Global Review of Accounting and Finance
Vol. 7. No. 1. March 2016 Issue. Pp. 108 – 119

Taxable Income Differential between Foreign- and Domestic Companies in Saudi Arabia

Ali Faya Alhassan[1] and Mohammed Saleh Bajaher [2]

The purpose of this research is to determine whether a difference exists in the tax paid, in relation to revenue differentials between domestic oil companies in Saudi Arabia compared to foreign-owned oil companies operating in the country due to transfer pricing policies. The sample of companies to be used are 13 domestic companies and 8 foreign companies. The research conducted by Borvornboonrutai (2001) utilized various linear regression formulas in order to understand the variables that are associated with transfer pricing and the level of taxes paid between domestically-owned companies and foreign companies operating in Thailand. The results of the analyses clearly show that there is a differential in the amount of taxes paid by the oil companies that were investigated in this research based on their origin. The companies that were domestic to Saudi Arabia paid less in taxes, in relation to their revenues, than the companies that were foreign-owned. The actual level of difference in the tax rate was about 4.5% statistical tests confirmed that this rate difference was statistically significant.

Keywords: Corporate tax rates; Income splitting; transfer pricing

1. The Introduction

The research problem arises from the perspective of national tax authorities when firms that are part of the same MNC group are subject to different rates of profit tax because of their location in different tax jurisdictions (Hoonsawat, 2007). The managements of multinational companies operate internationally and, in this manner, strive to minimise the overall tax payment (liabilities) of the multinational group as a whole, across the countries in which they operate. Apart from developing acceptable tax minimisation strategies for this purpose, various studies have identified management behaviour that is considered by tax authorities to be outside the realm of tax minimisation and into the realm of shifting profits between tax jurisdictions. A range of studies have has identified that the setting of transfer prices has been utilized by management, in such situations as a mechanism, to shift profits from an MNC's operations in high tax jurisdictions to their operations in low tax jurisdictions, as can be seen from a range of studies (Harris et al. 1991; Johnson & Kirsh 1991; Borkowski 1992; Grubert, Goodspeed & Sivenson 1993; Borkowski 1997; Oyelere & Emmanuel 1998; Mehafdi 2000; Eden& Kudrle 2005). the The objective of this study is to determine whether a difference exists in the tax paid, in relation

[*] Dr. Ali faya Alhassan, Assistant professor at College of Administrative and Financial Sciences, King Khalid University, Saudi Arabia, Email: afalhasan@kku.edu.sa
[**] Dr. Mohammed Saleh Bajaher, Assistant professor at College of Administrative and Financial Sciences, King Khalid University, Saudi Arabia, College of Administrative science, Aden University, Yemen, Email:msawwd@kku.edu.sa

to revenues differentials between domestic oil companies in Saudi Arabia, compared to foreign-owned oil companies operating in the country due to transfer pricing policies.

The reason for interest in transfer pricing is related to two different issues. The first is because of how multinational firms make decisions based on the tax structures within the countries in which they operate, companies need make decisions related to profits and costs based on the differing tax structures in various countries. A second issue is whether companies tend to use transfer pricing to artificially result in higher profits and lower costs by moving profits from countries with higher tax rates to countries with lower tax rates (Nielsen, Raimondos-Moller, and Schjelderup 2003).

The research is important because it will help to extend the understanding of the effect of taxation on transfer pricing behavior, especially as these relate to Saudi Arabia and the oil industry in that country. Although there were some studies that centred on the oil sector globally and the issue of transfer pricing, the literature review revealed that there were no studies that dealt with the issue of transfer pricing in relation to the Saudi Arabian oil and gas sector .

The findings of this research do show that there is a tax differential in the amount of taxes in relation to total revenues that are paid by domestically-owned oil companies in Saudi Arabia as compared to their foreign-owned counterparts operating in the country.

