taxable income (i.e. the difference between estimated taxable income and the current portion of income taxes) scaled by total assets; and finally β is an error term. Sector dummies are included in the regression model to mitigate the effect of correlated omitted variables. All variables are deflated by total assets so as to mitigate the effect of heteroscedasticity (Muhd Kamil, 2005). Finally, the price earnings model is tested using a pooled cross-sectional regression method.

Following Lev and Nissim (2002), the price earnings model specified in equation (3) above is based on the available evidence that a firm's earnings and book value jointly explain cross-sectional variation in its share prices. The independent variable i.e. earnings (EARNS) serves as a proxy for earnings quality estimate, which in turn determines the firm's share price (MV). Therefore, if the taxable income provides information about the quality of reported earnings, the coefficient that relates earnings to share price, $\beta 3 EARNS$ should be positively related to the tax-to-book income ratio $\beta 4 ATTI$ (earnings quality

indicator). Thus, after-tax taxable income (ATTI) is included the multiple regression model to capture this relationship.

Empirical Results

Descriptive Statistics

Table 2 presents descriptive statistics of 294 firms (1470 firm-years) for the period 2000 to 2004. The descriptive results show that the mean for market value of common equity (MV: 0.7548) is higher than the book value of common equity (BV: 0.6157). It was also found that the mean for reported earnings (EARNS: 0.0554) is considerably larger than the mean for after-tax taxable income (ATTI: 0.0392). Thus, the result is consistent with the extant literature which argue that the gap between financial accounting income and taxable income is positive and larger (Manzon and Plesko, 2002; Lev and Nissim, 2002; Desai, 2003). The mean for current-based firms' effective tax rates (which is calculated as the ratio of current tax expense over earnings before interest and tax) for 294 firms (1470 firm-years) is 20.4% for the period 2000-2004. Meanwhile, the mean for pre-tax income (PTI) is 0.0750 for the corresponding years 2000-2004, that is higher than the mean for taxable income (TI) which is 0.0541.

Furthermore, Table 2 also provides descriptive statistics for the sub-samples, that is, low ETR and high ETR samples. The results reveal several characteristics of the sub-samples. The dependent variable, i.e. the market value (MV) of common equity, and the explanatory variables, i.e. book value of common equity (BV) and after-tax taxable income (ATTI) for high ETR samples are higher than low ETR samples. The market value (MV) for low ETR and high ETR samples are 0.6493 and 0.8584 respectively. The book value (BV) for low ETR and high ETR are 0.5792 and 0.6516 respectively. Whereas, after-tax taxable income (ATTI) for low ETR and high ETR are 0.0090 and 0.0689 respectively. However, the results indicate that the mean for reported earnings for both samples are very closed, that is, 0.0517 for low ETR samples and 0.0589 for high ETR samples. Meanwhile, the average ETR for low ETR and high ETR samples are 8.44% and 32.14% respectively.

Hence, the results indicate a large gap of income tax burden experienced by the two sub-samples, even though the mean for reported earnings is almost similar. Meanwhile, other variables such as taxable income (TI) and pre-tax income (PTI) exhibit a higher mean for high ETR samples than low ETR samples. The taxable income (TI) and pre-tax income (PTI) for high ETR samples are 0.0961 and 0.0859 respectively. Also, the taxable income (TI) and pre-tax income (PTI) for low ETR samples are 0.0113 and 0.0638 respectively.

Table 2: Descriptive Statistics for the Year 2000-2004

Panel A: Full Sample (1470 Firm-years)

	ETR	MV	BV	EARNS	ATTI	TI	PTI
MEAN	20.40	0.7548	0.6157	0.0554	0.0392	0.0541	0.0750
MEDIAN	20.71	0.5728	0.6209	0.0481	0.0350	0.0481	0.0665
STD DEV	16.35	0.7979	0.3341	0.0490	0.0540	0.0752	0.0587
MINIMUM	0.00	0.00	-0.04	-0.09	-0.32	-0.44	-0.06
MAXIMUM	100	13.33	6.02	0.45	0.43	0.59	0.60

