Predicting future earnings with the effective tax rate

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Abstract

Management should make estimations about their annual effective tax rate, when issuing an interim report. This estimated annual effective tax rate should then be applied to the profit before tax to compute the total tax expense for a certain quarter. Estimating the annual effective tax rate also incorporates estimations about future income, since the effective tax rate is calculated as the total tax expense divided by the total accounting profit. Thus, estimations about the effective tax rate give financial statement users an insight into the firms' expected future results. According to prior research for listed companies in the United States, the effective tax rate, disclosed in an interim report, has predictive value about future earnings. However, it is not empirically investigated that those forecasts give an insight in future earnings for Dutch listed companies. Contrary to prior research in the United States, the present study does not find evidence that the effective tax rate, disclosed in quarterly reports, has any predictive value about future earnings. It could be argued that the different results arise due to the fact that there is no obligation to independently check the interim reports in The Netherlands. In contrast to Dutch companies, US companies are required to engage an independent auditor to review the interim financials. Another argument for the different results is that only a small percentage of the Dutch listed companies report in accordance with IAS 34 with regard to income tax disclosures.

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Preface and acknowledgements

This master thesis is the final part of the master Accounting, Auditing, & Control at the Erasmus University in Rotterdam. After an extensive year, in which I was enrolled in the PwC Honours Class and a working student at Deloitte Tax accounting, I learned a lot and extended my knowledge of accounting in practice. I found out that especially tax accounting appeals to me.

Tax accounting is a rather young business and has become a major topic in the last few years. Tax accounting is about assessing a company's tax position. As well as the Tax Authorities as the auditor expects that companies has thought about their tax position and are familiar with their uncertain tax positions. Due to the work at Deloitte I wrote my master thesis about a tax accounting topic.

First of all, special thanks go out to the Deloitte Tax Accounting team under the leadership of Mr. Bart Janssen. They provided me insights in the topic. Secondly, I would like to thank Prof. Dr. M.A. van Hoepen, who helped me writing my thesis and gave me great ideas.

Finally, I would like to thank my girlfriend and family who supported and motivated me during my study.

Breda, August, 2010

René van Gassen

Content

1. Introduction

1.1 Background

Since 2009 the European Transparency Directive made it mandatory for Dutch listed companies to issue interim reports or periodically updates (Dinant, 2009). Before 2009 it was only mandatory to issue a semi-annual report. European listed companies are obliged to provide their interim report in accordance with the International Accounting Standard (IAS) 34, one of the International Financial Reporting Standards (IFRS). In 1998 the International Accounting Standards Board (IASB) issued IAS 34, which was effective since July 1st, 1999.

Prior research on the topic of interim reporting mainly focused on the purposes of interim reports (e.g. Botosan, 1997; Botosan and Plumlee, 2002; Healy et al., 1999; Leuz and Verrecchia, 2000, Sengupta, 1998; Welker, 1995) and the relationship between year-end financial disclosures and future earnings (e.g. Brown and Rozeff, 1979; Butler, Kraft, and Weiss, 2007; Yee, 2003). However, little research has been done on the relation between interim financial disclosures and future earnings (Bauman and Shaw, 2005; Cuijpers and Peek, 2009; DeFond, Hung, and Trevezant, 2007).

In this study the relationship between the interim effective tax rates and future year-end earnings was investigated for Dutch listed companies.

The present study was based on research performed by Bauman and Shaw (2005) in the United States. They investigated whether interim effective tax rates were useful to predict subsequent quarterly earnings and found a positive relation between the interim effective tax rate changes and the next quarter's earnings.

1.2 Contribution

The present study provides an insight in the usefulness of annual effective tax rates, reported in interim statements, in forecasting year-end earnings. The results of this study are interesting to analysts and other users of financial statements. If interim income tax data helps in predicting future earnings, analysts should incorporate these disclosures in their forecasts.

1.3 Problem statement

When providing information about interim periods, according to IAS 34, managers have to make estimations about their effective tax rate. This estimated effective tax rate should be applicable for the full year and is computed as the total tax expense divided by the total

accounting profit. Hence, estimations about the annual effective tax rate also incorporate forecasts about future income. These estimations could give financial statement users an insight into the firms' expected future operating results. However, it is not empirically researched that those forecasts give an insight in future earnings for Dutch listed companies.

Therefore the research question of this study is:

Are annual effective tax rates, incorporated in interim income tax disclosures, useful in predicting future earnings of Dutch listed companies?

To provide a reasonable answer to the research question, the following six sub-questions were elaborated:

1. What are the most important topics within interim reporting?

2. How to measure income taxes in interim reports?

3. What is the meaning of the effective tax rate and what kind of aspects have an impact on the effective tax rate?

4. What are the main results of prior research?

5. What research design can be developed to measure the relation between managerial forecasts of annual effective tax rates and year-end earnings?

6. Is there a relationship between the forecasted annual effective tax rates and year-end earnings?

1.4 Approach

The above stated sub-questions were answered by a literature review and an empirical study. In order to provide a thorough understanding about the interim income tax disclosures and the effective tax rate the research started with an elaboration of those concepts, the relevant literature, and the IAS 34 guidance. This literature review provided a framework for setting up the research design, which was used for empirical research.

The empirical research was conducted to answer the last sub-question and the main research question. The data for this study were collected from Thomson One Banker[1]. In this database, quarterly data are available for all variables which were used in the regression model. The research was conducted on Dutch listed companies and covers 2005 through 2009, because since 2005 IFRS was mandatory for Dutch listed companies.

1.5 Structure

This research started with an introduction on interim reporting. Chapter 2 focused on the main issues of interim reporting that were relevant for this study. In chapter 3 the measurement of income taxes in interim reports and the guidelines of IAS 34 with respect to interim income tax disclosures were explained. Chapter 4 described income taxes in depth and was dedicated to explain the effective tax rate and the influences on this rate. It provided an answer on the third sub-question. After the first four chapters one should be able to understand the relationship between the effective tax rate, disclosed in interim financials, and year-end earnings. In chapter 5 an overview of the literature about the relationship between interim financial data and future earnings was provided.

Based on the theory, the IAS 34 guidance, and the literature, the research design was developed and elaborated in chapter 6. Here, the hypothesis, the methodology, and the sample composition were described. In chapter 7 the empirical results and analyses were provided and in chapter 8 the main conclusions were given. In chapter 9 a discussion about the conclusions and suggestions for future research were extended. Finally, in chapter 10 the limitations of the present study were presented.

2. Interim reporting

Healy and Palepu (2001) argued that the demand for financial reporting and disclosures arose from information asymmetry and agency conflicts between managers and outside investors. Providing more financial information should lower the information asymmetry and therefore improve the decision-making process. Management should also be able to behave in a more

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[1] Thomson One Banker is a database that contains company and stock market information, covering over 38.000 companies worldwide.

transparent way by communicating firm's performance and governance to outside investors and other stakeholders. Transparency would lead to more efficient and reliable capital markets (Healy et al., 1999; Leuz and Verrecchia, 2000; Welker, 1995). Butler, Kraft, and Weiss (2007) confirmed in their literature review that interim reports improve liquidity (Welker, 1995; Healy et al., 1999; Leuz and Verrecchia, 2000), reduce the cost of capital (Botosan, 1997; Sengupta, 1998; Botosan and Plumlee, 2002), increase analyst following (Healy et al., 1999), and reduce information asymmetry (Welker, 1995; Healy et al., 1999; Brown et al., 2005). Besides the annual reports there are other kind of disclosures, such as sustainability reports, press releases, conference calls, interviews, and interim (semi-annual and quarterly) reports.

IAS 34 for interim reporting does not mandate which entities should publish interim reports, how frequently, or how soon after the end of the interim period.[2] However, governments, securities regulators, stock exchanges, and accounting bodies often require entities to publish interim reports.[3] In the Netherlands the Authority of Financials Markets (AFM) has anchored the European Transparency Directive (Dinant, 2009) in the Act of Financial Supervision[4] as of January 1st, 2009, stating that this rule, entities with securities on a European stock exchange are obliged to issue interim reports and frequently updates or announcements. The aim of implementing the European Transparency Directive was to improve transparency and therefore the decision-making process, as Healy and Palepu (2001) pointed out in their research. Mandating more frequent reporting can influence firms' tendency to issue less voluntary disclosures (Einhorn, 2005; Gigler and Hammer, 1998) that could contain more precise information of the company. However, opponents of the European Transparency Directive argued that more interim reporting would not contribute to better information (Tassel, 2003). In the years before 2009 only semi-annual reports were mandatory. Cuijpers and Peek (2003) studied whether the investors' information was affected by the choice of a company to only provide a semi-annual report or quarterly reports too. They found that a firm's reporting frequency has no influence on the information asymmetry, which is not in line with Healy and Palepu (2001). However, they also found a relationship between

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[2] IAS 34, IN4

[3] IAS 34.1

[4] Law on Financial Control (Wet op het Financieel Toezicht (Wft))

increasing the reporting frequency and the share turnover and argued that more reporting reduced the incentives for investors to gain more private information. There is still no consensus whether more frequent reporting has an impact on the information gap between investors and companies.

IAS 34.8 provides the contents of an interim report:

- condensed statement of financial position (balance sheet);

- condensed statement of comprehensive income;

- condensed statement of changes in equity;

- condensed statement of cash flows;

- selected explanatory notes.

Although there are some similarities, a company should separately disclose a statement of comprehensive income and a statement of changes in equity. In IAS 1 is stated what is expected to be included in a statement of comprehensive income (IAS 1.82) and a statement of changes in equity (IAS 1.106). Comprehensive income is defined in IAS 1.7 as *the change in equity during a period resulting from transactions and other events*. A statement of comprehensive income should at least include: revenue, finance costs, profit or loss, tax expense, total comprehensive income, and the nature of every item of the other comprehensive income. A statement of changes in equity should at least contain: total comprehensive income for the period, the effect of new accounting principles, and the reconciliations between the carrying amounts at the beginning and the end of the period for each component of equity.

When issuing an interim report, the same principles as in annual financial statements should be applied.[5] In the appendix of IAS 34 the recognition and the measurement principles of assets, liabilities, income, and expenses are elaborated.

Within the above stated aspects of an interim report there are announcements required about income taxes and the tax position. For income taxes another approach is used than at year-end under IAS 12. IAS 12 provides guidelines for income taxes when preparing annual financial statements. Income tax expenses under an interim period are based on an estimated average

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[5] IAS 34, IN7, and IAS 34.30c

annual effective income tax rate, consistent with the annual assessment of taxes.[6] In this way the estimation could give an insight into the firms' expected future operating results.

3. Disclosure for income taxes in interim reports

3.1 Introduction

The recognition and the measurement for assets, liabilities, income, and expenses in interim reports are the same as in reports on annual basis, except for income taxes. In this chapter the difference between reporting for income taxes at year-end (IAS 12) and reporting for income taxes at quarterly basis (IAS 34) was explained. To provide a complete overview three examples were elaborated: one based on the guidance of IAS 34, one in accordance with IAS 12 and an example where both were ignored.

3.2 Guidelines

IAS 34 is an additional layer on top of IAS 12 for interim reporting of the tax position and can be seen as a standalone Standard. For the recognition and measurement of interim reports, IAS 34.28-36[7] needs to be taken in consideration. With respect to income taxes there is, however, a complicating factor (Seegers, 2009). The recognition and the measurement are different and not as easy as other transactions on a year-to-date basis. The effective tax rate has an important role in interim income tax disclosures. The corporate tax expense has to be assessed on a one-year basis, based on an estimated annual effective tax rate. This tax expense has to be allocated among the interim periods. The question is how to allocate among the periods.

In the Appendix B of IAS 34, B12-22, guidelines were provided on how to calculate interim tax provisions:

"Interim period income tax expense is accrued using the tax rate that would be applicable to expected total annual earnings, that is, the estimated average annual effective income tax rate applied to the pre-tax income of the interim period."(IAS 34, B12-22)

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[6] IAS 34, IN8

[7] Appendix B

In the following examples the implementation of IAS 34 was illustrated. To understand the difference between annual reporting and interim reporting, two examples were set out when ignoring IAS 34. In all examples the statutory tax rate was 25 percent.

The first example is given in table 1, based on the guidance of IAS 34. The profit before tax at year-end is 100 and the total disallowed reductions are 80 resulting in a total income of 180. The expected total tax expense for the full year is 25% of 180, which is 45. The effective income tax rate is the total income tax paid divided by the total profit before tax. Therefore the effective income tax rate will be 45%. The effective tax rate is estimated for the full year and now the interim total tax expense of the first quarter could be calculated as 45% of 100 (Profit before tax Q1), which is 45.

