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   STATEMENT OF THE PROBLEM

   OBJECTIVES

   HYPOTHESES

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- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

THE EFFECT OF CAPITAL STRUCTURE ON PROFITABILITY: EVIDENCE FROM THE PETROCHEMICAL COMPANIES IN THE KINGDOM OF SAUDI ARABIA

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ABSTRACT
The study aims at exploring the relationship between the capital structure and the profitability (measured by ROI, ROE and NPR) of the petrochemical industry firms in the Kingdom of Saudi Arabia, and the direction of this relation for the targeted firms during the period 2008-2011. The researchers used the simple regression model to estimate the relationship between the independent variable (Debt Ratio) and the measures of the dependent variable (Profitability ratios), this was done by using the Cross Section – Time Series (Panel Data) since it is appropriate for the nature of data (group of firms for a multiple years). The results revealed that there's no significant relationship between capital structure and ROI and ROE, while it showed very week relationship with NPM. This means that the profitability performance of the petrochemical industry firms in KSA is not relevant to capital structure, and there're other factors that affect the profitability of these firms.

JEL CLASSIFICATION
G320

KEYWORDS
Capital Structure, Petrochemical Industries, Profitability ratios, Saudi Arabia.

1. INTRODUCTION
Profitability is the economical justification of the existence and sustainability of any business firm; it is also an important indicator to evaluate it. The overwhelming literature in finance agree that wealth maximization as represented in the market value of the stock is the main objective that the management should strive to achieve (Besley & Brigham, 2008, P13).Hence, the decisions of fund raising and capital allocation should be taken accordingly .

Diversification of funding between internal and external sources is considered one of the main financial decisions with a direct impact on the firms' performance (Zeitun and Tian, 2007), this is called the Financial Structure or Capital Structure, and it's represented by the debt ratio.

The capital structure affects the earnings of the firms; it also affects the risks related to liquidity or debit repayment, this affection belongs to the possibility of using from the benefits of financial leverage by trading on equity or benefiting from tax exemption. On the other hand, depending on debt increases the cost of debt service and the risk of the company.

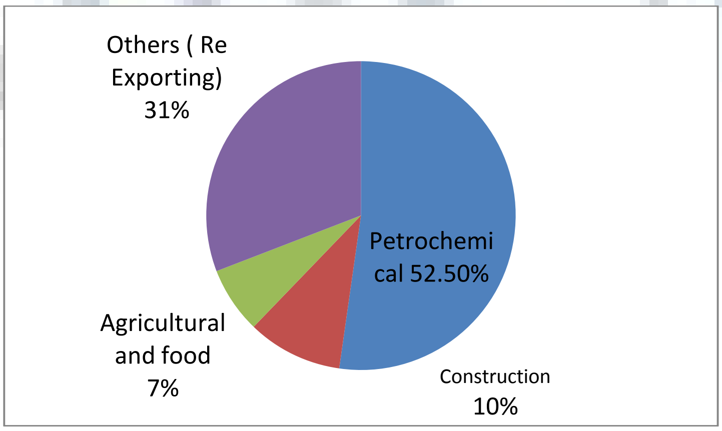
It is well known that in a leverage regression, profits are negatively related to leverage. The literature (e.g., Myers, 1993; Fama and French, 2002) considers this to be a key rejection of the static trade-off theory.

Capital structure has attracted intense debate and scholarly attention across industries in the corporate finance literature over the past decades. Nonetheless, in the context of the basic industries like the petrochemicals in the developing countries, the subject has received a limited research attention.

WHY PICs IN KSA?
The Kingdom of Saudi Arabia (KSA) occupies a strategic geographical location in the middle of the world, it plays a key role in the power industry as the first global oil producer. KSA comes in the 24th rank in the Gross national Production (GNP) worldwide (Arab Industrial Report 2009-2010, p 90). This has participated significantly in developing the petrochemical industries in this country.