Panel B: Low ETR Sample (728 Firm-years)

	ETR	MV	BV	EARNS	ATTI	TI	PTI
MEAN	8.44	0.6493	0.5792	0.0517	0.0090	0.0113	0.0638
MEDIAN	8.13	0.5136	0.5776	0.0450	0.0119	0.0157	0.0566
STD DEV	7.03	0.5880	0.3284	0.0441	0.0422	0.0581	0.0474
MINIMUM	0.00	0.00	0.00	-0.07	-0.32	-0.44	-0.04
MAXIMUM	20.49	6.37	6.02	0.44	0.12	0.16	0.25

Panel C: High ETR Sample (742 Firm-years)

	ETR	MV	BV	EARNS	ATTI	TI	PTI
MEAN	32.14	0.8584	0.6516	0.0589	0.0689	0.0961	0.0859
MEDIAN	28.28	0.6377	0.6572	0.0529	0.0617	0.0862	0.0788
STD DEV	14.24	0.9493	0.3360	0.0531	0.0474	0.0658	0.0661
MINIMUM	20.50	0.00	-0.04	-0.09	-0.13	-0.18	-0.06
MAXIMUM	100	13.33	5.19	0.45	0.43	0.59	0.60

Variable Definitions:
ETR is current tax expense divided by earnings before interest and tax, MV is market value of common equity at financial year-end scaled by total assets, BV is book value of common equity at financial year-end scaled by total assets, EARNS is earnings (net income before extraordinary items) scaled by total assets, ATTI is estimated after-tax taxable income calculated as current tax expense grossed up by statutory tax rate 28% less current tax expense scaled by total assets, TI is taxable income calculated as current tax expense grossed up by statutory tax rate 28% scaled by total assets, and PTI is pre-tax income scaled by total assets.

Univariate Analyses

Table 3 provides Pearson (lower triangle) and Spearman (upper triangle) correlations coefficients for all variables for the full sample of 1470 firm-years for the year 2000 to 2004. Overall, the Pearson correlation results produce considerable correlations between all variables. Most of the variables are significant and positively correlated at 1% -level (2-tailed), except for reported earnings (EARNS), which is significant and negatively correlated with ETR at -0.09. The highest correlation is reported between market value (MV) and reported earnings (EARNS) at 0.611. Meanwhile, the lowest correlation is reported between book value (BV) and after-tax taxable income (ATTI) at 0.147.

Similarly, Spearman correlation also reveals significant and positive correlations between variables, except for ETR and reported earnings (EARNS), which are not significant. The highest correlation is observed between ETR and after tax taxable income (ATTI) at 0.710, while the lowest correlation is observed between ETR and market value (MV) at 0.127. Additionally, the Pearson correlation results for the sub-samples, i.e. low ETR and high ETR samples are also reported in Table 3. All variables in the sub-sample indicate positive and significant correlation at 1% -level (2-tailed). The results show that for the low ETR samples, the highest correlation is reported between market value (MV) and reported earnings (EARNS) at 0.631, and the lowest correlation is reported

Table 3: Pearson (Lower Triangle) and Spearman (Upper Triangle) Correlations for the Year 2000-2004

Panel A: Full Sample (1470 firm-years)					
	ETR	MV	BV	EARNS	ATTI
ETR		0.127**	0.168**	0.017	0.710**
MV	0.048		0.464**	0.643**	0.431**
BV	0.072**	0.379**		0.375**	0.228**
EARNS	-0.090**	0.611**	0.403**		0.544**
ATTI	0.466**	0.432**	0.147**	0.539**	
Panel B: Low ETR Sample (728 firm-years)					
	ETR	MV	BV	EARNS	ATTI
ETR		0.093**	0.136***	0.115***	0.829***
MV	0.074**		0.467***	0.648***	0.288***
BV	0.102***	0.561***		0.428***	0.164***
EARNS	0.109***	0.631***	0.528***		0.423***
ATTI	0.633***	0.176***	0.091**	0.282***	
Panel C: High ETR Sample (742 firm-years)					
	ETR1	MV	BV	EARNS	ATTI
ETR		-0.111***	-0.017	-0.313***	-0.003
MV	-0.113***		0.424***	0.633***	0.569***
BV	-0.064	0.271***		0.294***	0.136***
EARNS	-0.345***	0.606***	0.298***		0.830***
ATTI	-0.108***	0.586***	0.117***	0.834***	

Note:
*** Significant at the 1% -level (2-tailed), **Significant at the 5% -level (2-tailed).