This paper proceeds as follows: A literature review is summarised in Section 2; Section 3 discusses methodology and model; Findings are presented in section 4; Section 5 addresses the Summary and Conclusions

2. Literature Review

Several models that have been developed, such as Silva (1999), Grubert and Mutti (1991), Hines and Rice (1994), Nielsen, Raimondos-Møller, and Schelderup (2001), to identify the use of transfer pricing for the purpose of profit shifting. However, the necessary variables were not available in the Saudi market for the use of such mathematical models, as is the case in the US companies. Silva (1999) described a simple statistical model to predict the arm's length profit margin of a corporate taxpayer, as a function of the operating expense ratio and random factors, quantified by residual error. The model was validated using data from publicly traded U.S. companies engaged in drugs, toiletry, cosmetics, and perfumes. The aim of this study was to determine if the same model could be fitted to a set of corresponding data applied to the Sabic Company in Saudi Arabia between the year 2005 and 2007. However, the required variables were not available in the Saudi market for the use of such mathematical models, as is the case in the US companies. A commonly used model of transfer pricing in multinational firms is the model of Grubert and Mutti (1991). This model gives an empirical economic treatment of the issue of transfer pricing and offers quantitative analysis in three areas, including the ability to shift profits between countries with tax gradients, impact of host country taxes and tariffs on distribution of real capital, and influence of tax and tariff policies in international trade patterns. Grubert and Mutti's (1991) model can be used to explain this transfer pricing in terms of effects. This model also does not require complex regression building, but is instead focused on simple microeconomic models and well-known constructions, including profit maximization, demand for capital, and analysis of capital distribution. This makes the model of analysis simple to use and well suited to the overall structure of the current report. However, the required variables were not available in the Saudi market for this model, as is the case in the US companies. Hines and Rice's (1994) exhaustive study of the issues involved in the use of tax havens by American

companies, cited the Grubert and Mutti study as a basis for asserting that tax benefits are one of the most common reasons for the use of transfer pricing and tax havens by American firms. This study provide great insight into the significance of the model's assertions as well as describing how they fit into a greater structure. The results of this study were also used to construct a model to examine transfer pricing in Puerto Rico, which used a Structural Equation Model (SEM) to examine the issue at hand (Grubert & Slemrod, 1998). However, the required variables were not available in the Saudi market for this model as the case in the US companies. One potential model of transfer pricing that could be used to detect transfer pricing in the budgetary explanations of firms in the oil and gas industry, as well as other publicly available information is that described by Nielsen, Raimondos-Møller, and Schelderup (2001). This model examines transfer pricing under market conditions of oligopolistic competition, which makes it appropriate for the current industrial focus. However, the required variables were not available in the Saudi market, as is the case in the US companies. The research conducted by Borvornboonrutai (2001) used various linear regression formulas to understand the factors that were associated with transfer pricing and the level of taxes paid between locally-owned companies and foreign companies operating in Thailand. The author of the study was able to use variables related to ratios of tax to revenues, debt to equity, dividend payouts, and other financial characteristics to determine the factors related to tax differentials. Even more, the author was able to perform other statistical tests to determine if significant differences existed between the actual level of taxes related to total revenues that were paid by domestically-owned companies in Thailand, as compared to foreign companies operating in that country.

3. The Methodology and Model

In order to test our hypothesis which is hypothesized that the domestic oil companies in Saudi Arabia will pay less tax than their foreign-owned counterparts. We have conducted an empirical study and we have covered 13 domestic companies and 8 foreign companies between 2005 and 2007 due to the Saudi Arabia's stock crisis during this period on taxes and revenues.

Table 1: shows the list of companies used in this study, based on whether they are foreign or domestic to Saudi Arabia.

Table 1: List of Companies Used in this Research

Saudi Arabia Companies	Foreign Companies
Advanced Polypropylene Company	ExxonMobil
Alujain Corporation	Royal Dutch Shell
Nama Chemicals Company	BP
National Industrialization Company	Chevron
Rabigh Refining and Petrochemical	ConocoPhillips
Sahara Petrochemical Company	Marathon Oil Corporation
Saudi Arabia Fertilizers Company	Sunoco
Saudi Basic Industries Corporation	Vaalco
Saudi Industrial Investment Group	
Saudi International Petrochemical	
Saudi Kayan Petrochemical Company	
Yanbu National Petrochemical Company	
Saudi Electricity Company	

The model that will be used for the linear regression analysis in this research is as follows:
Tax = age + current ratio + equity + total assets + dividend payout + leverage + country

Where:

Age = the age of the company
Current ratio = the ability of the company to meet short-term debt obligations
Equity = equity ratio of the company
Total Assets = the ratio of total assets to revenues
Dividend Payout = the percentage of dividends of revenues paid out
Leverage = the ratio of total debt to revenues
Country = a dummy variable indicating either Saudi or non-Saudi company

The reason for including the last variable of country in the model has to do with the ability to compare both Saudi and non-Saudi companies. By including the dummy variable, where 0 = non-Saudi company and 1 = Saudi company, it will be possible to control for this characteristic. In addition, it will also be possible to determine if this characteristic plays a significant role in the relationships between the variables and the level of taxes that are paid by the companies. Furthermore, equal weighing is given to each of the variables.