The industrial sector in general and especially the petrochemical industry are considered the main levers for the GNP in this country. The Kingdom possesses 7% of the global petrochemical production and 70% of the production of the Gulf Cooperation Council (GCC) (Arab Industrial Report 2009-2010, pp 91-92). The petrochemical exports were 52% of the Saudi non-oil exports in 2008 (SAMA annual report, 2008).

STRUCTURE OF THE KSA NON OIL EXPORTS – 2008



The petrochemical industry companies play an important role in the Saudi bourse, it' has a portion of 34.63 % of the market capitalization as the 1st quarterly report of the Saudi financial market (TADAWUL) revealed in 2012. The value of the traded stocks of the industry was about 30% out of the total value of all the stocks in 2011.

The current study is devoted to show how the earning performance of the Petrochemical Industry Companies (PIC) will be affected by its capital structure. This will be done by studying the effect of debt ratio on the main profitability ratios, i.e. Return On Investment (ROI) [(1)], Return On Equity (ROE) and Net Profit Rate (NPR).

2. LITERATURE REVIEW

The current study reviewed a lot of recent studies that cover different industry sectors in different company sizes worldwide, the relationship between capital structure and profitability was found affected by this diversification, given the fact that different data methods of processing the data were used.

(Kebewar and Shah, 2012) One of the earliest and important studies about the relationship between capital structure and profitability is that done by Modigliani & Miller (1958). The study affirmed that, in treating of perfect markets; the capital structure doesn't have influence on the market value of the company, which will be settled by the composition of its assets.

(Niresh, 2012) The study aims to provide new empirical evidence on the impact of debt on corporate profitability. This impact can be explained by three essential theories: signaling theory, tax theory and the agency cost theory. Using panel data sample of 2240 French non listed companies of service sector during 1999-2006. By utilizing generalized method of moments (GMM) econometric technique on three measures of profitability ratio (PROF1, PROF2 and ROA), we show that debt ratio has no effect on corporate profitability, regardless the size of the company (VSEs, SMEs or LEs).

(Ferati, 2012) This study examined the impact of capital structure on profitability in Srilankan banks. The study covered 10 listed banks over the period of 2002 - 2009.

Regression analysis was carried out to test the impact of capital structure on profitability. Here , capital structure is the independent variable and profitability is the dependent variable., profitability is measured with the help of four ratios namely Net profit, Return on Capital Employed, Return on Equity and Net Interest Margin. Capital structure is measured through Debt/Equity ratio and Debt to total funds ratio.

The R^2 values were found to be significant for the impact of debt to total funds on net profit, debt/equity on net interest margin, and debt to total funds on net interest margin. But, no significant impact was found on the remaining dependent variables. Total debt has a major impact on net interest margin and net profit accounted for 77.3% and 50.5% respectively. The least significant impact was found on return on equity (R2 = 6%) by total debt. This reveals that remaining 94% is influenced by factors other than total debt. That means the other factors probably better predict the return on equity than total debt.

Derayat (2012) This study examines the influence of the capital structure of Macedonian companies regarding the profitability factor. The necessary data, which are used in this work are the financial reports provided by the 150 respective firms collected in the past ten years. The Ordinary Least Squares (OLS) method was employed in the estimation of a function relating the return on the equity (ROE) with the indexes of long and short-run debts, and also with the total of owner's equity. The results indicate that the return rates present a positive correlation with short-term debt and equity, and an inverse correlation with Long-term debt.

(Shubita and Alsawalhah, 2012) This study investigates the relationship between capital structure and profitability of accepted companies in Tehran stock exchange. In this study, the sample data collected from active companies in stock exchange between 2006 and 2010. According to the tests results, direct relationship between the variables explaining the type of capital structure was used in companies and return on assets ratio as an indicator for the company's profitability, has been confirmed. Moreover, the type of industry is significant in the presence or absence of the relationship between capital structure and profitability of companies. Therefore, implementing dummy variables technique and examining the model on each industry indicates that, the existence and extent of this relationship is different among different industries.