Using this calculation for the other interim periods, the following interim tax expenses are computed:
Second quarter: 45% * 200 = 90
Third quarter: 45% * 0 = 0
Fourth quarter: 45% * -200 = -90

The total tax expense for the year is then computed as 45.

Table 1 *Calculation interim periods total tax expense in accordance with IAS 34*

Period	Q1	Q2	Q3	Q4	Year-end
Profit before tax	100	200	0	(200)	100
Disallowed reductions [8]	20	20	20	20	80
Interim total tax expense	**45**	**90**	**0**	**(90)**	**45**

In example 2, provided in table 2, the guidance of IAS 12 was used and only the first quarter was considered. The total profit before tax of the first quarter is 100 and the total disallowed reductions are 20 resulting in a total income of 120. The expected total tax expense for the

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[8] Expenditure which does not qualify for a reduction of profit before taxation

first quarter is 25% of 120, which is 30. The effective income tax rate is the total income tax paid divided by the total profit before tax. Therefore the effective income tax rate is 30%.

Using this calculation for the other interim periods, the following interim tax expenses were computed:

Second quarter: 25% * 220 = 55
Third quarter: 25% * 20 = 5
Fourth quarter: 25% * -180 = -45

The total tax expense for the year is then computed as 45.

Table 2 *Calculation Interim periods total tax expense in accordance with IAS 12*

Period	Q1	Q2	Q3	Q4	Year-end
Profit before tax	100	200	0	(200)	100
Disallowed reductions	20	20	20	20	80
Interim total tax expense	**30**	**55**	**5**	**(45)**	**45**

Another example of a calculation is shown in table 3. In this calculation the guidance of IAS 34 is ignored and it is also not drafted consistent with IAS 12. Here, only the full year is considered. The total profit before tax is 100 and the total disallowed reductions are 80 resulting in a total income of 180. The expected total tax expense for the full year is 25% of 180, which is 45. This expected total tax expense will be divided among the four quarter, which will result in a total tax expense of 11,25 for each quarter.

The effective income tax rate is the total income tax paid divided by the total profit before tax. Therefore the effective income tax rate of the first quarter is 11,25%.

Using this calculation for the other interim periods, the following effective tax rates could be computed:

Second quarter: 11,25 / 200 = 5,63%

Third quarter: 11,25 / 0 = 0%

Fourth quarter: 11,25 / -200 = - 5,63%

Table 3 *Calculation Interim periods total tax expense ignoring IAS 34*

Period	Q1	Q2	Q3	Q4	Year-end
Profit before tax	100	200	0	(200)	100
Disallowed reductions	20	20	20	20	80
Interim total tax expense	**11,25**	**11,25**	**11,25**	**11,25**	**45**

The above stated examples explained how to measure in the right way for income taxes in interim reports. In the disclosure of an interim report the effective tax rate should be described. Every quarter management has to make estimations about the profit before tax, the total tax expense, and the effective tax rate. During the year, management should be able to make a better prediction about year-end earnings and the total tax expense. Hence, every quarter the estimated effective tax rate could be changed.

3.3 Summary

In this chapter the difference between annual reporting (IAS 12) and interim reporting (IAS 34) in the field of income taxes was explained. The estimated average annual effective income tax rate for the full financial year should be applied to the income before taxes of the interim period, as was explained in IAS 34. Hence, the expected total income for the full year should also be estimated. In example 1 the correct calculation of the effective tax rate and the tax expense was given. As well as in example 2 as in example 3 the most common mistakes for reporting the interim income tax disclosures are provided. These estimations in example 1 could give an insight into the firms' expected future operating results. Therefore this study investigates whether the estimated effective tax rate incorporates information that helps to predict future earnings.

4. Impact on the effective tax rate

4.1 Introduction

After elaborating on how to allocate the tax expense to interim periods, the present chapter explained the main influences on the effective tax rate. As illustrated in the examples of chapter three, the effective tax rate differs from the statutory tax rate. In the Netherlands the statutory corporate tax rate is 25,5% (Article 22 'Wet op de Vennootschapsbelasting 1969' (Corporate Income Tax Law)). It would be a coincidence that a Dutch listed company also has an effective tax rate of 25,5%. Recent studies found significant differences between the effective and the corporate tax rate (Buijink, Janssen and Schols, 2002; de Mooij and Gorter, 2001). In the examples of chapter 3, the difference between those two rates came into force due to the simplistically described disallowed reductions. In this chapter an explanation was given of the main influences on the effective tax rate. Management should take these influences into consideration when estimating the average annual effective tax rate.

4.2 The statutory and effective tax rate

In the Netherlands legal entities pay corporate income taxes on their taxable profit. The taxable profit is imposed to the statutory tax rate and equals their accounting profit for a period minus all kind of deductions (e.g. labor costs, cost of raw material, depreciation of assets, and interest costs). The effective tax rate of a company is the fraction of the taxes a company pays and its accounting profit (Janssen, 2005).

The terms accounting profit and taxable profit are used throughout this chapter and are in accordance with the definitions in IAS 12.5:

Accounting profit is profit or loss for a period before deducting tax expense. Taxable profit is the profit for a period, determined in accordance with the rules established by the taxation authorities, upon which income taxes are payable.

The Dutch statutory corporate tax rate has a flat character with a degression at the foot. Table 4 presents the character of the Dutch corporate income tax (Article 22 'Wet op de Vennootschapsbelasting 1969' (Corporate Income Tax Law)).

Taxable earnings	Tax rate
€ 0 - € 200.000	20,0%
€ 200.000 and higher	25,5%

The first € 200.000,- of the total earnings is charged with 20%. All earnings above € 200.000,- are charged with 25,5%.

In almost all situations the accounting profit differs from the taxable profit and therefore the statutory and the effective tax rate differ. When the taxable profit is less than the accounting profit, the effective tax rate is lower than the statutory tax rate. Contrary, when the taxable profit is higher than the accounting profit, the effective tax rate is higher than the statutory rate. Example 5 shows a case in which the effective tax rate is higher than the statutory tax rate.

Example 5 *Difference between effective and statutory rate*

Profit before tax	€ 100.000,-
Disallowed reductions	€ 80.000,-
Total tax expense	**€ 36.000,-**

In this example the profit before tax is € 100.000,-. Due to disallowed reductions the taxable profit is € 180.000,-. The Dutch statutory tax rate for profits to € 200.000,- is 20%. Therefore the total tax expense is € 36.000,-. However, the effective tax rate, which is computed as the total tax expense divided by the accounting profit, is 36% and thus higher than the statutory tax rate.

4.3 Influences on the effective tax rate

There are four important factors that have an impact on the effective tax rate, i.e. an international environment, permanent differences between commercial and fiscal values, non recognized losses, and prior year adjustments (Schmidt, 2003). Because of these factors the effective tax rate differs from the statutory tax rate, even when companies only have activities in the country in which they are settled.

4.3.1 An international environment

The first factor that influences the effective tax rate concerns a mix of profits and losses in an international environment. A Dutch listed company usually has activities abroad. Every country applies another tax regime with a different statutory tax rate, different exemptions for income taxes, different rules for disallowed reductions, and different guidelines with regard to deductible losses. This has an impact on the effective tax rate, as was clarified in the example of table 5.

Table 5 *Mix of profits and losses in international environment*

Situation / Income	Income in The Netherlands	Income Abroad	Total income	Effective tax rate
1	€ 2 MIO	€ 0,-	€ 2 MIO	25%
2	€ 1 MIO	€ 1 MIO	€ 2 MIO	20%

In Table 5 two situations were presented about a Dutch company that also has activities abroad, for example in France. It is assumed that the taxable and the accounting profit of the company were the same. It is also assumed that the Dutch corporate income tax rate is 25% and the French corporate income tax rate is 15%.

In the first situation the company earned 2 million Euros in The Netherlands and no profit or loss was made abroad. The total income therefore was 2 million, leading to the following effective tax rate:

Tax expense The Netherlands: € 2.000.000 * 25 / 100   = € 500.000,-
Tax expense French branch: € 0* 15 / 100   = € 0,-
Total Tax Expense: = € 500.000,-
Effective tax rate: € 500.000 / € 2.000.000   = 25%

In this situation the effective tax rate is equal to the statutory tax rate.

In the second situation a mix of profits in The Netherlands and in France are obtained. The income in The Netherlands as well as in France was 1 million Euros, resulting in a total income of 2 million Euros. In this situation one should first pay attention to the avoidance of

double taxation. There are two possible ways to avoid double taxation, the credit method and the exemption method.

In a credit method, the tax paid in the other country results in a credit in the home country (Weeghel, 1998). The tax expense is calculated as if the total income was derived in the home country. Subsequently, the taxes paid in the other country will be deducted from the total tax expense. The effective tax rate for the second situation was calculated as follows:

Tax expense The Netherlands: € 2.000.000 * 25 /100   = € 500.000,-

Tax expense French branch: € 1.000.000 * 15 / 100   = € 150.000,- +

Tax expense before deduction: = € 650.000,-

Tax credit for tax expense French branch: = € 150.000,- -/-

Total tax expense: = € 500.000,-

Effective tax rate: € 500.000 / € 2.000.000   = 25%

When a credit method is in use, activities abroad do not have an impact on the effective tax rate. In an exemption method, a relief is provided for the taxes paid in the other country (Weeghel, 1998). The relief is calculated as follows:

Total tax expense * Foreign income / Total income

Here the total tax expense equals the taxes that should be paid when the total income was derived in The Netherlands. The main difference with the credit method is that the income derived from abroad is exempted against the Dutch corporate income tax rate. In The Netherlands an exemption method is in use (Article 31 'Besluit voorkoming dubbele belasting 2001, Decree on the Avoidance of Double Taxation). The effective tax rate for the second situation was calculated as follows:

Tax expense The Netherlands: € 2.000.000 * 25 / 100   = € 500.000,-

Tax expense French branch: € 1.000.000 * 15 / 100   = € 150.000,- +

Tax expense before exemption: = € 650.000,-

Decree on the Avoidance of Double Taxation   = € 250.000,- -/-

Total tax expense: = € 400.000,-

Effective tax rate: € 400.000 / € 2.000.000   = 20%

When an exemption method is in use the effective tax rate differs from the statutory tax rate. Therefore, a mix of profits and losses in an international environment for Dutch companies has an impact on the effective tax rate. In the above stated example the other factors, which will be explained in the next sections, are not taken into account.

4.3.2 Permanent differences

A second factor contributing to the existence of differences between the effective tax rate and the statutory tax rate are permanent differences. The accounting profit differs in almost all situations from the taxable profit, because of differences in the calculation of both. Under Dutch tax law, some items of earnings or expenses a company identifies for accounting profit may not be assessable or deductible for taxable profit. Alternatively, some items of earnings and expenses may be included in the taxable profit and not in the accounting profit. Those differences are called permanent differences. In IAS 12 permanent differences are not considered, because IAS 12 uses a balance sheet liability method. According to this method the balance sheet value of the assets and liabilities and their tax value are compared, which leads to temporary differences and not to permanent differences. In this master thesis a difference is made between those two concepts, because permanent differences between reported and taxable profit will not be equalized in the future and therefore have an impact on the effective tax rate. As a consequence the accounting profit will differ from the taxable profit. Permanent differences are caused by disallowed reductions (e.g. interest deduction and depreciations) and by the participation exemption. The participation exemption reduces the taxable profit and in the case of disallowed reductions the taxable profit increases. In the next two examples both concepts will be clarified.

In example 6, shown in Table 6, a permanent difference arises due to the fact that there are disallowed reductions for the taxable profit. In this case it is about non deductible interest items, named thin capitalisation (Article 10d 'Wet op de Vennootschapsbelasting 1969', Dutch Corporate Income Tax Law). Article 10d 'Wet op de Vennootschapsbelasting 1969' is incorporated in the Dutch Income Tax Law to limit the deduction of interest when a company's capital consists of more debt than equity. However, the party liable to duty should be part of a corporate group[9] and the debt-equity ratio should be 3 to 1 at most. All other restrictions concerning the thin capitalisation are not taken into account in this master thesis.