The reason for using the variables that are included in the model comes from the very nature of transfer pricing and it is used to maximize profits, while minimising the costs where there is the choice of (a) trading between companies of the same group (internal) (b) trading with companies outside the group. All of the variables that have been included in this model are internal variables that are related to issues of costs and profits for a company. By using these variables, it is possible to better understand if the amount of taxes that a company is paying is related to its own internal efforts of profit maximization, or whether there are external factors, such as government legislation, that is impacting tax rates. Smullen (2001); Riahi-Belkaoui (2001). This also leads us to the reason for using a model that has been used by many researchers in the past. The fact of the matter is that this model has been used and tested by previous researchers, Plasschaert and Dunning (1994). The objective of this investigation is not to set out and determine whether this model is effective in understanding issues related to transfer pricing and tax differentials. Instead, the purpose of this research is to determine if a significant difference exists in the tax rates of foreign and domestic oil companies operating in Saudi Arabia. Based on this, it would be more beneficial to use a model that has been tested and in which many researchers agree upon, as opposed to creating a new model and bringing this variable into the research that is being conducted.

4. Results/ Analysis

Table 2: Descriptive Statistics for Domestic Companies

Variable	Mean	S.D.
Tax	*5.29*	*6.18*
Age	*13.23*	*12.70*
Current Ratio	*3.89*	*7.86*
Equity	*8.01*	*13.13*
Total Assets	*4.58*	*7.80*
Dividend Payout	*.92*	*1.46*
Leverage	104.15	1.46

Table 2 shows the descriptive statistics of the variables for the companies that are domestically controlled in Saudi Arabia. The mean percentage of taxes to revenues paid by the oil companies headquartered in Saudi Arabia in the sample, are paying 5.29% of their revenues as taxes. In addition, the average age of the companies is about 13 years. This suggests that the oil companies that are currently in existence in Saudi Arabia, and that are publicly traded, are relatively young. The table also revealed that the companies which are headquartered in Saudi Arabia have a relatively low degree of debt, but a very high degree of leverage.

Table 3: Correlation Analysis for Domestically-Controlled Companies in Saudi Arabia

	Tax Ratio	***Age***	***Current Ratio***	***Equity***	***Total Assets***	***Dividend Payout***	***Leverage***
Tax Ratio	1						
Age	0.249368	1					
Current Ratio	-0.21987	-0.2016	1				
Equity	-0.17904	**0.82267**	-0.04090106	1			
Total Assets	-0.17531	**0.80335**	-0.00990649	**0.9257**	1		
Dividend Payout	-0.09702	0.4263	-0.1594493	0.4175	0.37315975	1	
Leverage	0.317825	-0.0841	-0.3490823	-0.444	-0.4383988	-0.124805289	1

Note: items in bold are significant at the p < .001 level

Table 3 shows the results of the correlation analysis for the variables, from the companies that are domestically controlled in Saudi Arabia. The results of the correlation analysis revealed that the level of equity and the age of the company, as well as the total assets and the age, the total assets and equity of the companies are significantly correlated.

Table 4: Linear Regression Results for Tax Ratio

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	3.36029841	3.782474403	0.8884	0.4085
Age	0.79339704	0.289733352	2.7384	0.0338
Current Ratio	-0.06833997	0.232737041	-0.294	0.7789
Equity	-0.48306163	0.381196536	-1.267	0.252
Total Assets	-0.47955719	0.585980801	-0.818	0.4444
Dividend Payout	-0.81995405	1.266869092	-0.647	0.5414
Leverage	-0.01925375	0.023978616	-0.803	0.4526
Adjusted R-squared	.22	5.69		

Table 4 shows that the linear regression analysis also indicates that the adjusted R-squared value for this model is 22%. This indicates that, 22% of the variance in the tax ratio for these companies is explained by the variables in the model. This is a relatively low percentage, considering the number of variables and what they represent. This is also quite low, considering that only one of the variables show statistical significance in the model. There are clearly other issues that are at play in relation to the tax ratios of the companies that are based in Saudi Arabia.