(Gill et al. 2011) This study seeks to extend Abor's (2005), and Gill, et al., (2011) findings regarding the effect of capital structure on profitability by examining the effect of capital structure on profitability of the industrial companies listed on Amman Stock Exchange during a six-year period (2004-2009). The problem statement to be analyzed in this study is: does capital structure affect the Industrial Jordanian companies? The study sample consists of 39 companies. Applying correlations and multiple regression analysis, the results significantly reveal negative relation between debt and profitability.

(San & Heng, 2011) This paper seeks to extend Abor's (2005) findings regarding the effect of capital structure on profitability by examining the effect of capital structure on profitability of the American service and manufacturing firms. A sample of 272 American firms listed on New York Stock Exchange for a period of 3 years from 2005 – 2007 was selected. The correlations and regression analyses were used to estimate the functions relating to profitability (measured by return on equity) with measures of capital structure. Empirical results show a positive relationship between i) short-term debt to total assets and profitability and ii) total debt to total assets and profitability in the service industry. The findings of this paper show a positive relationship between i) short-term debt to total assets and profitability, ii) long-term debt to total assets and profitability, and iii) total debt to total assets and profitability in the manufacturing industry.

(Birge &Xu, 2011) This paper investigates the relationship of capital structure and corporate performance of firm before and during crisis (2007). This study focuses on construction companies which are listed in Main Board of Bursa Malaysia from 2005 to 2008. The results show that there is a relationship between capital structure and corporate performance and there is no relationship between the variables investigated. The direction of the relationship between the variables of the study itself and the companies was different.

(Rafique, 2011) By studying the relationship between firm profitability, inventory volatility and capital structure, the researchers reviewed the traditional literature regarding the earning performance and the impact of capital structure on it. Empirical data, however, suggest that the relationship is not monotonic. They present an extension of a model of Xu and Birge (2004) that is consistent with these observations. The model assumes that firms make debt and production scale decisions that depend on fixed costs necessary to maintain operations, variable costs of production, and volatility in future demand forecasts. In regard to capital structure, the model predicts the convex relationship between profit margins and leverage, which was statistically significant.

(Nimalathasan and Brabete, 2010) This paper focuses on investigating the effect of the profitability of the firm and its financial leverage on the capital structure of the automobile sector companies in Pakistan.

By Estimating regression analysis and checking the relationship of the estimated model through Correlation Coefficient Test, it was found that the profitability of the firm and its financial leverage have an insignificant impact on the capital structure of the studied firms during the examined period. Hence, the study is unable to establish any significant relation between profitability and financial leverage effect on the capital structure of a firm.

(Murray, Vidhan, 2009) The study analyzes the capital structure and its impact on profit earning capacity during 5 financial years (2003 to 2007) of listed manufacturing companies in Sri Lanka. The results show that debt to equity ratio- (D/E) ratio - is positively and strongly associated to all profitability ratios-gross profit ratio (GPR) - operating profit ratio (OPR); and net profit ratio(NPR)] except return on capital employed (ROCE) and return on investment (ROI). Debt to assets (D/A) ratio is positively and strongly associated to OPR, NPR and ROCE. Similarly capital gearing (CG) ratio is also positively correlated to GPR and NPR.

(Zeitun, R. and Tian, 2007) According to this study, the literature has misinterpreted the evidence (which implies that profits are negatively related to leverage) as a result of the wide-spread use of familiar but empirically misleading leverage ratios. The study proved that a highly profitable firms typically issue debt and repurchase equity, while low profit firms typically reduce debt and issue equity. It also showed that firm- size matters. Large firms make more active use of debt, while small firms make more active use of equity. In a trade-off model, financing decisions depend on market conditions ('market timing') . Empirically, poor market conditions result in reduced use of external finance. The impact is particularly strong on small and low profit firms.

(Abdul Raheman, et al, 2007) The study investigated the effect of capital structure on corporate performance, the sample encapsulated 167 Jordanian companies during the period from 1989-2003. It showed that the capital structure have a significant negative impact on the performance measures, in both accounting and market performance measures. The ROE is the exception since it doesn't have any significant variable, the ROE, hence excluded from the analysis for that reason.