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[9] Dutch Civil Code: Article 2.24b BW

In example 6 the thin capitalisation rule leads to a higher taxable profit. Due to this difference the effective tax rate is also influenced. In this example the tax expense is € 27.500,- (110.000 * 25%) at a statutory tax rate of 25%. However, the effective tax rate is 27,50% (€ 27.500 / 100.000). The effective tax rate is higher than the statutory tax rate, because of the higher taxable profit.

Table 6 *Difference between reported and taxable profit*

	Accounting profit	Taxable profit
Profit before tax and interest	100.000	100.000
Thin capitalisation	0	10.000
Profit before tax	100.000	110.000

The statutory tax rate is 25%. The tax expense is: 25% * taxable profit = € 27.500,-. The effective tax rate is the is the fraction of the taxes paid and its accounting profit**:** € 27.500,- / € 100.000,- = 27,5%.

Besides the thin capitalisation, a permanent difference arises due to the fact that there are revenues which are exempt from taxes. In the Dutch Corporate Income Tax Law a participation exemption is implemented (Article 13 'Wet op de Vennootschapsbelasting 1969', Dutch Corporate Income Tax Law). This participation exemption arranges that all benefits from domestic and foreign participations are exempted from taxes. As a consequence Dutch companies avoid paying taxes double. However, there are certain requirements a company has to meet. The benefits of the foreign participation are taxed in the country in which they were earned. Due to the participation exemption a difference arises between the accounting and the taxable profit and has an impact on the effective tax rate. For example, a Dutch company has a profit before tax of € 1.000.000,- of which is € 400.000,- earned by a subsidiary in the Czech Republic. In the Netherlands the total income is taxed at a rate of 25%, resulting in a tax expense of € 250.000,-. The € 400.000,- earned in the Czech Republic is taxed in the Czech Republic at a tax rate of 20%, which leads to a tax expense of € 80.000,-. Now the € 400.000,- are double taxed. Due to the tax treaty (1996) between The Netherlands and the Czech Republic, the Czech Republic has the right to charge the income earned in the Czech Republic. Therefore the company is exempted to pay Dutch taxes on the Czech income of € 100.000,-. The total tax expense will be € 230.000,- resulting in an effective tax rate of 23,0% which is lower than the Dutch statutory tax rate. The difference

between the statutory tax rate and the effective tax rate is a result from the fact that part of the income is subject to a lower statutory tax rate than in The Netherlands.

4.3.3 Non-recognized losses

The third factor that has an impact on the effective tax rate is related to non-recognized losses. Article 20 'Wet op de Vennootschapsbelasting 1969' (Dutch Corporate Income Tax Law) states that companies have the right to off-set trading losses against taxable profits. In this article is also described that the losses can be compensated with profits of the previous year (carry back) and profits of the next nine years (carry forward). In IAS 12.34 it is stated that losses should be recognized when it is probable (> 50%) that taxable profits will be available in the future. The tax loss carry forward provides a relationship between article 20 of the Dutch Corporate Income Tax Law and IAS 12.34. In IAS 12.36 the criteria that need to be considered were given with regard to the recognition of losses. One condition is that a company should assess the probability that taxable profits will be available in the future. If a company is able to assess that it is probable that taxable profits will occur in the future, the company is able to recognize the losses in a deferred tax asset. When it is not probable that taxable profits will occur in the future, the losses cannot be recognized in a deferred tax asset. For recognized losses a temporary difference will arise between the accounting profit and the taxable profit. Temporary differences are caused in one year and finally reverse in another year. For non-recognized losses a permanent difference arises, which has an impact on the effective tax rate. In example 7 and 8 the tax loss carry forward and the recognition is elaborated.

Example 7 was illustrated in Table 7. A starting Dutch company faces a loss of € 100.000 in 2010. The company would like to recognize all losses and compensate them in the future. The company is able to assess that it will make taxable profits in the next nine years and could recognize a deferred tax asset of € 25.000,- based on the loss of € 100.000. A deferred tax asset is measured by multiplying the statutory tax rate of 25% by the recognized loss. Note that the total tax expense is derived from the current and the deferred tax (IAS 12.5). In 2010 the statutory tax rate is 25% and the effective tax rate is -25%. In 2011 the statutory tax rate is 25% and the effective tax rate is -25%.

Table 7 *Recognized losses*

	Year 2010	Year 2011
Profit before tax	(100.000)	100.000
Current tax expense	0	(25.000)
Deferred tax expense	25.000	0
Profit after tax	(75.000)	75.000

Example 8 was given in Table 8. A starting Dutch company is not able to assess taxable profits in the next nine years. Therefore the company should not recognize a deferred tax asset based on the loss of € 100.000. Here the company does not recognize losses at all. In 2010 the statutory tax rate is 25% and the effective tax rate is 0%. In 2011 the statutory tax rate is 25% and the effective tax rate is 0%.

Table 8 *Non-recognized losses*

	Year 2010	**Year 2011**
Profit before tax	(100.000)	100.000
Current tax expense	0	0
Deferred tax expense	0	0
Profit after tax	(100.000)	100.000

The main statement here is that not recognizing all losses has an impact on the effective tax rate. The examples 7 and 8 illustrate that not recognizing losses lead to different effective tax rates, i.e. -25% and 0%.

4.3.4 Prior year adjustments

A prior year adjustment is a reclassification of the accounts of the previous year, because of errors or other accounting principles. Prior year adjustments with respect to taxes always have an impact on the effective tax rate of the fiscal year the adjustment belongs to. In figure 1 the effect of a prior year adjustment was explained.

Figure 1 *Prior year adjustments*

In year 2 the profit before tax is € 100.000,-. It is assumed that there are no permanent and temporary differences and therefore the reported and the taxable profit are the same. With a statutory tax rate of 25% the tax expense is € 25.000,-. However, it seems that the taxes paid in year 1 were € 10.000,- too low, which leads to a prior year adjustment. Note that in this simplified example the commercial balance sheet is not affected. In year 2 the total tax expense will be:

€ 25.000,- + € 10.000,- = € 35.000,-

After the prior year adjustment the effective tax rate is 35%.

4.4 Summary

The effective tax rate of a company is the fraction of the taxes a company pays and its accounting profit. The taxes that should be paid at the statutory tax rate, named the tax expense, are based on the company's taxable profit and is computed as the statutory tax rate multiplied by the taxable profit. Because of the difference in the accounting and taxable profit, there is a difference between the statutory tax rate and the effective tax rate. The four main influences on the effective tax rate are:

- a mix of profits and losses in an international environment;
- permanent differences between the economic and taxable profit;
- non-recognized losses;
- prior year adjustments.

Every company has to deal with these four factors and therefore the statutory tax rate and the effective tax rate always differ from each other, even when a company only has activities in the country in which they are settled.

5. Prior research

5.1 Introduction

In this chapter an overview of the existing literature related to this study was given. First, prior studies about interim reporting and the relationship between future earnings and interim reports were discussed. Then research about the relation between future earnings and interim income tax data were presented.

5.2 The relation between future earnings and interim accounting data

The prediction of a company's future earnings has a direct relation with stock returns. Much research examined the relationship between stock returns and financial disclosures. It was found that reporting frequency appears to have an impact on the capital markets (Brown and Rozeff, 1979; Butler, Kraft, and Weiss, 2007; Cuijpers and Peek, 2009; DeFond, Hung, and Trezevant, 2007; Foster, 1977; Yee, 2003). Butler, Kraft, and Weiss (2007) investigated the relationship between reporting frequency and how quickly earnings information is reflected in the stock prices.[10] They found that quarterly reporting did not increase the extent to which share prices predicted earnings. However, they also found a difference between firms that voluntary increased their disclosures and firms that were mandated by regulation. They concluded that regulation forcing firms to report more frequently improved the speed with which earnings information was reflected in price. DeFond, Hung, and Trevezant (2007) showed that companies with quarterly reports had a weaker market reaction on their annual report. The information is already impounded in the stock prices. Due to quarterly reports the information asymmetry between managers and investors is reduced. Cuijpers and Peek (2009) found that quarterly reporting did affect the mechanisms through which information reaches investors and got impounded into share prices. Their results showed that firms with quarterly reports had less information asymmetry among investors than firms that reported on a semi-annual basis.

Lee (1999) found that earnings prediction is an important objective in understanding the relation between accounting data and equity value. However, little research has been done about interim reporting and the impact on capital markets (Butler, Kraft, and Weiss, 2007;

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[10] Relationship between reporting frequency and earnings timeliness

Cuijpers and Peek, 2009; DeFond, Hung, and Trevezant, 2007). More research should be done on interim reporting in relation to the prediction of future earnings or the impact on capital markets. This study tried to answer if interim reports have an impact on predicting future earnings.

5.3 The relation between future earnings and interim income tax data

Research on the relation between future earnings and interim income tax data is limited. Since the beginning of the 21st century some studies have been performed and those were discussed in this section. Bauman and Shaw (2002) presented a working paper where they examined the usefulness of interim income tax disclosures in predicting future earnings and analysts' forecast errors. They argued that estimations of the effective income tax rate of a company provide information about management's expectations of forthcoming earnings (Bauman and Shaw, 2002).

Bauman and Shaw (2005) also investigated whether changes in interim effective tax rates were informative for subsequent quarterly earnings. Their research was conducted on listed companies in the United States from 1994 through 2001. They adjusted their sample by eliminating companies with a negative effective tax rate or above 100 percent. The companies in their study were listed on the New York Stock Exchange or on the NASDAQ and were obliged to issue their financial statements in accordance with US GAAP. Accounting Standards Codification (ASC) 740, formerly known as FAS 109, mandates an approach for interim financial reporting, under which estimations at the end of each interim period should be made about results of operations for the balance of the annual period.[11] Companies should calculate their interim tax expense by applying the forecasted estimated annual effective tax rate to the interim income (Janssen, 2009). The guidelines of US GAAP are therefore similar to the guidelines of IAS 34 as described in chapter 3.

Bauman and Shaw (2005) provided evidence that the effective tax rate disclosed in the first quarter gives information with respect to management's expectations for subsequent earnings. This suggests that the disclosed managerial forecasts of the annual effective tax rate are useful in predicting future earnings.

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[11] ASC 740 can be found in Appendix C

Schmidt (2003) examined whether changes in net income were caused by changes in effective tax rates and how these changes in effective tax rates helped predicting future earnings. He found that the effective tax rate was negatively associated with future tax changes and that the effective tax rate (initial tax change component) was useful in forecasting future earnings. Schmidt (2003) also investigated to what extent investors incorporate the forecasting implications of the effective tax rate into stock prices. He argued that there is a positive and significant relationship between the effective tax rate and future stock prices.

More research about the effective tax rate in interim reports was done by Guenther and Jones (2002). They investigated whether an unexpected change in income tax expense resulting from a change in the effective tax rate had the same effect on firm value as an unexpected change in pre-tax earnings. They found a negative relationship between the effective tax rate and market returns or firm value.

In contrast to the studies that confirmed a relationship between the effective tax rate and the earnings prediction (Bauman and Shaw, 2003; Bauman and Shaw, 2005, Guenther and Jones, 2002; Schmidt, 2003), there are also studies that doubt about the relationship. Some studies suggested that the effective tax rate in interim reporting is used to manage the earnings (Dhaliwal, Gleason, and Mills, 2004; Comprix, Mills, and Schmidt, 2009; Cook, Huston, and Omer, 2008; McGuire, 2009). McGuire (2009), for example, studied the explanations of a fourth quarter decrease in the firms' effective tax rate. He found that approximately 10 percent of the firms with a fourth quarter effective tax rate decrease do disclose an explanation about this decrease. Firms with larger 'effective tax rate related' earnings were more likely to explain the decrease. Comprix and colleagues (2009) found that the estimated annual effective tax rates of the first, second, and third quarter were significantly higher than the effective tax rate in the annual report. Dhaliwal and colleagues (2004) found that firms lower their fourth quarter effective tax rates to meet or even overcome the analysts' expectations. A change in effective tax rate could have earnings management of tax planning reasons which can influence the (expected) earnings.

Calculating the income tax expense for interim reporting requires judgment and estimation (Gibson, 1995) and understanding income tax disclosures in the financial statements is a challenging task which requires specific knowledge (Haskins, Ferris, and Selling, 2000). Due to these difficulties analysts do not use interim income tax data in their predictions about

future earnings (Abdel-Khalik and Espejo, 1978; Bauman and Shaw, 2005; Plumlee, 2003; Schmidt, 2006). In contrast to Abdel-Khalik and Espejo (1978), Brown et al. (1980) and Abarbanell and Bushee (1997) did not claim that analysts fail to revise their forecasts on the basis of interim reports and asserted that one of the variables used by financial analysts is annual effective tax rate.