Variable Definitions:
ETR is current tax expense divided by earnings before interest and tax, MV is market value of common equity at financial year-end scaled by total assets, BV is book value of common equity at financial year-end scaled by total assets, EARNS is earnings (net income before extraordinary items) scaled by total assets, ATTI is estimated after-tax taxable income calculated as current tax expense grossed up by statutory tax rate 28% less current tax expense scaled by total assets.

between book value (BV) and after-tax taxable income (ATTI) which is significant at 0.091. Meanwhile, high ETR samples reported the highest correlation between reported earnings (EARNS) and after-tax taxable income (ATTI) at 0.834, and lowest correlation between book value (BV) and after-tax taxable income (ATTI) which is significant at 0.117.

Book-Tax Differences

The study examines the gap between pre-tax income (PTI) and taxable income (TI), a proxy for book-tax difference for the year 2000 to 2004. First, analysis was performed based on the full sample of 1470 firm-years. Further, the sample was reclassified into low ETR sample i.e. comprises of 728 firm-years, and high ETR sample i.e. comprised of 742 firm-years. As mentioned earlier, low ETR refers to firms where their ETRs fall into the range of 0% to industry average 20.4%. Meanwhile, high ETR refers to firms that have ETRs ranging from 20.5% to 100%.

The Anova test results presented in Table 4, show that there are significant differences of mean for all variables between low ETR and high ETR samples. The results are supported by the bar chart results as depicted in Figure 1. Overall, the results indicate that in a full sample, the pre-tax income (PTI) i.e. the proxy for financial accounting or book income is higher than the taxable income (TI). Additionally, Figure 1 also provides evidence for a large gap between pre-tax income (PTI) and taxable income (TI) for low ETR samples. On the contrary, the high ETR samples report higher taxable income (TI) than the pre-tax income (PTI). The finding provides evidence on the aggressive financial reporting and aggressive tax reporting for low ETR samples, that is, by reporting higher income to the shareholders, and at the same time reporting lower income to tax authorities. Thus, the statistical results support Hypothesis 1 that there is a gap between income reported to shareholders (higher) and income reported to tax authorities (lower).

Hence the finding is consistent with previous studies, such as Manzon and Plesko (2002), Lev and Nissim (2002), Desai (2003), Lev and Nissim (2004), Hanlon et al. (2005), Hanlon and Krishnan (2006), Onuma, Suzuki and Yamashita (2007) and Ayers et al. (2007). In addition, the findings indicate that financial reporting income has increased relative to taxable income and that the increase is indicative of an increase in tax planning activities. Thus the findings confirm earlier findings where, in the tax planning strategies firms utilize permanent and temporary differences which cause their ETRs to diverge from the statutory tax rate of 28%.

Table 4: Anova Test Results - Mean Comparison for the Year 2000-2004
Low ETR versus High ETR

Variable	F-value	P-value
Effective Tax Rate (ETR)	1627.830	0.000***
Market Value	25.669	0.000***
Book Value	17.456	0.000***
Earnings	7.991	0.005***
After-Tax Taxable Income	653.953	0.000***
Taxable Income	686.273	0.000***
Pre-tax Income	54.257	0.000***

Note:
*** Significant at the 1% -level (2-tailed),
**Significant at the 5% -level (2-tailed).