(Baum et al. 2006) Capital Structure refers to the various financing options of the assets by a firm. A business concern can go for different levels quality mixtures, debt and/or other financial facilities with equity having the emphasis on maximizing the firm's value. Capital Structure affects the liquidity and profitability of a firm. The researchers have tried to examine the effect of Capital Structure on the profitability of firms listed on Islamabad Stock Exchange. In this regard they have selected a sample of 94 non financial firms for a period of six years from 1999 – 2004. The data is collected from the financial statements (Annual Reports) of these 94 non financial firms. For analysis purpose, they have used Pearson's correlation, and regression analysis. Pooled ordinary least square model is used in the estimation of a function relating to the Net operating profitability with the independent variables including Debt Ratio, Long Term Debt to Liabilities, Equity to Liabilities and size of the Firm measured in terms of natural logarithm of sales. The results indicate that the capital structure of the non financial firms listed on Islamabad Stock Exchange has a significant effect on the profitability of these firms. If these firm want to increase their profitability, they will have to give due consideration to the financing mix, otherwise it may suffer from losses.

(Mesquita and Lara, (2003) The study focus is that there is strong effect of short term versus long term debt on profitability and accordingly the organization which prefers financing through long term debt has low profitability and alternatively . If a firm uses short term financing, it earns more profits. In this study they take data from 1988 to 2000 period and proved the hypothesis that the firms using short term financing are relatively more profitable than the firms using long term debt.

(Forsberg and Ghosh, 2006) The researchers have studied the relationship between capital structure and profitability of the Brazilian Firms. They are with the view that there is a difficult decision that whether company should use debt or equity and this decision become more difficult when a company is operating in an instable environment and this problem occur largely in Brazil. They have tried to examine the effects of debt or equity on profitability. Ordinary Least Square Method was used to examine the effect of short and long term financing on return on equity. They have concluded that in short run there is a positive relationship while in the long run there is inverse relationship between debt and profitability. On the other hand the market also interprets this as positive sign that a company is anticipating more returns so resultantly the price of the share goes up. Because if a firm need resources in short term than it tries to take loan and has no intention to raise equity due to the cost of raising equity which is greater than the debt. But due to high interest rate in Brazil in long run debt becomes more costly as compared to the equity. Booth, Aivazian, Demirguc-kunt and Maksimovic, (2001) highlighted that Capital Structure in Developing Countries has assessed the portability of capital structure theories across the countries with different structures of institutions. After analyzing the firms of 10 countries they reveal that the same variables are pertinent in making decisions of capital structure across the countries irrespective of the fact that the countries have different structure of institutions and development stages. However, there are country work-factors which create differences in the outcomes of the decisions of capital structures of the firms. They conclude that some modern financial management theories of capital structure are portable across the countries but most of the things are to be done at local levels which are quite different due to the structure and country factors like growth rate, inflation, and others.

(AL A'āgha, 2005) In this study, the researchers found that NYSE and AMEX firms have somewhat different capital structures. NYSE firms generally use 5% to 8% more financing debt in their capital structures than AMEX Firms.

NYSE firms were found to exhibit a strong inverse relationship between firm profitability and the amount on debt in the firm's capital structure. No relationship was found between profitability and capital structure for AMEX firms.

Comparison of these results to similar calculations found in Fosberg and Ghosh (2005) for NASDAQ firms shows that, like AMEX firms,NASDAQ firms use less debt in their capital structures than NYSE firms and exhibit no relationship between profitability and capital structure.

(Nikolas, 2002) The study is devoted to investigate the relationship between Leverage and its cost with the ROI .The study sample involved 15 companies in Palestine from 1999-2003. It revealed that there's a significant inverse relationship between the cost of debt and the ROI. It also found that there's no significant relationship between the financial leverage and ROI.