In the Netherlands only a small percentage of companies listed on the Amsterdam stock exchange actually reported correctly according to IAS 34 (Janssen, 2009). Theory asserts that the decision to disclose correct or additional information varies with the costs of disclosure (Bagnoli and Watts, 2007).

5.4 Summary

There is a relationship between reporting frequency and how quickly earnings information is reflected in the stock prices. Firms that report more frequently improved the speed with which earnings information was reflected in price. Due to quarterly reports the information asymmetry between managers and investors is reduced. The predictive value of accounting data and the value of the equity is an important objective for investors. Much research has been done about annual reporting and the predictive value of the annual reports. However, little research has been done about interim reporting and the impact on capital markets.

Research on the relation between future earnings and interim income tax data is limited. Since the beginning of the 21st century some studies have been performed. There is no consensus about the predictive value of interim effective tax rate on future earnings. Bauman and Shaw (2005) provide evidence that the effective tax rate of US firms, disclosed in the first quarter, gives information with respect to management's expectations for subsequent quarterly earnings. Some argued that there is a relationship between the effective tax rate and future earnings (Bauman and Shaw, 2003; Bauman and Shaw, 2005, Guenther and Jones, 2002; Schmidt, 2003); others described doubts about this relationship (Dhaliwal, Gleason, and Mills, 2004; Comprix, Mills, and Schmidt, 2009; Cook, Huston, and Omer, 2008; McGuire, 2009).

6. Research design

In this chapter the design of the present research was presented. First, the research question and the corresponding hypothesis were discussed. Second, the sample selection was elaborated. Finally, the methodology and empirical model to test the hypothesis was explained.

6.1 Research question and hypothesis

The European Transparency Directive (TD) has been published in December 2004. The TD makes it mandatory for companies listed on a European stock exchange to issue interim reports. As of 2009 the TD came into force for Dutch listed companies. Those companies are mandatory to issue their financial interim reports in accordance with IAS 34.

The annual effective tax rate is one component of the income tax disclosures within an interim report. IAS 34 requires firms to estimate annual operating expenses and then allocate these estimates to interim periods. Income tax expenses should be calculated using an estimation of the effective tax rate expected for the full year. The estimated annual effective tax rate is applied to the income at the end of the interim period to calculate the annual tax expense. By estimating this effective tax rate, managers have to make estimations about profits at year-end. Therefore it could be argued that interim effective tax rates should be useful in predicting future earnings.

When reviewing the literature there is still no consensus about the usefulness of interim effective tax rates. Recent evidence by Bauman and Shaw (2005) and Schmidt (2003) suggested that the annual effective tax rate, disclosed in the interim report, is useful in predicting future quarterly earnings. Evidence provided by McGuire (2009) and Dhaliwal and colleagues (2004) suggested that the interim effective tax rate is used to manage earnings. However, all literature is based on US companies and no research is done on European or Dutch companies or on companies that have to issue their reports in accordance with the International Financial Reporting Standards. Therefore the main research question of this study is:

Are annual effective tax rates, incorporated in interim income tax disclosures, useful in predicting future earnings of Dutch listed companies?

The expectation is that the interim effective tax rate is an indicator for predicting future earnings. Due to the estimations managers have to make, the effective tax rate reflects management's forecasts about future tax expenses and earnings.

This leads to the hypothesis: ***The estimated interim effective tax rate can predict future earnings in the same fiscal year.***

6.2 Sample

The data for this study was collected from Thomson One Banker. In this database quarterly data was available for all variables which were used in the regression model. The effective tax rate (ETR) was calculated as the total tax expense divided (TTE) by earnings before tax (EBT). The TAX and NONTAX components were derived from EBT, earnings per share (EPS) and ETR.

The time period that was examined in this study covers 2005 through 2009. Before the introduction of IFRS in 2005 IAS 34 already existed and did not change since the implementation of the Standard in 1999. Due to the fact that IFRS was not mandatory for listed companies before 2005 not all companies did report in accordance with IFRS.

The research was conducted on Dutch listed companies. The initial sample consisted of 176 companies. Six firms did not have any quarterly data and were deleted from the sample. 103 companies reported at the end of the second quarter, only in a semi-annual report, resulting in many missing values of quarter 1 and 3. In the next section was explained how is dealt with those missing values. The final sample included 67 companies and 1005 firm-quarter observations.

In this research the hypothesis is tested for the first three quarters with all 1005 observations, ignoring unusual or extreme observations, and tested by excluding a negative ETR and an ETR above 100 percent.

6.2.1 Missing values

A researcher should strive to collect complete sets of data. The quarterly data collected from the Thomson One Banker Database contained a lot of missing values. Those missing values occurred, because a lot of companies only issued an interim report at the end of the second quarter, the semi-annual report.

From 67 companies all quarterly data was available for the years 2005 through 2009. For 103 companies only interim data at the end of the second quarter was available and therefore these companies were removed from the sample.

The fact that there are missing values does not mean one should ignore the data immediately. There were six procedures to cope with the missing values:

1. Eliminate the companies that only provide an interim report at the end of the second quarter.
2. Adjust the data for companies that only provide semi-annual data. Create interim data for the first and third quarter. For the first quarter by computing the average between the fourth quarter of the previous year and the second quarter of the current year. For the third quarter by computing the average between the second and the fourth quarter of the current year.
3. Adjust the data for companies that provide quarterly data. Create results for the first half year by accumulating the first and the second quarter.
4. Adjust the data for companies that only provide semi-annual data. Estimate the lacked values for the first and third quarter.
5. Use imputation for substituting missing data. The missing data will be estimated by software. [12]
6. Handcollect the data for the first and third quarter, if possible.

Except for the first option, all possibilities would replace the missing values. The first one was the most reliable one, because all rough data will be maintained and no estimates are required. The second through the fifth option make use of estimates, which would harm the data. The companies which provide semi-annual reports accumulated their results of the first and the second quarter. In order to draw reasonable conclusions the data should be comparable. Therefore the second option was not appropriate anymore. The fifth and sixth option were very time-consuming and was either not feasible or achievable within the scope of this master thesis. In this research was chosen for the first option. However, it was important to take the size and the representativeness of the sample into account. Eliminating companies leaded to a smaller sample size and it could lead to a sample which was not representative for the whole

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[12] IBM SPSS Missing Values' multiple imputation procedure will replace missing values with plausible estimates

population. With 67 companies and 1005 observations the sample size was not violated. The representativeness was tested by comparing the normality curve of the independent variable EPS of the whole population (170 companies) and the normality curve of the companies that reported quarterly. Visual inspection of the normality curves, shown in Figure 2, revealed that the sample of the companies that reported quarterly was still representative for the whole population.

Figure 2 *Representativeness of the sample*
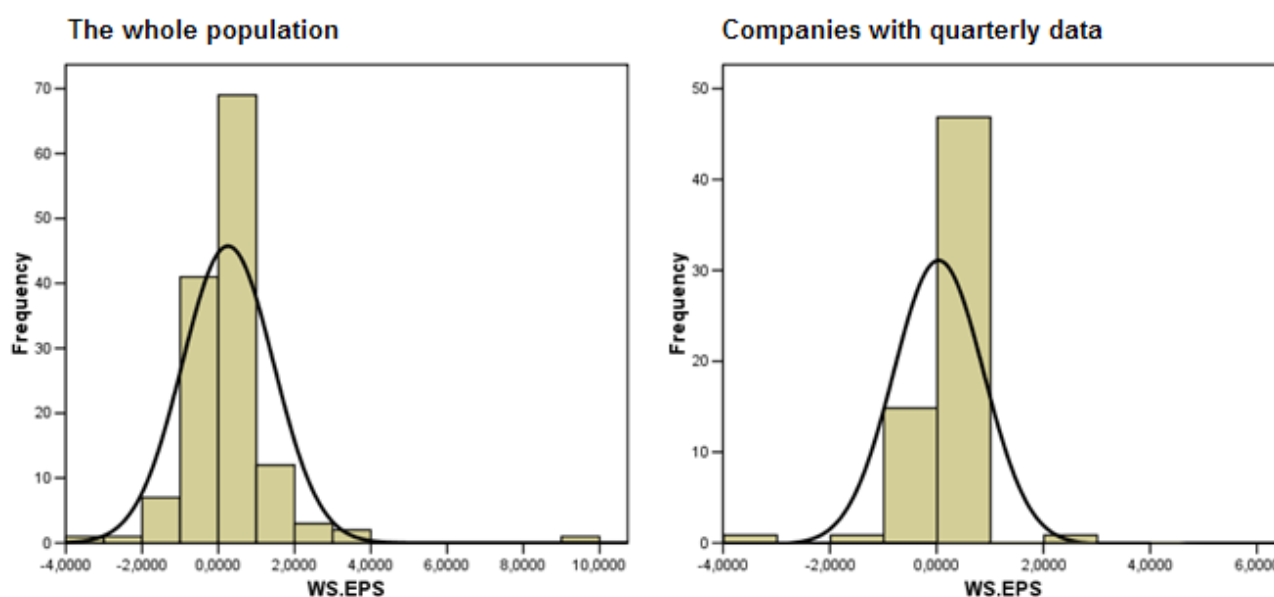
6.2.2 Sample composition

Table 9 and 10 presented information with respect to the sample composition. The data were obtained from the Worldscope Database. Table 10 provided information about the size of the firms and indicated that the companies in this sample were large or medium cap[13] and have a mean market capitalization of 5,57 billion dollars. Table 10 showed the industry representation. The sample consisted for 23,9% of industrial firms, for 17,9% of financials and investment companies, and for 14,9% of technological firms. Those were the three largest represented industries.

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[13] Large cap: < $ 5 billion and medium cap: $ 1 - $5 billion.

Table 9 *Market capitalization*

	Mean	St.dev.
Market Capitalization ($ Billions)	5,57	2,91

Note: Market capitalization is defined as: Current Market Price * Current Common Shares Outstanding

Table 10 *Industry representation*

Industry	Frequency	Percentage
Oil and gas	2	3,0
Basic materials	3	4,5
Industrials	16	23,9
Consumer goods	8	11,9
Health care	6	9,0
Consumer services	9	13,4
Telecommunications	1	1,5
Financials and investment companies	12	17,9
Technology	10	14,9
Total	**67**	**100**

Note: The industries are defined according to the Industry Classification Benchmark Codes: Oil and gas (0001), Basic materials (1000), Industrials (2000), Consumer goods (3000), Health care (4000), Consumer services (5000), Telecommunications (6000), Utilities (7000), Financials (8000), and Technology (9000).

6.3 Descriptive statistics

Table 11 and 12 provide an overview of the descriptive statistics on the variable ETR for the whole sample and for the adjusted sample, excluding ETR below zero and above 100. It was important to look at the progress and changes of the ETR. Some studies suggested that the ETR was used to manage earnings (Comprix, Mills, and Schmidt, 2009; Cook, Huston, and Omer, 2008; Dhaliwal, Gleason, and Mills, 2004; McGuire, 2009). In the fourth quarter the ETR would decrease (Dhaliwal, Gleason, and Mills, 2004; McGuire, 2009).

The first conclusion was that there is no pattern with respect to the ETR for the whole sample. The mean ETR was in the first quarter negative (-0,0234), then rose to 0,3868 in the second quarter, and finally declined to 0,2151 and 0,1463 in the third and fourth quarter respectively.

When looking at the adjusted sample a pattern was found. However, no evidence was found for the suggestions made by Dhaliwal and colleagues (2004) and McGuire (2009). During the year the ETR became a little bit higher.

Table 11 *Descriptive statistics on ETR for whole sample*

Quarter	Mean	St.Dev.	25%	Median	75%
1	-0,0234	5,1433	0,0514	0,2291	0,3117
2	0,3868	3,4584	0,0410	0,2082	0,3140
3	0,2151	3,4584	0,0422	0,2110	0,3054
4	0,1463	1,0014	0,0017	0,1712	0,3178

Note: The sample for these descriptive statistics includes 299 firm-quarter observations for the first quarter, 312 firm-quarter observations for the second quarter, 297 firm-quarter observations for the third quarter, and 312 firm-quarter observations for the fourth quarter.