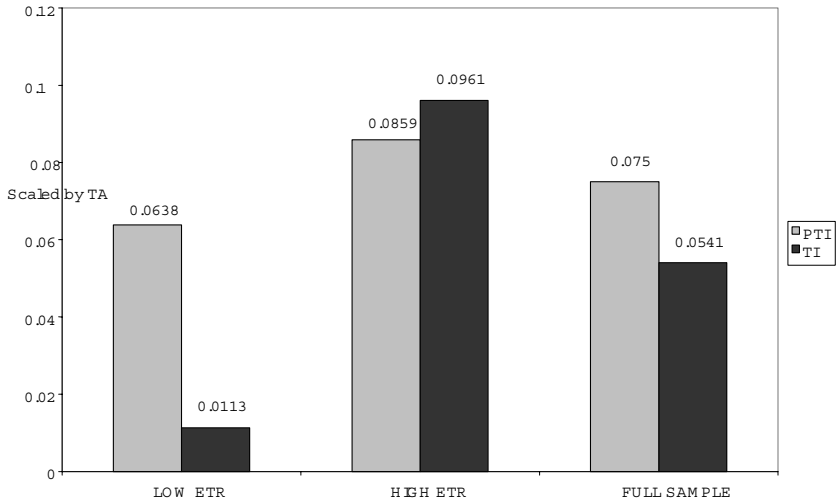

Figure 1: Pre-tax Income versus Taxable Income for the Year 2000-2004

Multivariate Analyses

Table 5 presents the summary statistics of a pooled cross-sectional regression for a full sample as well as sub-samples, i.e. low ETR and high ETR. The statistical results report the coefficient estimates for each explanatory variable. Meanwhile, the associated t-statistics (the ratio of the mean of the cross-sectional coefficients to its standard error) is reported in the parentheses. The study interprets the estimated regression coefficients on earnings (EARNS), a proxy for the quality of earnings which is used to predict future earnings, and consequently affect

the firm's market value of equity. Investors use current earnings to determine firm's performance which is reflected in the firm's equity market value. Thus, a high earnings coefficient from a price earnings regression indicates investors' strong belief in the quality of those earnings.

The study then examined the relation between the earnings quality indicator i.e. ATTI (tax-to-book ratio) and the empirical quality proxy i.e. estimated regression coefficients on earnings (EARNS). The after-tax taxable income (ATTI) captures the information in the taxable income about the quality of earnings, i.e. the sensitivity of earnings coefficient (earnings quality estimate) to the changes in the after-tax taxable income (ATTI). Thus, a positive coefficient of after-tax taxable income (ATTI) suggests the value relevance of taxable income in indicating the quality of reported earnings which consequently would have a positive impact on a firm's market value of equity.

The regression results reported in Table 5 provides significant results for a full sample with an adjusted R-squared of 44% at 1% -level. The coefficient for all of the explanatory variables is significantly and positively related to price. Earnings (EARNS) provide the highest coefficient of 6.904, followed by after-tax taxable income (ATTI) i.e. earnings quality indicator at 2.64, and finally book value (BV) explains 0.43 to the changes in the market value of equity.

In addition, the results of the sub-samples provide significant results with an adjusted R-squared of 53.7% for low ETR samples, and an adjusted R-squared for high ETR samples is 45%. The statistical results too, indicate that the after-tax taxable income (ATTI) coefficient is positive and highly significant for the high ETR samples, but not significant for the low ETR samples. The statistical results provide additional evidence where the after-tax taxable income (ATTI) coefficient for the high ETR sample is higher than its earning coefficient. As discussed earlier, the after-tax taxable income (ATTI) coefficient captures the relationship between earnings coefficient (earnings quality) and after-tax taxable income (ATTI) earnings quality indicator. Thus, the positive coefficient of after-tax taxable income (ATTI) suggests the quality of reported earnings, as reflected in the firm's market value of equity, increases with after-tax taxable income (ATTI).

Therefore, from the price earnings analysis, this study concludes that the value relevance of taxable income in assessing the quality of earnings, as indicated in the regression results for the full sample and high ETR samples. The statistical tests provide evidences that the after-tax taxable income (ATTI) coefficient is larger than earnings coefficient (EARNS) in the high ETR samples, but not significant in the low ETR samples. Thus, the finding confirms a widely held belief that the quality of earnings deteriorates for firms having large differences between financial accounting and taxable income. This makes taxable income increasingly relevant as an indicator of earnings quality. In addition, the results indicate that investors appear to fully comprehend the quality related information in taxable income, thus suggesting that the value relevance of taxable income.