In an attempt to test the relationship between the profitability and capital structure, the study used the NPM as a dependent variable, were the Debt to Equity, firm size and concentration ratio as an independent variables. The study covered multiple sectors during 1995-1996. The study revealed a negative relationship between the profitability and capital structure.

We will benefit in the current study from outcomes of the past studies to investigate the reasons behind changes in returns of PICs in KSA and the role of debt structure in this change. We will find out if the results of these studies are similar for the PICs listed in the Saudi bourse or not. Taking into consideration the different tax regulations, trying to use it in explaining the results. In addition to the fact that the study covered the period of global financial crisis.

3. IMPORTANCE OF THE STUDY

The importance of the study stems up in the first place from the importance of the petrochemical industries sector in the Saudi economy. It will test the relationship between the capital structure and earning performance of the PICs during the period of 2008-2012, in order to know if the capital structure for these companies has any effects on its earnings performance.

The current study is one of the few studies that explore the relationship between capital structure and profitability in the Arab region [(2)], and it is considered the first study in Saudi Arabia.

Beside, the study of the relationship between capital structure and profitability represents a core issue in the finance theory in general. The researchers hope that understanding this relation will produce a solid base to support and direct the capital structure decisions made by companies included in the study in particular, and other industrial firms in the KSA in general.

This study gains an additional importance since it covers the period of global financial crises 2008-2011 and its effects on the exports of the PICs during this crisis.

4. STATEMENT OF THE PROBLEM

The study problem is to find out whether there is a relationship between the structure of financing and profitability of petrochemical companies in Saudi Arabia. If yes, what is the direction (positive correlation or inverse) and what is the size (i.e., the impact on profitability decisions of the financing structure), and whether this relationship - if any – is statistically significant or not .This will be done by studying the relationship between the Debt Ratio as an independent variable and the ROE, ROI, and NPR as dependent variables.

5. OBJECTIVES OF THE STUDY

The study intended to achieve the following objectives:

- To investigate if there's a relationship between the capital structure and profitability of the PICs in KSA during the study period.
- To explore the direction of the relationship between the capital structure and profitability of the PICs in KSA.
- To provide the decision makers in the petrochemical industry in particular and the industrial companies in general in KSA by reliable and accurate results to make their financial decisions based on these results.
- To shed light on the effects of capital structure decisions on the financial management policies in this core production sector in the Saudi economy.

6. HYPOTHESES

Hypothesis 1

H_0: There is no significant relationship between the capital structure and ROA.

Hypothesis 2

H_0: There is no significant relationship between the capital structure and ROI.

Hypothesis 3:

H_0: There is no significant relationship between the capital structure and NPR.

STUDY VARIABLES

Independent Variable: The capital structure, represented by debt ratio.

Dependent variable: The profitability, represented by the ROA, ROI and NPR.

TABLE 1: PROXY VARIABLES DEFINITION AND PREDICTED RELATIONSHIP

Proxy variable	Definition	Predicted Sign
Debt Ratio [3]	Total debt divided by total assets	+/-
Return On Investment	Net income divided by total assets	+/-
Return On Equity	Net income divided by equity	+/-
Net Profit Margin	Net income divided by sales	+/-

7. RESEARCH METHODOLOGY

We used the statistical package EViews as considered the appropriate program for the nature of the data used in the study. We used the simple regression model to estimate the relationship between the independent variable estimation (Debt Ratio) with the estimates of the dependent variable (Profitability Ratios) through three different models. The Cross Section – Time Series were used because of its appropriateness to the nature of the study's data, which have been taken from multiple companies through multiple periods. Accordingly, the estimation model will be as follows:

$\mathbf{Y_{t,n} = c_t + \beta x_{t,n} + \varepsilon_{t,n}}$

We used Y as a representative of the dependent variable that takes one of the profitability measures (ROI, ROE, and NPR). On the right side; X denotes to the dependent variable (DR). The C is the constant of the equation, where β is the marginal slope of the dependent variable according to the change in the independent variable (DR). The time periods represented by the t (1-16), whereas n denotes to the number of companies (1-9). The **ε** is the estimation error of the model.