Table 12 *Descriptive statistics on ETR for adjusted sample*

Quarter	Mean	St.Dev.	25%	Median	75%
1	0,2315	0,1704	0,0979	0,2451	0,3126
2	0,2262	0,1515	0,1028	0,2463	0,3173
3	0,2149	0,1443	0,0971	0,2337	0,3134
4	0,2405	0,1829	0,0987	0,2287	0,3298

Note: The adjusted sample for these descriptive statistics includes 255 firm-quarter observations for the first quarter, 253 firm-quarter observations for the second quarter, 244 firm-quarter observations for the third quarter, and 211 firm-quarter observations for the fourth quarter.

6.4 Methodology

To test the hypothesis the earnings prediction model of Bauman and Shaw (2005) was used.

$$EPS_q = \beta_0 + \beta_1 EPS_{q-4} + \beta_2 NONTAX_{q-1} + \beta_3 TAX_{q-1} + \varepsilon_q \tag{1}$$

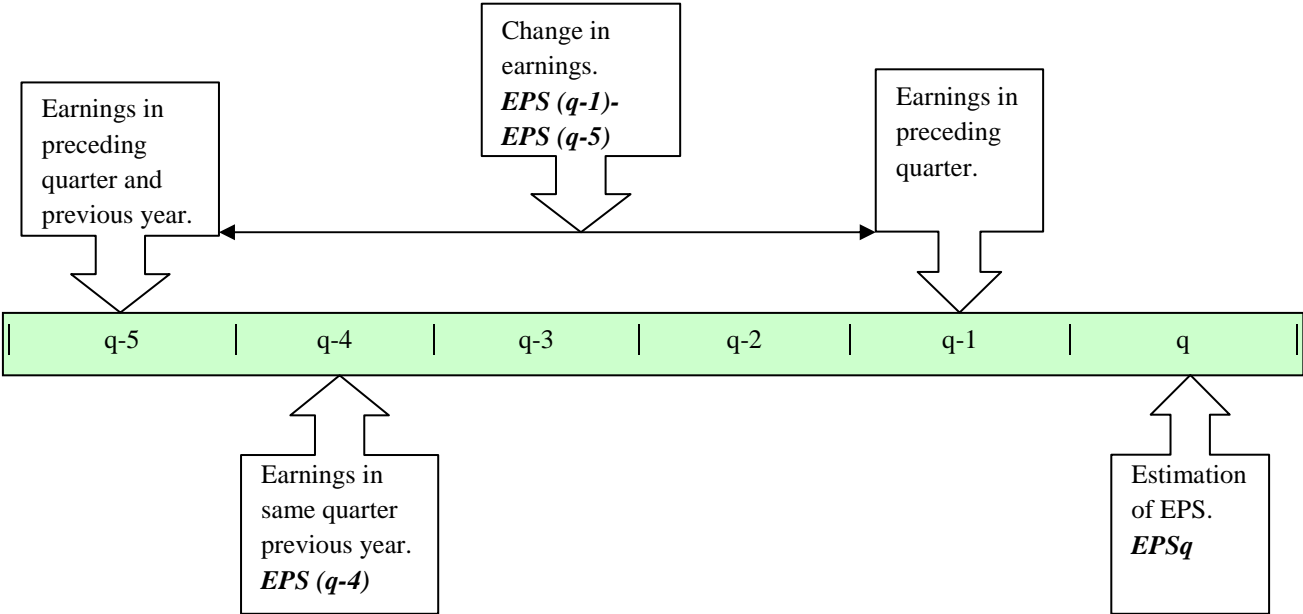This model consisted of three main variables: EPS, NONTAX, and TAX. The formula for measuring the EPS was:

$$EPS_t = Earnings_t / \text{Average outstanding shares}_t$$

EPS was calculated with the following forecasting regression formula (Brown and Rozeff, 1979):

$$EPS_q = \alpha_0 + \alpha_1 EPS_{q-4} + \alpha_2(EPS_{q-1} - EPS_{q-5}) = \alpha_0 + \alpha_1 EPS_{q-4} + \alpha_2\Delta EPS_{q-1} \tag{2}$$

Brown and Rozeff (1979) found that the quarterly earnings were related to earnings from the same quarter in the previous year and the change in the earnings of the preceding quarter and the preceding quarter a year ago. Figure 3 illustrated this equation:

Figure 3 $EPS_q = \alpha_0 + \alpha_1 EPS_{q-4} + \alpha_2(EPS_{q-1} - EPS_{q-5})$

Change in earnings. *EPS (q-1)- EPS (q-5)*

Earnings in preceding quarter and previous year.

Earnings in preceding quarter.

| q-5 | q-4 | q-3 | q-2 | q-1 | q |

Earnings in same quarter previous year. *EPS (q-4)*

Estimation of EPS. *EPSq*

As stated, the forecasting equation was:

$$EPS_q = \alpha_0 + \alpha_1 EPS_{q-4} + \alpha_2\Delta EPS_{q-1} \tag{2}$$

Now the change in earnings per share from q-5 to q-1 (ΔEPS_{q-1}) was divided into a TAX and a NONTAX component. The ETR, a tax related component, was impounded in the model to find a relation between the earnings per share and the effective tax rate. This resulted into the following formula:

$$\Delta EPS_{q-1} = \underbrace{\Delta EBT_{q-1} \cdot (1 - ETR_{q-5})}_{NONTAX} + \underbrace{EBT_{q-1} \cdot (ETR_{q-5} - ETR_{q-1})}_{TAX} \tag{3}$$

This formula comprised two independent variables, EBT and ETR. ΔEBT_{q-1} was the change in EBT from q-5 to q-1. The ETR was computed as total tax expense divided by earnings before tax. The term on the right side of the equation was seen as the NONTAX term and could be defined as the impact on EPS not due to ETR changes. The ETR was used as if it never has been changed since q-5. In contrast to the NONTAX term, the TAX term could be defined as the impact of ETR changes on the EPS. In Appendix A the whole derivation of the equation was elaborated.

By substituting equation (3) into equation (2), equation (1) was derived. Equation (1) was the regression prediction model that was used to test the hypothesis. The expected signs of the coefficients are shown above the model.

$$\qquad\quad (+) \qquad\qquad (+) \qquad\qquad (+)$$

$$EPS_q = \beta_0 + \beta_1 EPS_{q-4} + \beta_2 NONTAX_{q-1} + \beta_3 TAX_{q-1} + \varepsilon_q \qquad\qquad (1)$$

All coefficients were expected to be positive and significant as each variable was expected to have predictive value for future earnings per share. According to Foster (1977) and Brown and Rozeff (1979) the starting point for a forecast for quarterly earnings were the earnings in the previous year (q-4). There should be a positive relation with the EPS in the previous year. In line with Bauman and Shaw (2005) and Schmidt (2003) a positive relation between the year-to-year trend of EBT and the EPS was expected, assuming that the ETR was unchanged. Another positive relation was anticipated for the TAX component, the difference in the year-to-year ETR with regard to the EBT, implying that the ETR contained predictive information about future earnings.

The predictive value for future earnings of the ETR was tested for the first three quarters of the year. First the whole sample was tested using model (1). Then model (1) was adapted by including the control variable 'Company size' (4). The bigger the company, the more international operations they were expected to have and the more complex they were supposed to be structured. This could influence the effective tax rate, as described in chapter 4. The company size was measured as the current market capitalization.

$$EPS_q = \beta_0 + \beta_1 EPS_{q-4} + \beta_2 NONTAX_{q-1} + \beta_3 TAX_{q-1} + \beta_4 CompanySize + \varepsilon_q \qquad\qquad (4)$$

Another control variable controlling for the spread of domestic and foreign income should be impounded. The more a company earns their income abroad, the more the effective tax rate will be influenced by an international environment with different tax regimes. However, no information about the spread of domestic and foreign income was available in the databases and therefore these data should be handcollected. Due to time constraints with regard to this master thesis, there has been chosen not to insert this variable.

For some industries it is harder to estimate future earnings, which could indicate that the interim income tax data are less informative or useful to predict future earnings. In the previous section information was given about the industry representation of the sample. Both regression models (1) and (4) were applied to the three largest representing industries: industrial firms, financials and investment companies, and technological firms in order to test the effect of the industry on the predictive value of the ETR.

Because of the introduction of IFRS in 2005 and the implementation of the TD in 2009, both years were tested separately to indicate whether there are changes in comparison to the whole time period.

Finally, for all of the above stated tests, the sample was adjusted. Firms with a negative ETR and an ETR above 100 percent were eliminated.

6.5 Summary

The research question for this study is:

Are annual effective tax rates, incorporated in interim income tax disclosures, useful in predicting future earnings of Dutch listed companies?

IAS 34 requires firms to estimate annual operating expenses and then allocate these estimates to interim periods. Income tax expenses should be calculated using an estimate of the effective tax rate expected for the full year. By estimating this effective tax rate, managers have to make estimations about profits at year-end. Therefore it was argued that interim effective tax rates are useful in predicting future earnings. This resulted into the hypothesis: *The estimated interim effective tax rate can predict future earnings in the same fiscal year.*

The data for this study was collected from Thomson One Banker. In this database quarterly data was available for all variables that were used in the regression model. The research was

conducted on 67 Dutch listed companies in the time period 2005 to 2009 and included 1340 firm-quarter observations.

To test the hypothesis the following earnings prediction model was elaborated:

$$EPS_q = \beta_0 + \beta_1 EPS_{q-4} + \beta_2 NONTAX_{q-1} + \beta_3 TAX_{q-1} + \varepsilon_q$$

This model was extended by including the control variable 'Company size':

$$EPS_q = \beta_0 + \beta_1 EPS_{q-4} + \beta_2 NONTAX_{q-1} + \beta_3 TAX_{q-1} + \beta_4 CompanySize + \varepsilon_q$$

For the first three quarters the full sample was tested by both the earnings prediction model and the extended earnings prediction model. Both models were also applied to the three largest industries, represented in the sample. The transition years 2005 and 2009, with the introduction of IFRS and the implementation of the TD respectively, were separately tested.

Finally, the sample was adjusted by eliminating firms with a negative ETR and an ETR above 100 percent. The above explained tests were repeated with the adjusted sample.

7. Results and analysis

The previous chapter presented the hypotheses and the research design. In this chapter the relevant summary statistics and the results were described.

7.1 Results for the earnings prediction model

The full sample consisted of 299 firm-quarter observations for the first quarter, 312 firm-quarter observations for the second quarter, and 297 firm-quarter observations for the third quarter. The adjusted sample consisted of 172 firm-quarter observations for the first quarter, 200 firm-quarter observations for the second quarter, and 211 firm-quarter observations for the third quarter. Table 13 presented the main results and statistics for the full and the adjusted sample, corresponding to the earnings prediction model: $EPS_q = \beta_0 + \beta_1 EPS_{q-4} + \beta_2 NONTAX_{q-1} + \beta_3 TAX_{q-1} + \varepsilon_q$. The variables of the regression model were shown and for each quarter the coefficients and the significance (between brackets) were noted. The descriptive statistics, the correlations, the model summary, and the coefficients were presented in appendix E.

Table 13 *Summary statistics earnings prediction model*

Variable / Sample	Q1 full	Q1 adjusted	Q2 full	Q2 adjusted	Q3 full	Q3 adjusted
Intercept	0,057 (0,142)	0,066 (0,010)*	0,131 (0,008)*	0,103 (0,006)*	0,155 (0,006)*	0,248 (0,000)*
EPS(q-4)	0,540 (0,000)*	0,662 (0,000)*	0,435 (0,000)*	0,578 (0,000)*	0,151 0,026*	0,171 (0,000)*
TAX	-0,008 (0,666)	0,002 (0,853)	-0,009 (0,169)	-0,006 (0,129)	-0,047 (0,535)	-0,034 (0,464)
NONTAX	-0,011 (0,043)*	-0,006 (0,103)	-0,011 (0,085)**	-0,009 (0,035)*	-0,008 (0,262)	-0,005 (0,149)
R^2	0,265	0,581	0,192	0,430	0,028	0,110

* = significant at 5% level

** = significant at 10% level

There was a relationship between the EPS in the previous year (EPS(q-4)) and the EPS to be assessed. The coefficient of EPS(q-4) was positive and significant, which is in accordance with Brown and Rozeff (1979) and Foster (1977). In general, no evidence was found for the relation between the TAX and NONTAX items and the EPS. This is contrary to the expectations and not in line with the evidence found by Bauman and Shaw (2005). In the second quarter the coefficient of the NONTAX variable was significant at a 10% level. However, the coefficient had a negative sign, which was not as expected. For the adjusted sample, the coefficients of EPS(q-4) were again positive and significant indicating that the EPS in the previous year contain predictive information about the current EPS. In general the coefficients of TAX and NONTAX variables were not significant. As for the full sample, in the second quarter the coefficient of the NONTAX variable was significant, but negative. Contrary to the expectations, the results indicate that the ETR does not have any predictive value about future earnings. The hypothesis that the estimated interim effective tax rate predicts future earnings in the same fiscal year was rejected.