Table 5: One Sample T-Test for Tax Rate

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
TAX	-8.58117	12	1.82093E-06	-14.70769231	-18.44206771	-10.9733169

A one-sample t-test is performed and the results are shown in table 5. The mean tax rate for the companies in the sample of 5.29% is significantly different from the general tax rate in Saudi Arabia of 20% (t=-8.58, df=12, p<.001).

Table 6: Descriptive Statistics for Foreign-Owned Companies

Variable	Mean	S.D.
Tax	*9.04*	*12.05*
Age	*76.63*	*48.23*
Current Ratio	*1.55*	*1.37*
Equity	*23.52*	*7.79*
Total Assets	*10.80*	*3.87*
Dividend Payout	*2.73*	*1.50*
Leverage	25.05	22.69

Table 6 provides the descriptive statistics for these companies. The descriptive statistics show that the average tax rate based on total revenues for the foreign-owned companies operating in Saudi Arabia is just over 9%. In addition, the foreign-owned companies have an average age of nearly 77 years. However, the current ratio for the companies is somewhat low at 1.55, as is the equity of 23.52 and the leverage of 25.05. The one bright spot is that the dividend payout is 2.73% for these companies

Table 7: Correlation Analysis for Foreign-Owned Companies

	Tax Ratio	***Age***	***Current Ratio***	***Equity***	***Total Assets***	***Dividend Payout***	***Leverage***
Tax Ratio	1						
Age	-0.417982	1					
Current Ratio	**0.995386**	-0.377	1				
Equity	-0.573725	0.6073	-0.53013879	1			
Total Assets	0.231998	0.5111	0.23547113	0.4513	1		
Dividend Payout	**-0.77238**	0.4622	**-0.73371011**	0.3948	-0.2559586	1	
Leverage	-0.510547	-0.111	-0.4828454	0.1598	**-0.7458207**	0.312477092	1

Note: Figures in bold are significant at the p<.05 level

Table 7 presents the results of the correlation analysis for the foreign-owned companies. The results of the correlation analysis show that the current ratio and dividend payout are significantly correlated with the tax ratio. In addition, the dividend payout and the current ratio, as well as the leverage and total assets are also significantly correlated.

Table 8:Linear Regression Results for Foreign-Owned Companies

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	1.558322726	4.160122492	0.3746	0.7718
Age	-0.00885051	0.012681499	-0.698	0.6121
Current Ratio	7.583569924	0.166785341	45.469	0.014
Equity	-0.12262127	0.146159114	-0.839	0.5556
Total Assets	0.121577955	0.527366537	0.2305	0.8558
Dividend Payout	-0.57799829	0.508834357	-1.136	0.4595
Leverage	-0.01820069	0.060070548	-0.303	0.8127
Adjusted R-squared	.99	.31		

Table 8 shows the results of the linear regression analysis. The linear regression revealed that the variable that has a significant effect on the dependent variable of the tax ratio for the foreign-owned companies are the current ratio, which is a measure of the ability of the companies to meet their short-term debt obligations. None of the other variables in the model showed any level of statistical significance. The positive regression coefficient of the current ratio suggests that as the ability of the companies to meet their short-term debt obligations increases, so also does the amount of taxes they pay, in relation to their revenues. With this variable showing statistical significance, it is somewhat surprising that other related variables, such as total assets or leverage show no statistical significance at all. However, the adjusted R-squared for this model, for the foreign-owned companies is 0.99. This indicates that 99% of the variance in the ratio of taxes to revenues paid by the foreign oil companies in the sample can be explained by this model.

Table 9: One-Sample T-Test of Tax Ratio

	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
TAX	-2.573162929	7	0.036837614	-10.9625	-21.0365583	-0.8884417

Table 9 shows the results of a one-sample t-test on the tax rate of the foreign-owned companies, as compared with the standard corporate tax rate of 20% in Saudi Arabia. The results of the t-test show that the foreign-owned companies do pay a tax rate that is significantly lower than the standard tax rate in the country ($t=-2.57$, $df=7$, $p<.05$). However, it should be noted that the actual significance of the difference is less than that found in the same test, comparing the tax rate paid by the domestically-controlled companies in relation to the standard tax rate in Saudi Arabia.