Table 5: Price Earnings Regression Results for the Year 2000-2004

Model:

$MV_t = \beta 0 + \beta 1 SECTORSDUMMY + \beta 2 BV_t + \beta 3 EARNS_t + \beta 4 ATTI_t + \beta_t$

	Full Sample	Low ETR	High ETR
	Coefficient [t-stats]	Coefficient [t-stats]	Coefficient [t-stats]
Variable:			
CONSTANT	1.052 [5.468]***	-0.166 [-0.913]	2.135 [6.542]***
BV	0.43 [8.189]***	0.687 [12.257]***	0.356 [4.191]***
EARNS	6.904 [16.353]***	4.999 [11.608]***	5.031 [5.170]***
ATTI	2.64 [7.441]***	0.207 [0.548]	6.689 [6.430]***
SECTORSDUMMY	Included	Included	Included
R^2	0.445	0.545	0.459
Adjusted R^2	0.440	0.537	0.450
F-Statistic	97.29	71.23	51.589
P-Value	0.000***	0.000***	0.000***
Durbin-Watson (DW)	1.876	1.825	2.004
Firm-years	1470	728	742

Note:

***Significant at the 1% -level, **Significant at the 5% -level, *Significant at the 10% -level.

Variable Definitions:

MV is market value of common equity at financial year-end scaled by total assets, $\beta 0$ is the intercept, $\beta 1 SECTORSDUMMY$ is sector dummy for ten sectors, $\beta 2 BV$ is book value of common equity at financial year-end scaled by total assets, $\beta 3 EARN$ is earnings (net income before extraordinary items) scaled by total assets, $\beta 4 ATTI$ is estimated after-tax taxable income calculated as current tax expense grossed up by the statutory tax rate of 28% less current tax expense scaled by total assets and $\in$ is an error term.

Additional Analyses

To provide additional evidences on the value relevance of taxable income in assessing earnings quality and as an alternative performance measure, this study further analysed the sample on an annual cross-sectional basis. The statistical results for annual cross-sectional analysis are presented in Table 6 and 7 respectively. Anova test results as reported in Table 6 indicates that there are significant differences of mean for market value, book value, after-tax taxable income and taxable income at less than 5% -level (2-tailed). However, the Anova tests do not provide support for ETR, earnings and pre-tax income, which

Table 6: Anova Test Results - Mean Comparison for the Year 2000-2004 Yearly Analysis

Variable	Abbreviation	F-value	P-value
Effective Tax Rate (ETR)	ETR1	1.505	0.198
Market Value	MV	3.556	0.007***
Book Value	BV	2.455	0.044**
Earnings	EARN	0.239	0.916
After-Tax Taxable Income	ATTI	5.814	0.000***
Taxable Income	TI	5.774	0.000***
Pre-tax Income	PTI	0.296	0.880

Note:
***Significant at the 1% -level,
**Significant at the 5% -level.

indicate that there is no significant difference for ETR, earnings and pre-tax income reported during the five years i.e. from 2000 to 2004.

The price earnings regression analysis reported in Table 7 provides significant results for all the five years from 2000 to 2004. The highest significant result is observed for the year 2004 with an adjusted R-squared of 60.5%, followed by 2002: 58.4%, 2003: 58.3%, 2001: 55.8% and 2000: 19.8%. The after-tax taxable income (ATTI) coefficient is positive and highly significant for all years except for 2002. The results also reveal that the year 2000 has the highest coefficient for after-tax taxable income (ATTI) and earnings (EARNS) with coefficient estimates of 6.371 and 4.719 respectively. Therefore, the significant and positive coefficient of after-tax taxable income (ATTI) i.e. earnings quality indicator suggest that the value relevance of taxable income and hence, should be used by shareholder to benchmark against reported earnings.