7.2 Results for the extended model

The extended model includes company size as a control variable, because bigger companies could operate in a more international environment, which could influence the effective tax rate and therefore the predictive value. The full sample in the extended model consisted of the same firms-quarter observations as in the earnings prediction model. The adjusted sample consisted of 168 firm-quarter observations for the first quarter, 196 firm-quarter observations for the second quarter, and 207 firm-quarter observations for the third quarter. Table 14 presented the main results and statistics for the full and the adjusted sample, corresponding to the extended model: $EPS_q = \beta_0 + \beta_1 EPS_{q-4} + \beta_2 NONTAX_{q-1} + \beta_3 TAX_{q-1} + \beta_4 CompanySize + \varepsilon_q$. The variables of the regression model were shown and for each quarter the coefficients and the significance (between brackets) were noted. The descriptive statistics, the correlations, the model summary, and the coefficients were presented in appendix F.

Table 14 *Summary statistics extended model*

Variable / Sample	Q1 full	Q1 adjusted	Q2 full	Q2 adjusted	Q3 full	Q3 adjusted
Intercept	0,056 (0,161)	0,070 (0,009)*	0,129 (0,012)*	0,105 (0,009)*	0,138 (0,017)*	0,240 (0,000)*
EPS(q-4)	0,539 (0,000)*	0,666 (0,000)*	0,435 (0,000)*	0,575 (0,000)*	0,145 (0,033)*	0,168 (0,000)*
TAX	-0,007 (0,745)	-0,006 (0,642)	-0,007 (0,466)	-0,012 (0,297)	-0,006 (0,944)	-0,036 (0,453)
NONTAX	-0,010 (0,135)	-0,011 (0,068)**	-0,009 (0,298)	-0,014 (0,181)	0,008 (0,596)	0,000 (0,969)
MarketCap	0,003 (0,921)	-0,019 (0,298)	-0,007 (0,856)	-0,023 (0,607)	0,076 (0,225)	0,028 (0,359)
R^2	0,265	0,585	0,192	0,430	0,033	0,114

* = significant at 5% level

** = significant at 10% level

Controlling for company size did not lead to different results for both the full and the adjusted sample. Again, the coefficients of the EPS(q-4) were positive and significant indicating a predictive value of the current EPS.

7.3 Results for three largest industries

The three largest industries represented in the sample are industrials, financials and investment companies, and technological companies. For some industries it is harder to estimate future earnings and therefore to predict future results. The analyses were repeated for these three industries separately. Because company size did not show any effect in the previous analysis, this control variable was left out in the next analyses and the earnings prediction model was used.

7.3.1 Industrials

The full industrial sample consisted of 69 firm-quarter observations for the first quarter, 70 firm-quarter observations for the second quarter, and 70 firm-quarter observations for the third quarter. The adjusted industrial sample consisted of 50 firm-quarter observations for the first quarter, 55 firm-quarter observations for the second quarter, and 56 firm-quarter observations for the third quarter. Table 15 presented the main results and statistics of the regression model for industrial companies. For each quarter the coefficients and the significance (between brackets) were noted. The descriptive statistics, the correlations, the model summary, and the coefficients were presented in appendix G.

Table 15 *Summary statistics Industrials*

Variable / Sample	Q1 full	Q1 adjusted	Q2 full	Q2 adjusted	Q3 full	Q3 adjusted
Intercept	0,163 (0,013)*	0,094 (0,012)*	0,170 (0,010)*	0,190 (0,000)*	0,152 (0,009)*	0,168 (0,001)*
EPS(q-4)	0,055 (0,796)	0,512 (0,000)*	0,035 (0,761)	0,349 (0,002)*	0,165 (0,197)	0,175 (0,110)
TAX	-0,036 (0,511)	-0,067 (0,009)*	0,077 (0,754)	0,022 (0,879)	-0,565 (0,069)	-0,665 (0,007)*
NONTAX	-0,085 (0,025)	-0,065 (0,000)*	-0,196 (0,003)	-0,088 (0,020)*	-0,030 (0,516)	-0,073 (0,108)
R^2	0,109	0,456	0,190	0,321	0,085	0,195

* = significant at 5% level

** = significant at 10% level

Within the full industrial sample, no evidence was found for the relation between the TAX and NONTAX items and the EPS. In contrast to the analysis in section 7.1 and 7.2 the EPS of the previous year did not have any predictive value. Contrary to the full industrial sample some differences could be observed in the adjusted industrial sample. In the first quarter the coefficients of the three variables were all significant and therefore it could be argued that they have predictive value for future earnings. However, both TAX and NONTAX were negatively related to EPS, which is not in line with the expectations. In the second quarter the coefficient of the EPS(q-4) variable was positive and significant and the coefficient of the NONTAX variable was negative and significant. In the third quarter only the coefficient of the TAX variable was significant, but negative. For the industrial firms it could be concluded that the tests give mixed results.

7.3.2 Financials and investment companies

The full financials and investment companies sample consisted of 54 firm-quarter observations for the first quarter, 57 firm-quarter observations for the second quarter, and 53 firm-quarter observations for the third quarter. The adjusted financials and investment companies sample consisted of 22 firm-quarter observations for the first quarter, 35 firm-quarter observations for the second quarter, and 28 firm-quarter observations for the third quarter. Table 16 presented the main results and statistics of the regression model for financials and investment companies. For each quarter the coefficients and the significance (between brackets) were noted. The descriptive statistics, the correlations, the model summary, and the coefficients were presented in appendix H.

Table 16 *Summary statistics Financials*

Variable / Sample	Q1 full	Q1 adjusted	Q2 full	Q2 adjusted	Q3 full	Q3 adjusted
Intercept	0,180 (0,468)	0,230 (0,494)	0,093 (0,709)	-0,096 (0,711)	0,080 (0,725)	0,240 (0,293)
EPS(q-4)	0,494 (0,030)*	0,578 (0,022)*	0,586 (0,002)*	0,855 (0,000)*	0,418 (0,078)**	0,424 (0,038)*
TAX	0,102 (0,811)	-1,381 (0,328)	0,117 (0,740)	0,096 (0,795)	0,059 (0,821)	0,013 (0,952)
NONTAX	-0,020 (0,437)	-0,195 (0,117)	-0,068 (0,508)	-0,050 (0,641)	0,023 (0,727)	0,029 (0,602)
R^2	0,202	0,425	0,248	0,443	0,080	0,175

* = significant at 5% level

** = significant at 10% level

In the full financials and investment companies sample, no evidence was found for the relation between the TAX and NONTAX items and the EPS. The EPS in the previous year had, as already seen in section 7.1, predictive value for the EPS. However, in quarter 3 it was marginally significant at a 10% level. In the adjusted financials and investment companies sample the coefficients of TAX and NONTAX variables were not significant, indicating that the ETR did not have any predictive value about future earnings.

7.3.3 Technological companies

The full technological sample consisted of 45 firm-quarter observations for the first quarter, 45 firm-quarter observations for the second quarter, and 45 firm-quarter observations for the third quarter. The adjusted technological sample consisted of 21 firm-quarter observations for the first quarter, 22 firm-quarter observations for the second quarter, and 33 firm-quarter observations for the third quarter. Table 17 presented the main results and statistics of the regression model for technological companies. For each quarter the coefficients and the significance (between brackets) were noted. The descriptive statistics, the correlations, the model summary, and the coefficients were presented in appendix I.

Table 17 *Summary statistics Technological companies*

Variable / Sample	Q1 full	Q1 adjusted	Q2 full	Q2 adjusted	Q3 full	Q3 adjusted
Intercept	0,012 (0,717)	0,004 (0,905)	0,077 (0,264)	0,081 (0,129)	0,082 (0,022)*	0,086 (0,034)*
EPS(q-4)	0,216 (0,282)	0,368 (0,063)**	0,239 (0,484)	0,338 (0,125)	0,326 (0,005)*	0,296 (0,009)*
TAX	-0,383 (0,005)*	-0,351 (0,005)*	-0,107 (0,860)	0,282 (0,667)	-0,029 (0,511)	-0,028 (0,522)
NONTAX	-0,157 (0,000)*	-0,168 (0,000)*	-0,043 (0,419)	-0,030 (0,432)	0,010 (0,291)	0,011 (0,285)
R^2	0,513	0,653	0,073	0,220	0,279	0,275

* = significant at 5% level

** = significant at 10% level

Within the full technological sample, the coefficients of the TAX and NONTAX variable in the first quarter were significant and negative. Furthermore, no evidence was found for the relation between the TAX and NONTAX items and the EPS. In contrast to the first and the second quarters, the third quarter showed a significant and positive relation between the EPS in the previous year and the EPS. Within the adjusted technological sample, the coefficients of the three variables in the first quarter were all significant and therefore it could be argued that they contained predictive information. However, both TAX and NONTAX are negatively related to EPS, which is not in accordance with the expectations. Again, the results were mixed and it was not possible to draw a general conclusion.

7.4 Year 2005

Since it was mandatory for European listed companies to issue their financial statements in accordance with IFRS in 2005, the analyses were repeated for data of the transition year 2005 only. The full 2005 sample consisted of 51 firm-quarter observations for the first quarter, 55 firm-quarter observations for the second quarter, and 50 firm-quarter observations for the third quarter. The adjusted 2005 sample consisted of 27 firm-quarter observations for the first quarter, 27 firm-quarter observations for the second quarter, and 33 firm-quarter observations for the third quarter. Table 18 presented the main results and statistics of the regression model

for the year 2005. For each quarter the coefficients and the significance (between brackets) were noted. The descriptive statistics, the correlations, the model summary, and the coefficients were presented in appendix J.

Table 18 *Summary statistics year 2005*

Variable　　　Sample	Q1 full	Q1 adjusted	Q2 full	Q2 adjusted	Q3 full	Q3 adjusted
Intercept	0,164 (0,090)**	0,060 (0,391)	0,222 (0,002)*	0,076 (0,063)**	0,244 (0,014)*	0,152 (0,016)*
EPS(q-4)	0,671 (0,018)*	1,158 (0,000)*	0,809 (0,000)*	0,839 (0,000)*	1,051 (0,000)*	0,395 (0,002)*
TAX	-0,133 (0,362)	0,047 (0,827)	0,091 (0,127)	-0,130 (0,207)	-0,223 (0,035)*	0,471 (0,040)*
NONTAX	0,014 (0,550)	0,004 (0,787)	0,100 (0,140)	-0,045 (0,225)	0,127 (0,076)**	-0,059 (0,163)
R^2	0,222	0,675	0,617	0,852	0,479	0,444

* = significant at 5% level

** = significant at 10% level

Within the full 2005 sample, no evidence was found for the relation between the TAX and NONTAX items and the EPS. As was found in previous analyses, the coefficients of the EPS(q-4) were significant and positive. In the third quarter all coefficients were significant. However, the coefficient of the TAX variable had a negative sign, which is not in line with the expectations. Within the adjusted 2005 sample, the coefficients of the EPS(q-4) were significant and positive. Additionally, the coefficient of the TAX variable was significant and positive in the third quarter.

7.5 Year 2009

Since 2009, Dutch listed companies were mandatory to issue interim reports, because of the implementation of the European Transparency Directive. Therefore the analyses were repeated for data of the transition year 2009. The full 2009 sample consisted of 67 firm-quarter observations for the first quarter, 67 firm-quarter observations for the second quarter, and 66 firm-quarter observations for the third quarter. The adjusted 2009 sample consisted of 44 firm-quarter observations for the first quarter, 44 firm-quarter observations for the second

quarter, and 46 firm-quarter observations for the third quarter. Table 19 presented the main results and statistics of the regression model for the year 2009. For each quarter the coefficients and the significance (between brackets) were noted. The descriptive statistics, the correlations, the model summary, and the coefficients were presented in appendix K.