It should be noted that for many of the domestically-controlled companies, data only became available since 2005. For this reason, this additional analysis will be conducted in 2005 and 2006, for both the foreign and domestic oil companies in Saudi Arabia. Where possible, the information will be presented together to provide a broader overview of the data. In the end, statistical tests will be performed for each of the years, to determine if the tax rates are significantly different from the foreign and domestic oil companies.

Table 10: Descriptive Statistics for Domestic Oil Companies

	2006		2005	
	Mean	S.D	Mean	S.D.
Tax rate	6.49	7.39	5.78	8.30
Age	15.50	13.15	13.33	12.62
Current Ratio	3.71	3.87	3.10	2.62
Return on Equity	11.70	11.47	9.57	11.25
Return on Assets	8.45	8.01	5.76	6.13
Dividend Yield	1.06	1.69	1.36	1.96
Leverage	26.31	33.77	47.40	75.92

Table 10 presents the descriptive statistics for the domestically-controlled oil companies for 2005 and 2006. As the table shows, the financial performance for the domestically-controlled companies adjusted, as would be expected for the year 2005 to 2006. All of the ratios increased, with the exception of leverage and dividend yield. This means that the returns on equity and the return on assets increased in value. The dividend yield was almost identical between the two years. Furthermore, the leverage, which is a measure of total debt to equity, decreased. This would be a desirable outcome because it suggests that the domestically-controlled oil companies are lowering their debt and increasing their overall equity.

Table 11: Correlation Analysis for Domestic Companies: 2005

	Tax Ratio	*age*	*current ratio*	*Equity*	*Total Assets*	*Dividend Payout*	*leverage*
Tax Ratio	1						
age	-0.11572	1					
current ratio	0.753223	0.020132	1				
Equity	-0.37175	0.639859	-0.48117922	1			
Total Assets	-0.30293	0.462405	-0.53727373	**0.886392136**	1		
Dividend Payout	-0.39904	**0.730096**	-0.29517791	0.434606292	0.349867971	1	
leverage	-0.53638	-0.13954	0.0352524	-0.28788803	-0.478811266	0.033291908	1

Note: items in bold are significant at the p<.05 level

Tables 11 provide the correlation analysis for the domestically owned companies for 2005. As the tables show, there are very few correlations between the variables. In the year 2005, the variables of dividend yield and age are significantly correlated as well as the variables of return on equity and return on total assets

Table 12: Correlation Analysis for Domestic Companies :2006

	Tax Ratio	*Age*	*Current ratio*	*Equity*	*Total Assets*	*Dividend Payout*	*Leverage*
Tax Rate	1						
Age	0.237416	1					
Current ratio	0.373836	0.026214	1				
Equity	-0.11058	**0.681437**	0.121034909	1			
Total Assets	-0.16203	**0.701178**	0.176118563	**0.950549**	1		
Dividend Payout	-0.1018	**0.740562**	-0.02972665	**0.778443**	0.847682112	1	
Leverage	-0.2832	-0.20502	-0.26949564	-0.26574	-0.22804391	-0.095495749	1

Note: Items in bold are significant at the p<.05 level

Tables 12 which provide the results of the correlation analysis for 2006, are also not completely surprising. These results revealed that equity, total assets, and dividend payouts are all positively correlated with age. This means that as the companies become older, these values

also increase. In addition, dividend payout and total assets were significantly correlated with equity**.**

Table 13: Descriptive Statistics for Foreign-Owned Oil Companies

	2005		2006	
	Mean	S.D.	Mean	S.D.
Tax rate	4.27	1.79	5.60	2.20
Age	79.67	50.11	80.67	50.11
Current Ratio	1.18	0.27	1.20	0.25
Return on Equity	28.13	4.14	31.18	7.10
Return on Assets	12.75	2.95	14.67	3.30
Dividend Yield	1.32	0.52	1.75	0.72
Leverage	14.40	7.21	13.40	7.00

Table 13 presents the descriptive statistics for the variables from the foreign-owned oil companies for the year 2005 and 2006. These descriptive statistics, as was the case for the domestically controlled companies, show what might be expected. Between 2005 and 2006, the foreign-owned oil companies generally saw their returns on equity and assets increase, while their overall leverage decreased slightly. Unlike the domestically controlled companies, the foreign-owned oil companies did have a slight increase in the dividends paid out to shareholders.