To further evaluate the robustness of the empirical results, the price earnings regression model was tested by using a fixed effects specification. A fixed effects specification requires a balanced panel data and the method considers firm's unobserved heterogeneity which was not measured in the model. However, the limitation of the fixed effect method is that the results produced by this method cannot be generalized outside the sample (Gujarati, 2003). Column 1 of Table 8 presents the statistical results from a fixed-effects specification. The regression results indicate a highly significant adjusted R-squared of 81.5%, thus, supporting the primary results. Additionally, the after-tax taxable income (ATTI) coefficient (1.529) is significantly positive and higher than its earning coefficient (1.182).

In addition, Column 2 of Table 8 presents the statistical results for alternative measurement of earnings (EARNS) and after-tax taxable income (ATTI). The after-tax approach used in the primary regression is replaced by pre-tax approach using pre-tax income (PTI) and taxable income (TI), instead of earnings (EARNS)

Table 7: Price Earnings Regression Results for the Year 2000-2004 Yearly Analysis

Model:

$$MV_t = \beta 0 + \beta 1SECTORSDUMMY + \beta 2BV_t + \beta 3EARNS_t + \beta 4ATTI_t + \beta_t$$

Year	2000	2001	2002	2003	2004
	Coeff [t-stats]	Coeff [t-stats]	Coeff [t-stats]	Coeff [t-stats]	Coeff [t-stats]
Variable:					
CONSTANT	1.304 [1.941]*	0.304 [0.980]	1.127 [3.281]***	1.569 [4.508]***	1.119 [3.209]***
BV	-0.038 [-0.160]	0.603 [8.411]***	0.615 [7.438]***	0.388 [3.827]***	0.285 [2.550]**
EARN	4.719 [3.067]***	5.331 [7.248]***	7.361 [8.855]***	9.416 [12.083]***	8.32 [11.010]***
ATTI	6.371 [4.669]***	2.684 [3.540]***	1.267 [1.521]	1.261 [2.662]***	2.918 [4.350]***
Sectors Dummy	Included	Included	Included	Included	Included
R^2	0.231	0.577	0.601	0.600	0.621
Adjusted R^2	0.198	0.558	0.584	0.583	0.605
F-Statistic	7.02	31.88	35.292	35.145	38.437
P-Value	0.000***	0.000***	0.000***	0.000***	0.000***
DW	1.891	2.148	2.171	2.123	2.117
Firm-years	294	294	294	294	294

Note:
***Significant at the 1% -level,
**Significant at the 5% -level,
*Significant at the 10% -level.

Variable Definitions:
MV is market value of common equity at financial year-end scaled by total assets, $\beta 0$ is the intercept, $\beta 1SECTORSDUMMY$ is sector dummy for ten sectors, $\beta 2BV$ is book value of common equity at financial year-end scaled by total assets, $\beta 3EARN$ is earnings (net income before extraordinary items) scaled by total assets, $\beta 4ATTI$ is estimated after-tax taxable income calculated as current tax expense grossed up by the statutory tax rate of 28% less current tax expense scaled by total assets and $\in$ is an error term.

and after-tax taxable income (ATTI). The statistical results indicate significant results with an adjusted R-squared of 44.7% and the coefficient for taxable income (TI) i.e. proxy for after-tax taxable income (ATTI) is significant and positive at 1.056, and the coefficient for pre-tax income (PTI) i.e. proxy for earnings is also significant and positive at 6.184. Therefore, the findings also support the primary results.

Finally, the analyses also produce similar results when firms with negative earnings and negative after-tax taxable income were deleted from the final sample. The results are tabulated in column 3 of Table 8. The statistical tests provide significant results with an adjusted R-squared of 46.2%. Additional test also shows significant and positive coefficient for after-tax taxable income (ATTI) at 5.058, while the coefficient for earnings (EARNS) is also positive and significant at 6.035.