Table 19 *Summary statistics year 2009*

Variable / Sample	Q1 full	Q1 adjusted	Q2 full	Q2 adjusted	Q3 full	Q3 adjusted
Intercept	0,010 (0,901)	0,043 (0,582)	0,010 (0,645)	-0,017 (0,830)	0,025 (0,829)	0,227 (0,001)
EPS(q-4)	-0,405 (0,010)*	-0,505 (0,000)*	-0,132 (0,232)	0,121 (0,325)	-0,004 (0,966)	0,036 (0,402)
TAX	-0,030 (0,213)	-0,042 (0,057)**	-0,057 (0,255)	-0,063 (0,124)	0,059 (0,769)	0,077 (0,421)
NONTAX	-0,006 (0,482)	-0,026 (0,078)**	-0,060 (0,277)	-0,068 (0,130)	-0,003 (0,911)	0,009 (0,539)
R^2	0,146	0,329	0,058	0,094	0,003	0,033

* = significant at 5% level

** = significant at 10% level

In first quarter of the full 2009 sample it was found that the EPS(q-4) significantly contributed to the prediction of EPS. In the first quarter of the adjusted 2009 sample, EPS(q-4), TAX, and NONTAX significantly contributed to the prediction of EPS. All significant contributions to the prediction of EPS were found to be negative, which is not in line with the expectations.

8. Conclusion

IAS 34 provides guidelines about interim reporting to Dutch listed companies. The recognition and the measurement of assets, liabilities, income, and expenses in interim reports are the same as in reports on annual basis, except for income taxes. For income taxes management makes estimations about the whole fiscal year. They are supposed to calculate their interim tax charge by applying the forecasted annual effective tax rate to the interim period income. The effective tax rate of a company is the fraction of the taxes a company pays and its accounting profit. Forecasting the annual effective tax rate requires estimations about year-end earnings and non-deductible items. Making these estimations is rather difficult, because the effective tax rate is influenced by several subjects. The four main influences are:

- a mix of profits and losses in an international environment;
- permanent differences between the economic and taxable profit;
- non-recognized losses;
- prior year adjustments.

Due to these influences the effective tax rate always differs from the statutory rate. Because of the estimations about year-end earnings it could be argued that the effective tax rate contains information about future earnings.

There is still no consensus about the usefulness of interim effective tax rates. Bauman and Shaw (2005) and Schmidt (2003) suggested that the annual effective tax rate, disclosed in the interim report, is useful in predicting future quarterly earnings. However, McGuire (2009) and Dhaliwal and colleagues (2004) found evidence that the interim effective tax rate is used to manage earnings.

This study tried to find evidence that the effective tax rate, issued by Dutch listed companies in their interim reports, has predictive value about future earnings. The main research question of this study was:

Are annual effective tax rates, incorporated in interim income tax disclosures, useful in predicting future earnings of Dutch listed companies?

It was hypothesized that the effective tax rate, reported in an interim report, contained information about future earnings. This was in line with research done by Bauman and Shaw

(2005) in the United States on listed companies required to report in accordance with US GAAP, ASC 740. The guidelines about interim reporting for income taxes in ASC 740 are similar to those of IAS 34.

The results of the present study showed no evidence that the effective tax rate contained information about future earnings for Dutch listed companies and the hypothesis was rejected. A common earnings prediction model was used to forecast earnings on prior quarterly observations. The Foster model (Foster, 1977) was adapted by implementing the effective tax rate. This model was also used by Bauman and Shaw (2005). First of all, all companies with quarterly data were tested. Then the sample was adjusted in accordance with the restrictions as mentioned in the study of Bauman and Shaw (2005). Tests on both samples rejected the hypothesis, because only the earnings per share of the previous year were significantly predictive for future earnings.

Secondly, the model was adapted by adding the control variable 'Company size'. Bigger companies are structured more complex and have more international operations, which could influence the effective tax rate. No evidence was found for the effect of company size on the predictive value of the ETR in both samples.

For some industries it is harder to estimate future earnings, which could indicate that the effective tax rate is less informative or useful to predict future earnings. The earnings prediction model was tested for the three largest representing industries in the sample: industrial firms, financials and investment companies, and technological firms. It could be a coincidence, but for the adjusted sample of industrials the hypothesis was not rejected in the first quarter. For all other tests the hypothesis was rejected.

Another distinction was made between the transition years 2005 and 2009. Since 2005 it is mandatory for Dutch listed companies to issue their financial statements in accordance with IFRS and since 2009 they are mandatory to issue interim reports, because of the implementation of the European Transparency Directive. Again, for all tests the hypothesis was rejected, indicating that the effective tax rate contained no predictive information about future earnings.

9. Discussion and future research

In this study no evidence was found that the effective tax rate contained information about future earnings for Dutch listed companies. Contrary to the expectations based on previous research of Bauman and Shaw (2005), the effective tax rate provided in interim reports did not predict future earnings.

In order to understand the difference between the results of the American study (Bauman and Shaw, 2005) and this master thesis, two explanations could be given. First, there is no obligation for Dutch listed companies to independently check their interim reports. In Figure 4 it was stated that only for the annual report an independent auditors' report must be made and that for semi-annual and quarterly financial reports a review by an independent auditor is not mandatory.

Figure 4 *Assurance on financial statements in the Netherlands*

Dutch listed companies

Report	Annual report	Semi-annual report	Quarterly report
Assurance	Independent auditors' report	Review Not mandatory	Review Not mandatory

This is in contrast to the United States, where the Securities and Exchange Commission (SEC) requires public US companies to engage an independent auditor to review the interim financials (Ettredge et al., 2000; Manry et al., 2003) in order to enhance the quality and reliability of interim reports (SEC, 1996). Prior research was done on reviewing interim reports. Manry, Tiras, and Wheatley (2003) found that reviewing the interim financial statements increased the relevance and reliability of the reported earnings. Ettredge, Simon, Smith, and Stone (2000) also investigated whether timely reviewing helped to improve the interim statements. They found that companies with timely reviews have fewer adjustments in the fourth quarter than companies that did not review their interim reports. Alves and Dos Santos (2008) provided evidence that mandatory audited quarterly reports impounded more significant price reactions than unaudited quarterly financial statements.

A second explanation for the difference between the American study of Bauman and Shaw (2005) and the present study might be that financial statements in the Netherlands were not set up in accordance with IAS 34. Because it is not mandatory to review the interim reports, the quality of the income tax disclosures and the calculation of the effective tax rate could be lacking. The reason for not reporting in accordance to IAS 34 could be that issuing interim reports is hard to understand and therefore very time-consuming (Haskins, Ferris, and Selling, 2000). Because understanding income tax disclosures requires specific knowledge, it increases the costs of issuing an interim report. Bagnoli and Watts (2007) found that the decision to disclose correct or additional information varied with the costs of disclosure. Janssen (2009) indicated that only a small percentage of the Dutch listed companies reported in accordance with IAS 34 when it comes to interim income tax disclosures.

In order to further investigate the two explanations for the difference between the outcomes of the American and the Dutch study, suggestions for future research were provided. In the next subsection, a first initiative for investigating the quality of income tax disclosures was given. In order to preliminary investigate the quality of income tax disclosures, the interim report for the second quarter of 2009 of the 25 companies listed on the Amsterdam Exchange Index (AEX) were examined. In Appendix D an overview was given of the companies that were reviewed and the companies that were not. Besides, the way each company disclosed about income taxes was shown. Four companies (16%) engaged an independent auditor to review their interim report. Six companies (24%) provided their interim income tax disclosures in accordance with IAS 34. Of these six companies two were reviewed by an independent audit firm. In example 9 the tax disclosure of Aegon is elaborated to show an example how to calculate the tax expense.

Example 9 *Income tax disclosure Aegon Quarter 2 2009*

> **TAXES**
> *Taxes on income in the interim periods are accrued using the tax rate that would be applicable to expected total annual earnings.*

Twelve companies (48%) did disclose any information about their effective tax rate and 7 companies (28%) used IAS 12 to calculate and report their effective tax rate.

In example 10 the income tax disclosures of the quarterly results of Unilever were presented to show an example how 28% of the AEX listed companies did report.

Example 10 *Income tax disclosure Unilever Quarter 2 2009*

> **TAXATION**
>
> *The effective tax rate for the quarter was 29,4% compared with 24,6% for 2008. The tax rate is calculated by dividing the tax charge by pre-tax profit excluding the contribution of joint ventures and associates.*

In the income tax disclosure of Unilever for the first quarter of 2009 the effective tax rate was 29,4%. It was described that the effective tax rate is calculated as the tax charge divided by the profit before tax. In appendix L the income statement is enclosed. It can be concluded that Unilever did not apply the guidelines of IAS 34, but they calculated the effective tax rate as mentioned in example 2 of chapter 3.

To summarize, only a small percentage of the Dutch listed companies disclosed information about their effective tax rate in conformity with IAS 34. Even when the interim financial statements were reviewed the disclosures were not always drafted as they should be. The latter is an interesting observation, because reviewing the interim financial statements enhances the quality of the disclosures (Alves and Dos Santos, 2008; Manry, Tiras, and Wheatley, 2003).

10. Limitations

The present research contained some limitations. First, it could be the case that the data used for this research was not in accordance with IAS 34. As stated in chapter 9 a small percentage of the Dutch listed companies report in accordance with IAS 34. This means that in this research actual figures for the quarter were used instead of estimated annual effective tax rates. The effective tax rate, implemented in the model, might be a fraction of the tax charge and the profit before tax of that certain quarter. The quality of the interim reports of Dutch listed companies might influence the outcomes of the present study.

Another limitation of this research concerns the use of the earnings prediction model. It would be unwise to rely completely on this model. Palepu, K.G. and colleagues (2007) stated that the model is good enough to be "in the ball park" in most circumstances.

A third limitation of this study was the availability of the data. A lot of companies only provided semi-annual reports. Therefore the sample size decreased from 170 to 67 companies. Although, there were enough observations and the sample was representative, this might have influenced the results of the study. The observations for the adjusted sample were in the tests of the three industries and the year 2005 and 2009 limited due to the fact that a lot of observations had to be eliminated. However, the presence of this limitation should not lead to different conclusions.

A final limitation of this research was the way the data was obtained. The data consisted of actual figures instead of estimations, as was mentioned in the first section of this chapter. Collecting the data by hand would not solve the problem. However, it would give an insight in the adjustments that should be made to estimate the annual effective tax rate. This self-estimated annual effective tax rate could be applied to the interim income before tax. Then it was possible to use one of the other methods to replace the missing values, as described in section 6.2.1. A more reliable and significant conclusion could have been reached if the data was contained in this way. As stated in the previous chapter, it is also a possibility for future research. Again, the presence of this limitation should not lead to different conclusions.

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Accounting standards

IFRS

- International Accounting Standard 1, Presentation of Financial Statements

- International Accounting Standard 12, Income Taxes

- International Accounting Standard 34, Interim Financial Reporting

US GAAP

- Accounting Standards Codification (ASC) 740

Tax treaty

Tax treaty The Netherlands – Czech Republic 1974 (altered in 1996)

Table of literature

Author(s)	Object of study	Sample and method	Overview results
Disclosures and future earnings			
Abdel-Khalik, R.A. Espejo, J.	Investigating the relation between the disclosure of interim earnings and the accuracy of earnings forecasts that are made public by security analysts.	Regression analysis with the variables: - actual earnings per share of year - forecasted annual earnings per share which are made for year *y* after the announcement of third quarter earnings - fiscal year for which forecasts are made. - a random error - 1976 - 97 firms in different industries	- Accuracy of annual earnings forecasts is highly correlated with the announcement of interim earnings. - Analysts use the signals provided by the disclosure of interim reports.
Brown, L. D. Hughes, J. S. Rozeff, M. S. Vanderweide, J. H.	Comment on the paper of Abdel-Khalik and Espejo (1978).	Literature review	- Analysts do not significantly fail to revise their forecasts due to interim reports. - Brown et al. do not agree nor disagree with Abdel-Khalik and Espejo.
Brown, L. D. Rozeff, M. S.	Investigating how interim accounting reports are used by a class of capital market participants. The goal is to improve the forecasts of future quarterly earnings.	Compare annual forecasts of analysts, two without interim data an two with interim data. - 1972-1976 - 50 US firms	Interim accounting data has predictive value for improving forecasts on future quarterly earnings.
Yee, K. K.	Examining the impact of the frequency of interim financial reporting using the Kyle framework (Kyle, 1985):	Multiperiod Kyle framework (Kyle, 1985) with variables: - securities prices - trading volume - market liquidity - analysts' information acquisition expenditures	- More frequent interim reporting improves the information content of securities prices, reduces reporting day price volatility and trading volume, and enhances market liquidity. - More frequent reporting induces analysts to increase their redundant information expenditures.