DATA DESCRIPTION

A sample represents 85% of the market value of the listed PICs in the Saudi capital market during the period 2008-2011•. The sample has been chosen according to the following criteria:

- The selected firm should have sales during the study period; i.e. it should be involved in the licensed economic activity and not depend on the other activities. This requirement is important as we noticed that some firms don't participate in the industry but generate income from other activities.
- The selected PIC should disclose its financial reports regularly.

Upon the above conditions, 5 Companies out of the 14 targeted companies were excluded. The excluded companies constitute 15% of the petrochemical industrial market value.

- The financial reporting of the selected PIC should be prepared according to the listed requirements of the Saudi stock market.
- No dealing –freezing should be imposed by the financial market authority on the selected company during the study period.

The following schedule summarizes ratio averages for the study variables during the study period.

TABLE 2: A QUARTERLY ACCUMULATED RATIO AVERAGE FOR THE PICS

Year	Quarter	DR	ROA	ROE	NPR
2008	Q1	***0.402***	***0.018***	***0.027***	***0.189***
	Q2	***0.409***	***0.024***	***0.036***	***0.217***
	Q3	***0.462***	***0.034***	***0.051***	***0.189***
	Q4	***0.482***	***0.006***	***0.001-***	***0.013-***
2009	Q1	***0.495***	***0.006***	***0.008***	***0.061***
	Q2	***0.502***	***0.007***	***0.008***	***0.1***
	Q3	***0.513***	***0.009***	***0.005***	***0.139***
	Q4	***0.52***	***0.009***	***0.012***	***0.11***
2010	Q1	***0.519***	***0.018***	***0.031***	***0.179***
	Q2	***0.403***	***0.019***	***0.035***	***0.226***
	Q3	***0.519***	***0.017***	***0.024***	***0.147***
	Q4	***0.497***	***0.022***	***0.034***	***0.171***
2011	Q1	***0.504***	***0.022***	***0.042***	***0.193***
	Q2	***0.497***	***0.022***	***0.032***	***1.499***
	Q3	***0.511***	***0.027***	***0.038***	***1.723***
	Q4	***0.487***	***0.021***	***0.03***	***1.448***

Table 2 represents the accumulated descriptive statistics for the study variables.

TABLE 3: DESCRIPTIVE STATISTICS

	N	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Std. Error
DR	16	.4826545	.04152478	-1.286	.564
ROA	16	.0176012	.00824084	.030	.564
ROE	16	.0257630	.01507816	-.381	.564
NPR	16	.4110417	.57410635	1.761	.564
Valid N (list wise)	16				

• It should be noted that the first declaration of the financial statements for the listed companies in the Saudi stock market is started in 2008.

Data in relevance to this study were obtained from the quarterly bulletin for the financial statements published by the Saudi Stock Exchange (TADAWUL) for the PICs during the period 2008-2011. The total observations (periods) were 16 quarter observations for the nine selected companies. As mentioned in a previous footnote, there're no observations before 2008.

8. RESULTS AND DISCUSSIONS

We analyzed the relationship between study variables by calculating their correlation coefficient, in addition to finding the coefficient of determination (**R^2**) for each one of the three estimated equations. The **R^2** measures the model's ability in explaining the changes in the dependent variables that resulted from the changes in the independent variable.

Using the Panel EGLS in estimating the study model requires a comparison between two models of estimation:

1- Fixed Effect Model (FEM): which deals with the cross panel and time effects as an intercepts (constantans) symbolize the single differences (single firm), this means that the model permits the availability of a "single" constants that differ from one company to another.

2- Random Effect Model (REM): This model deals with the sectional effects as a random parameters not fixed ones, with a zero median and identified variance; added as a random components in the random error margin of the model.