Table 14: Correlation Analysis for Foreign-Owned Companies for 2005

	Tax Ratio	*Age*	*current ratio*	*Equity*	*Total Assets*	*Dividend Payout*	*leverage*
Tax Ratio	1						
age	0.0823	1					
current ratio	0.547288	0.600945	1				
Equity	0.458715	0.570257	0.443902608	1			
Total Assets	**0.85985**	0.298248	0.718286443	0.760361	1		
Dividend Payout	0.261863	0.100912	-0.090332369	-0.3072	-0.12650953	1	
leverage	**-0.83573**	-0.44572	-0.522312803	-0.63234	-0.79726292	-0.447590666	1

Note: items in bold are significant at the p<.05 level

Tables 14 present the results of the correlation analysis for the variables from the foreign-owned oil companies. In the year 2005, the correlation analysis shows that the total assets and leverage were significantly correlated with the tax ratio. As was the situation with the data from the year 2007, it appears that the tax rate for the foreign-owned companies has important relationships with some of the independent variables.

Table 15: Correlation Analysis for Foreign-Owned Companies for 2006

	Tax Ratio	*Age*	*current ratio*	*Equity*	*Total Assets*	*Dividend Payout*	*leverage*
Tax Ratio	1						
age	0.272057	1					
current ratio	0.417018	0.634216	1				
Equity	-0.49808	0.289586	0.4355269	1			
Total Assets	-0.13819	0.251321	0.741816457	**0.86435**	1		
Dividend Payout	-0.72421	-0.3183	-0.41138149	-0.06258	-0.227575609	1	
leverage	-0.51252	-0.80415	-0.712006691	0.088222	-0.120466837	0.147262141	1

Note: items in bold are significant at the p<.05 level

However, for 2006, the only significant variables from the foreign-owned oil companies were total assets and equity, which is not that surprising. Overall, these results when combined with the 2007 data, suggest that from year-to-year, the financial ratios of the foreign-owned companies are not significantly related to other internal financial variables.

5. Summary and Conclusions

The purpose of this research is to determine if the tax differential exists between the tax rate that is paid by domestic and foreign-owned oil companies in Saudi Arabia. This issue is in many respects related to that of transfer pricing. Much of the literature on transfer pricing has focused on the way that multinational companies uses transfer pricing to move profits from divisions in countries with higher tax rates to divisions in countries with lower tax rates. The idea behind this research was to determine the financial characteristics that are related to the taxes paid by the companies in the sample, and to determine if the country of origin had a significant effect on the tax ratio.

The results of the analyses evidently revealed that there is a differential in the amount of taxes paid by the oil companies that were investigated in this research, based on their origin. The companies that were domestic to Saudi Arabia paid less in taxes, in relation to their revenues than the companies that were foreign-owned. The actual level of difference in the tax rate was about 4.5%. Statistical tests confirmed that this rate difference was statistically significant. The results support the findings. The research conducted by Borvornboonrutai (2001) used various linear regression formulas to understand factors that were associated with transfer pricing and the level of taxes paid between domestically-owned companies and foreign companies operating in Thailand. The author of the study was able to use variables related to ratios of tax to revenues, debt to equity, dividend payouts, and other financial characteristics to determine the factors related to tax differentials. Even more, the author was able to perform other statistical tests to determine if significant differences existed between the actual level of taxes related to total revenues that were paid by domestically-owned companies in Thailand as compared to foreign companies operating in that country.

The following are the general limitation of the paper; given the nature of transfer pricing, the fundamental recognition is that publicly available data are the primary source of data used by authorities and researchers to initially detect transfer pricing behavior. The public accounting data are data that are generated from within entities and forms the reports compiled for internal as well as all external parties. The limitations of this study include, the reliance on public data and the short time period that was examined. In the case of reliance on public data, there is the potential that a firm will use non-GAAP or non-IFRS accounting measures in order to reduce the appearance of transfer pricing manipulation, which could reduce the ability of these models to detect difference in the tax rate (since they are all based on public information.) There is also the potential that firms will not relate the data at the granularity required for more reliable study, a further problem with relying on public information. The short period of time means that the result will potentially reflect a period of high stress within the industry. The 2005-2007 periods were times of rapid change and economic stress within the industry, which could have increased the potential that a firm would use transfer pricing abuse to prop up flagging profits.