Mensah, Y. M. Werner, R.	Examining the extent to which the frequency of interim financial reporting affects stock price volatility over the course of a fiscal year.	Regression analysis - 1991-2001 - Firms of four countries: 3965 USA, 1416 Great-Britain, 310 Australia, and 540 Canada	- Semi-annual reporting will lead to lesser price volatility. - Quarterly reporting appears to emphasize capital market volatility in the United States and Canada as compared to the capital markets in Great Britain and Australia. - Financial statements in Great Britain and Australia were more value-relevant than those in the United States.
Butler, M. B. Kraft, A. G. Weiss, I. S.	Investigating whether financial reporting frequency affects the speed with which accounting information is reflected in security prices.	Regression analysis - 1950-1973 - 28824 reporting observations - 3702 firms of NYSE and AMEX	- Little evidence of differences in timeliness between firms reporting quarterly and those reporting on a semi-annual basis. - Evidence that firms that voluntarily report quarterly experience an increased timeliness in contrast with firms who are mandated to report quarterly.
Interim income tax disclosures			
Bauman, M. P. Shaw, K.W.	Examining the usefulness of interim income tax disclosures in predicting future earnings and analysts' forecast errors.	Regression analysis with: - Earnings before tax - Annual effective tax rate - Earnings per share - 1994-1999 - 6800 firm-year observations	- Interim income tax rate disclosures are useful in predicting future earnings - Analysts underutilize effective tax rate information in interim reports.
Bauman, M. P. Shaw, K.W.	Investigating whether managerial forecasts of annual effective tax rates (from interim reports) are useful in predicting future quarterly earnings.	Regression analysis Decomposing quarterly earnings changes into a tax- and nontax-related components. - 1994-2001 - 1493 US firms of different industries	- Interim effective tax rate disclosures are useful in predicting next-quarter earnings.
Schmidt, A. P.	Investigating whether and under what circumstances changes in net income caused by changes in effective tax rates persist.	Regression analysis Decompose the effective tax rate into an initial and revised portion.	- Effective tax rate is negatively associated with future tax changes. - Initial component of effective tax rate is useful in forecasting future earnings.

	Schmidt also examines whether the effective tax rate aids in forecasting future earnings.	- 1994-2001 - U.S. Compustat firms with available annual and quarterly data.	
Guenther, D. Jones, D.	Examining whether an unexpected change in income tax expense, resulting from a change in effective tax rates, has the same effect on firm value as an unexpected change in pre-tax earnings. Secondly they investigate the stock price response associated with an unexpected change in income tax expense due to a change in ETR.	Regression analysis - 1995-2006 - 30,848 firm-year observations	- Unexpected change in tax expense has a positive and significant effect on the firm value. - The valuation impact of unexpected tax expenses is the largest in the third and fourth quarter.
ETR and earnings management			
Dhaliwal, D. S. Gleason, C. A. Mills, L. F.	Investigating the relationship between tax expense and earnings management	Regression analysis - 1986-1999 - 14942 observations	- Firms lower their effective tax rates when they do not meet forecasts. - Firms lower their tax expense if the do not achieve related targets. - Evidence that reported taxes are used to manage earnings.
Comprix, J. Mills, L. F. Schmidt, A. P.	Examining whether the quarterly reported annual effective tax rate are biased in comparison to year-end actual effective tax rate. Investigate whether firms use estimates for earnings management.	Regression analysis - 1987-2006 - 293 observations	- Annual effective tax rates estimated in the first, second, and third quarter are higher than year-end effective tax rates. - Estimates are used to manage earnings when analysts' forecasts are not met.
Cook, K. A. Huston, G. R. Omer, T. C.	Investigating whether the tax planning have influence on the association of effective tax rate changes and earnings management.	Regression analysis - 2000-2004 - 11,642 firm-years	- Firms that miss earnings forecasts do invest more to realise a reduction in the effective tax rate in the third and fourth quarter.
McGuire, S.	Examining whether voluntary explanations are provided for a decrease of the effective tax rate in the fourth quarter.	Regression analysis - 2003-2004 - 200 earnings announcements that contain tax-related explanation and 2,308 that do not.	- 10 percent of the firms with a decrease in effective tax rate in the fourth quarter explain the decrease. - Firms with more tax-related earnings are more likely to explain the decrease.

Appendices

Appendix A

The derivation of the equation (3):

$$\Delta NI_t = NI_t - NI_{t-1}$$

$$\Delta NI_t = EBT_t \cdot (1 - ETRA_t) - EBT_{t-1} \cdot (1 - ETRA_{t-1})$$

$$\Delta NI_t = EBT_t \cdot (1 - ETRA_t) - (EBT_t - \Delta EBT_t) \cdot (1 - ETRA_{t-1})$$

$$\Delta NI_t = \Delta EBT_t \cdot (1 - ETRA_{t-1}) + EBT_t \cdot (ETRA_{t-1} - ETRA_t)$$

or when predicting the change in net income of the preceding quarter:

$$\Delta NI_{q-1} = \Delta EBT_{q-1} \cdot (1 - ETR_{q-5}) + EBT_{q-1} \cdot (ETR_{q-5} - ETR_{q-1})$$

where:

NI is net income,

EBT is earnings before tax

ETRA is annual effective tax rate

which leads to the equation (3):

$$\Delta EPS_{q-1} = \Delta EBT_{q-1} \cdot (1 - ETR_{q-5}) + EBT_{q-1} \cdot (ETR_{q-5} - ETR_{q-1})$$

The change in earnings per share is predicted in equation (3). Earnings per share is just another variable used to measure the profitability of a company. It was also possible to choose another dependent variable, such as, earnings or net income. In order to make a good comparison between the companies one should correct for company size. But dividing the earnings by the average outstanding shares there will be a better comparison between the investigated companies.

Appendix B

IFRS
IAS 34.28 – 34.36
Recognition and measurement
Same accounting policies as annual

28 An entity shall apply the same accounting policies in its interim financial statements as are applied in its annual financial statements, except for accounting policy changes made after the date of the most recent annual financial statements that are to be reflected in the next annual financial statements. However, the frequency of an entity's reporting (annual, half-yearly, or quarterly) shall not affect the measurement of its annual results. To achieve that objective, measurements for interim reporting purposes shall be made on a year-to-date basis.

29 Requiring that an entity apply the same accounting policies in its interim financial statements as in its annual statements may seem to suggest that interim period measurements are made as if each interim period stands alone as an independent reporting period. However, by providing that the frequency of an entity's reporting shall not affect the measurement of its annual results, paragraph 28 acknowledges that an interim period is a part of a larger financial year. Year-to-date measurements may involve changes in estimates of amounts reported in prior interim periods of the current financial year. But the principles for recognising assets, liabilities, income, and expenses for interim periods are
the same as in annual financial statements.

30 To illustrate:
(a) the principles for recognising and measuring losses from inventory write-downs, restructurings, or impairments in an interim period are the same as those that an entity would follow if it prepared only annual financial statements. However, if such items are recognised and measured in one interim period and the estimate changes in a subsequent interim period of that financial year, the original estimate is changed in the subsequent interim period either by accrual of an additional amount of loss or by reversal of the previously recognised amount;
(b) a cost that does not meet the definition of an asset at the end of an interim period is not deferred in the statement of financial position either to await future information as to whether it has met the definition of an asset or to smooth earnings over interim periods within a financial year; and
(c) income tax expense is recognised in each interim period based on the best estimate of the weighted average annual income tax rate expected for the full financial year. Amounts accrued for income tax expense in one interim period may have to be adjusted in a subsequent interim period of that financial year if the estimate of the annual income tax rate changes.

31 Under the *Framework for the Preparation and Presentation of Financial Statements* (the *Framework*), recognition is the 'process of incorporating in the balance sheet or income statement an item that meets the definition of an element and satisfies the criteria for recognition'. The definitions of assets, liabilities, income, and expenses are fundamental to recognition, at the end of both annual and interim financial reporting periods.

32 For assets, the same tests of future economic benefits apply at interim dates and at the end of an entity's financial year. Costs that, by their nature, would not qualify as assets at financial year-end would not qualify at interim dates either. Similarly, a liability at the end of an

interim reporting period must represent an existing obligation at that date, just as it must at the end of an annual reporting period.

33 An essential characteristic of income (revenue) and expenses is that the related inflows and outflows of assets and liabilities have already taken place. If those inflows or outflows have taken place, the related revenue and expense are recognised; otherwise they are not recognised. The *Framework* says that 'expenses are recognised in the income statement when a decrease in future economic benefits related to a decrease in an asset or an increase of a liability has arisen that can be measured reliably… [The] *Framework* does not allow the recognition of items in the balance sheet which do not meet the definition of assets or liabilities.'

34 In measuring the assets, liabilities, income, expenses, and cash flows reported in its financial statements, an entity that reports only annually is able to take into account information that becomes available throughout the financial year. Its measurements are, in effect, on a year-to-date basis.

35 An entity that reports half-yearly uses information available by mid-year or shortly thereafter in making the measurements in its financial statements for the first six-month period and information available by year-end or shortly thereafter for the twelve-month period. The twelve-month measurements will reflect possible changes in estimates of amounts reported for the first six-month period. The amounts reported in the interim financial report for the first six-month period are not retrospectively adjusted. Paragraphs 16(d) and 26 require, however, that the nature and amount of any significant changes in estimates be disclosed.

36 An entity that reports more frequently than half-yearly measures income and expenses on a year-to-date basis for each interim period using information available when each set of financial statements is being prepared. Amounts of income and expenses reported in the current interim period will reflect any changes in estimates of amounts reported in prior interim periods of the financial year. The amounts reported in prior interim periods are not retrospectively adjusted. Paragraphs 16(d) and 26 require, however, that the nature and amount of any significant changes in estimates be disclosed.

Appendix C

US GAAP
ASC 740

General Recognition Approach

25-1

This guidance addresses the issue of how and when income tax expense (or benefit) is recognized in interim periods and distinguishes between elements that are recognized through the use of an estimated annual effective tax rate applied to measures of year-to-date operating results, referred to as ordinary income (or loss), and specific events that are discretely recognized as they occur.

25-2

The tax (or benefit) related to ordinary income (or loss) shall be computed at an estimated annual effective tax rate and the tax (or benefit) related to all other items shall be individually computed and recognized when the items occur.

Appendix D

AEX listed companies: Income tax disclosures second quarter 2009

Company	In accordance with IAS 34	Disclose, but ignoring with IAS 34	No disclosure	Review
Aegon	X			
Ahold			X	
Air France-KLM	X			
AkzoNobel	X			
ArcelorMittal		X		
ASML		X		
BAM			X	
Boskalis		X		
Corio	X			
DSM			X	
Fugro	X			X
Heineken			X	
ING Bank			X	
KPN		X		
Philips			X	
Randstad		X		
Reed Elsevier			X	X
Shell			X	
SBM	X			X
TNT			X	
TomTom		X		
Unibail-Rodamco			X	X
Unilever		X		
Wereldhave			X	
WoltersKluwer			X	

Appendix E

Unilever
Quarterly results Q1 2009
Income statement (unaudited)

€ million	First Quarter			
			Increase/ (Decrease)	
	2009	2008	Current rates	Constant rates
Continuing operations:				
Turnover	9,505	9,571	(1)%	1%
Operating profit	1,234	1,815	(32)%	(32)%
Restructuring, business disposals and other items (RDIs) (see note 3)	(158)	393		
Operating profit before RDIs	1,392	1,422	(2)%	(2)%
Net finance costs	(183)	(86)		
Finance income	25	24		
Finance costs	(163)	(145)		
Pensions and similar obligations	(45)	35		
Share in net profit/(loss) of joint ventures	27	44		
Share in net profit/(loss) of associates	(1)	9		
Other income from non-current investments	13	–		
Profit before taxation	1,090	1,782	(39)%	(38)%
Taxation	(287)	(375)		
Net profit from continuing operations	803	1,407	(43)%	(42)%
Net profit/(loss) from discontinued operations	–	–		
Net profit for the period	803	1,407	(43)%	(42)%
Attributable to:				
Minority interests	72	68		
Shareholders' equity	731	1,339	(45)%	(45)%
Combined earnings per share				
Total operations (Euros)	0.26	0.47	(44)%	(44)%
Total operations – diluted (Euros)	0.25	0.46	(44)%	(44)%