The comparison between the two mentioned models is done by using the Houseman Test which tests the null hypothesis H_0 which entails that the random effects are consistent (there's no fixed independent variable for each company of the study sample) against the alternative hypothesis H_1which says that the random effects are inconsistent (there's a fixed independent variable for each company of the study sample)

The Housman Test with used χ^2 distribution and K degree of freedom is used. Table (3) shows the estimation of Houseman Test for the three equations. According to the results in the table; we accept the null hypothesis which says that the random effects are consistent with a total equals zero, which –in turn- means that there's no independent constant for each single company. This leads us to use the random effect model to estimate the three equations.

TABLE 4

Suggested Model	Probability	H test	
REM	1	0	Mod1: ROA=f (DR)
REM	1	0	Mod2: ROE=f (DR)
REM	1	0	Mod3: NPR=f (DR)

Table (4) shows the results of estimation the three equations

TABLE 5: RESULTS FOR THE ANALYSIS OF MODEL ESTIMATION

	Variable	Coefficient	Std .Error	t-Statistic	Prob .	R-squared	S.E. of regression	F-statistic	Prob(F-statistic(
ROA	C	*0.023*	*0.007*	*3.46*	*0.0007****	*0.005*	*0.017*	*0.732*	*0.394*
	DR	*0.0124-*	*0.015*	*0.831-*	*0.407*				
ROE	C	*0.0172-*	*0.0139*	*1.24*	*0.22*	*0.008*	*0.035*	*1.0832*	*0.3*
	DR	*0.0319*	*0.0315*	*1.011*	*0.0314***				
NPR	C	*0.385*	*0.086*	*0.9552*	*0.3413*	*0.0676*	*0.216*	*10.3*	*0.0017****
	DR	*0.607 -*	*0.195*	*3.118-*	*0.002****				

****Significant at 0.05 level.** ***** Significant at 0.01 level. *Significant at 0.10 level** C: Constant

8.1 HYPOTHESES TESTING

8.1.1 TESTING THE FIRST HYPOTHESIS

The current hypothesis is devoted to find if there's any significant relationship between the capital structure and the ROA. The results in table 4 lead to accept the null hypothesis since there's no significant relationship between the two variables.

The results unveil that the coefficient of determination R^2 is very low; it's about 0.005, which means that the capital structure for the Saudi PICs explains not more than 0.005 of the changes in its ROA.

On the other hand; the F test shows that the R^2 not significant, hence; the functional relationship between the two variables is not real.

The other statistical tests confirm the previous findings, the T test for the significance of the parameter of the estimation of ROA regression on the DR very low (0.831) compared with different schedule values with different significant levels, which indicates that this function is insignificant, where the constant of the estimation equation significant at the level less than 0.01 (0.0007).

The above analysis discloses that there are factors other than the capital structure play the essential role in affecting the ROA, which reassure the acceptance of the null hypotheses.

8.1.2 SECOND HYPOTHESIS

The purpose of this hypothesis is to find out if there's a significant relationship between the capital structure of the Saudi PICs and the ROE.

The value of R2 as it seen from table 4 is very low (0.008), which means that the changes in the capital structure explains not more than 0.008 of the changes in the ROE. The F test value is not significant with a value of 1.08, which confirms the insignificance of the R^2. The T value supports the other findings by a value of 1.01 that implies the relationship between the two variables is not real. The result of the T test shows also that the estimation parameter of the ROE variable is not significant.

Hence, depending on the diagnostic statistical applied tests; we can't reject the null hypothesis which says that there's no significant relationship between capital structure and ROE.

8.1.3 THIRD HYPOTHESIS

The current hypothesis examines the availability of significant relationship between the capital structure and the NPR of the companies in the study sample.

The statistics in table 4 disclose about low R^2 with a value equals 0.07; it means that the changes in the capital structure of the Saudi PICs explain only 0.07 of the changes in the NPM of these companies. The value of the F statistic equals 10.3 with a significance level less than 0.01, this point out that the relationship between the two variables is true. The T test reveals that the estimator NPM is significant at the significance level of 0.01.

The above mentioned results confirm that the capital structure of the firms in the sample explains the NPM with a significant inverse relationship between the two variables. The results validates that an increase in the capital structure (measured by DR) by 0.01 will lead to a decrease in the NPM by 0.009 with a 0.99 probability.