However, the current research does not allow for this scope of information regarding the analysis, in terms of a time series analysis. In many cases, the individual firms that are included within this study (even at its broadest point) do not have 18 years worth of individual firm data that can be used to construct an equivalent data set. Additionally, due to the reconstruction of

the Saudi economy during the 1980s and the resulting establishment of firms, such as SABIC and Saudi Aramco, many of the firms that would be involved in a study did not exist during this time period at all, while others existed only as national or even regional enterprises for which no public information would be available.

References

Borkowski, SC 1992, 'Choosing a transfer pricing method: A study of the domestic and international decision-making process',*Journal of International Accounting, Auditing and Taxation*, pp.33-49.

Borkowski, SC 1997, 'The transfer pricing concerns of developed and developing countries',*The International Journal of Accounting*, vol. 32, no. 3, pp.321-336.

Eden, L & Kudrle, RT 2005, 'Tax havens: Renegade states in the international tax regime?'*Law and Policy,* vol. 27, no. 1, pp.100-127.

Federation of International Trade Associations, 2008. *Taxes—Accounting*. [online].

Available from: http://fita.org/countries/saudi.html?ma_rubrique=fiscalite [accessed 23 July 2008].

Grubert, H, Goodspeed, T & Sivenson, D 1993'Explaining the low taxable income of foreign controlled companies in the United States', in A Giovanni, Hubbarb, G & Slemrod, J (eds), *Studies in International Taxation,* National Bureau of Economic Research Project Report, University of Chicago.

Grubert, H & Mutti, J 1991, 'Taxes, tariffs and transfer pricing in multinational corporate decision making',*The Review of Economics and Statistics*, vol. 73, no. 2, pp.285-293.

Grubert, H & Slemrod, J 1998, 'The effects of taxes on investment and income shifting to Puerto Rico',*The Review of Economics and Statistics Quarterly*,vol. 80, no. 3, pp.365-373.

Hines, J & Rice, E 1994, 'Fiscal paradise: foreign tax havens and American business',*Quarterly Journal of Economics*, vol. 109, no. 1, pp.149-182.

Hoonsawat, R 2007, *Transfer pricing: Does the size and remoteness of countries matter?* Department of Economics, Maxwell School of Citizenship and Public Affairs,Syracuse University,Syracuse,New York.

Johnson, W & Kirsh, R 1991, 'International transfer pricing decision making in the United States' multinationals',*International Journal of Management*, vol. 89, no. 2, pp.817-828.

Mehafdi, M 2000, 'The ethics of international transfer pricing',*Journal of Business Ethics,* vol. 28, no. 4, pp. 365-382.

Nielsen, SB, Raimondos-Møller, P & Schjelderup, G 2001, *Formula apportionment and transfer pricing under oligopolistic competition*, Norwegian School of Economics and Business Administration, Department of Economics, University of Bergen, Bergen.

Nielsen, S. B., Raimondos-Moller, P. & Schjelderup, G., 2003. Formula Apportionment and Transfer Pricing Under Oligopolistic Competition. *Journal of Public Economic Theory*, 5(2), p. 419-437.

Oyelere, PB & Emmanuel, CR 1998, 'International transfer pricing and income shifting: Evidence from the UK',*European Accounting Review*, vol. 7, no. 4, pp. 623-635.

Plasschaert, S. R. F. & Dunning, J. H., 1994. *Transational Corporations*. London: Routledge.

Reuters, 2008. [online]. Available from: http://www.reuters.com/finance/stocks [accessed July 24, 2008].

Riahi-Belkaoui, A., 2001. *Advanced Management Accounting*. Chicago: Greenwood Publishing Group, 2001.

Saudi Arabia Country Watch, 2002. Taxation, 57.

Saudi Stock Exchange, 2008. [online]. Available from: www.tadawul.com.sa [accessed July 24 2008].
Silva, EA 1999, 'Transfer pricing under gross profit methods adjustment for functions performed', *Global Transfer Pricing*, Aug-Sept, pp. 33-39.
Smullen, J., 2001. *Transfer Pricing for Financial Institutions*. London: Woodhead Publishing.