Based on above analyses, the findings support hypothesis 2 that a firm's share price is positively related to after-tax taxable income (earnings quality

Table 8: Price Earnings Regressions Results for the Year 2000-2004 Additional Analyses

Model:

$$MV_t = \beta 0 + \beta 1SECTORSDUMMY + \beta 2BV_t + \beta 3EARNS_t + \beta 4ATTI_t + \beta_t$$

	1	2	3
Method	Fixed Effects	Pooled OLS	Pooled OLS
	Coefficient	Coefficient	Coefficient
Variable:	[t-stats]	[t-stats]	[t-stats]
CONSTANT	0.895	0.982	1.192
	[24.931]***	[5.131]***	[5.398]***
BV	-0.431	0.605	0.469
	[-7.227]***	[12.341]***	[8.238]***
EARNS	1.182	6.184	6.035
	[3.106]***	[16.883]***	[11.171]***
ATTI	1.529	1.056	5.058
	[5.640]***	[3.763]***	[9.388]***
Sectors Dummy		Included	Included
R^2	0.853	0.452	0.468
Adjusted R^2	0.815	0.447	0.462
F-Statistic	22.626	99.96	90.821
P-Value	0.000***	***0.000	0.000***
Durbin-Watson	1.502	1.193	1.931
Firm-years	1470	1470	1254

Note:
***Significant at the 1%-level,
**Significant at the 5%-level,
*Significant at the 10%-level.

Variable Definitions:
MV is market value of common equity at financial year-end scaled by total assets, $\beta 0$ is the intercept, $\beta 1SECTORSDUMMY$ is sector dummy for ten sectors, $\beta 2BV$ is book value of common equity at financial year-end scaled by total assets, $\beta 3EARN$ is earnings (net income before extraordinary items) scaled by total assets, $\beta 4ATTI$ is estimated after-tax taxable income calculated as current tax expense grossed up by the statutory tax rate of 28% less current tax expense scaled by total assets and $\in$ is an error term.

indicator). Therefore, the findings suggest that a firm's taxable income (which is estimated from a firm's current tax expense) contain value relevance information on the quality of corporate earnings and should be used by investors and financial analysts to benchmark against corporate earnings in assessing a firm's value.

Summary and Conclusions

This study investigated the gap between financial accounting income and taxable income of Malaysian listed firms during the tax years 2000 to 2004. This study also examined the value relevance of taxable income as an earnings quality indicator and alternative performance measure. Academic researchers acknowledge that firms are subjected to separate rules for financial reporting and tax reporting, thus, resulting in different amounts of income reported to investors and tax authorities. In tax planning strategies, firms opportunistically utilize the different rules between financial reporting and tax reporting to report higher income to shareholders and simultaneously lower income to tax authorities.

The flexibility of financial accounting rules as compared to tax rules enhances the reliability of taxable income as an alternative measure of a firm's performance (Hanlon et al., 2005; Ayers et al., 2007). A strong anti-tax avoidance provision in the Malaysian tax system support that the taxable income should reflect the real economic income (Roubi and Richardson, 1998). The current study used estimated taxable income and price earnings model to examine the pervasiveness of book-tax differences and the value relevance of taxable income as an alternative performance measure.

This study provides empirical evidence on a significant gap between financial accounting and taxable incomes and value relevance of the taxable income as an alternative measure of a firm's performance. The finding further confirms a widely held belief that the quality of earnings has deteriorated for firms having significant differences between financial accounting and taxable incomes (i.e. firms that face lower ETRs). Hence, the findings provides evidence that taxable income is relevant as an indicator of earnings quality. A significant and positive coefficient for after-tax taxable income (ATTI) suggests that investors appear to fully comprehend the quality related information in taxable income. The statistical results provides additional evidence that a firm's market value of equity is positively related to its after-tax taxable income (earnings quality indicator) for high ETR firms which have less book-tax differences.

The small sample size and the use of current tax expense to estimate firms' taxable income, instead of firms' actual taxable income, could limit the results of this study. However, the evidence from this study could be a valuable contribution to accounting research and to the capital market in respect of the

value relevance of taxable income in assessing corporate earnings and firms' performance. Future research should investigate factors that contribute to the gap between financial accounting income and taxable income in order to provide evidence of the impact of tax planning and/or earnings management activities which could be useful for policymakers in designing future tax systems and accounting standards to narrow the gap.

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