In spite of the low value of R2 ; which reveals a very week relationship between DR and NPM, the strength of the statistical significance that prove the real functional relationship between the two variables lead us to reject the null hypothesis and accept the other one which states that there's a significant relationship between capital structure and NPM.

9. FINDINGS

As demonstrated by the hypotheses testing; there's no significant relationship between the capital structure and each of the ROA and the ROE, the relationship between the capital structure and NPM very week also. These findings confirm that the profitability performance of the Saudi PICs is not affected by its capital structure, there're other variables (beyond the scope of this study) that have the key effect on the PICs profitability.

The findings of the previous studies do not produce single trend regarding the relationship between capital structure and profitability (Birge**&** Xu 2011) and (Rafique, 2011). We find as reported by (Murray, 2009), that variables like firm size, the industry and the country play a crucial role in this differentiation in addition to the measures and time scope used in each one of these studies. Hence, the results of the study conform to some previous studies and contradict with others. It agrees in its main findings with (M&M, 1958) study about the absence of significant relationship between the debt and profits in case of tax absence, this is relevant to the situation in KSA, especially when considering the fact that the income tax effect is not materialistic as the situation in the other countries. The study findings support also the results of other studies that there's no significant relationship between the financial leverage and ROI (Aagha, 2005) .

On the other hand, the study reveals the opposite to what other studies reached in regard to the relationship between the capital structure and profitability measured by ROA and ROE (Heng & San, 2011) , (Zeitun, R. and Tian, 2007) and (Nimalathasan and Brabete, 2010), which proved strong and significant relationship between debt ratio and profitability. A comparison study between the debt ratio and profitability in the NYSE and AMEX proved a strong negative relationship in the NYSE listed firms (Fosberg and Ghosh, 2006). The same study finds that no such relationship in the AMEX listed firms does exist, this agrees with the result of a previous study which concluded the same results for the NYSE companies (Nikolas, 2002), these findings agree with the current study's results.

10. RECOMMENDATIONS

- The management of the petrochemical industry firms should search for another strategies and financing policies instead of capital structure policy to improve their profitability.
- The Saudi capital market should be more developed and diversified to offer more financing options for the PIC firms in particular and other companies to manage their liabilities more efficiently.

11. CONCLUSION

In this study, we investigate the relationship between capital structure and the profitability of the petrochemical industry firms in the Kingdom of Saudi Arabia, and the direction of this relation for the targeted firms during the period 2008-2011.

We hypothesized that firms' profitability***)*** measured by ROI, ROE and NPR ***(***have a significant relationship with the capital structure (Measured by Debt Ratio).

We used the simple regression model to estimate the relationship between the independent variable (Debt Ratio) and the measures of the dependent variable (Profitability ratios), this was done by using the Cross Section – Time Series (Panel Data) since it is appropriate for the nature of data (group of firms for a multiple years The results revealed that there's no significant relationship between capital structure and ROI and ROE, while it showed very week relationship with NPM. This means that the profitability performance of the petrochemical industry firms in KSA is not relevant to capital structure, and there're other factors that affect the profitability of these firms.

12. LIMITATIONS

This study is limited to the sample of a petrochemical industry firms in Saudi Arabia. Beside, the period covered in the study limited for four years because the earliest time for publishing the public accounting information by the Saudi capital Market started in 2008.

13. FUTURE RESEARCH

Future research should investigate generalizations of the findings beyond the companies in the study, the research still open for studying the capital structure decisions for other kinds of companies in Saudi Arabia and other countries on a comparison basis.

NOTES

1. We assumed that all the assets are invested, hence; the calculated ROI will equal Net Income divided by Total Assets.
2. Zeitun & Tian, 2007.
3. The Debt Ratio has been used to represent the capital structure, that conformed to many previous studies like (Murray, Vidhan, 2009, P 24), (De Jong et al, 2008, pp 1954-1969.

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