Do economic enterprises follows financial behavior compatible with hierarchical finance theory?an empirical study during the period 2012-2016

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Abstract :

The purpose of the study is to test the extent to which hierarchical finance theory is applied in the kuwaiti companies during the period 2012-2016, using the standard method through panel data. We used two models, the first represent the relationship between growth of assets and size of retained earnings, the second represent the relationship between growth of assets and debts. the study found that kuwaiti companies depend on 71% of retained earnings to finance growth of its assets, and depend on debt 45%. This financing behavior compatible with theory.

résumé

Le but de l'etude est de tester dans quelle mesure la theorie de la finance hierarchique est appliquee dans les entreprises kuwaitienne de la periode 2012-2016. En utilisant l'approche standard a travers des donnees panel. Nous avons utilise deux modeles, le premier represente la relation entre la croissance des actifs et des benefices non distribues, le dexieme represente la relation entre la croissance des actifs et les dettes. l'etude a conclu les entreprises dependent 71% des benefices non distribues pour financer la croissance des actifs, et le dette 45%. Ce comportement coherent avec la theorie.

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1- The introduction

The financial sources are considered basic in continuation and development of company through use these sources to finance its investment activities and increase its production capacity, thus achieving growth rates ensure their survival and increase their market value. The company get of its necessary financial sources to cover their needs in different sources, the company has gone to use its own resources are mainly represented in retained earnings, also they can access these resource to external sources either of debt form or through issuance of equity(shares). The problem not lie lack the financial resources, but in the many restrictions on this process and intertwining of goals especially the rentability, financial independence, financial equilibrium and activity growth.

The process of financial structure choice for company devoted to a many of factors and variables including cost and risks, the one of the most controversial debates in the field of financial management is affect the financial structure or affect the debt on market value of company, the many theories addressed the effect of financial structure on capital cost and value of company. One of the most important theory examined the relationship between financial structure and capital cost and value of company: the theory of Miller and Modigliani(1958s) which dealt the subject of capital structure in a fine scientific unlike to previous jurisprudence it was about hypotheses to investor behavior without going up to theories explains the optimal of financial structure, this theory was the starting point for other theories about capital structure, Miller and Modigliani was issued in 1963s the second theory explained the optimal financial structure by entering the taxes on companies.

In order to explain the financial behavior for companies it appeared in the mid 1980s another theory of modern theories known as "hierarchical finance theory", it is the latest models which explain financial structure behavior, where he founded both Myers and Majlouf (1984s) as well as Williamson (1988s) and after him Myers (1990s) a new trend in contemporary research on the question of financial structures, where it has been taken into account the conflicts of interests and asymmetry information between managers and owners and lenders. The many studies have tried to prove this theory in practice and its suitability for economic companies.

According the previous we can ask the principle question follow:
Does applicable the hierarchical finance theory with the reality and specifics of finance in industrial companies listed in Kuwait stock exchange?

Depending on above question, we ask the following sub-questions :
- what means the concept of hierarchical finance theory, and what is the main its hypotheses ?

- how the hierarchy financing depend by economic enterprises to finance its investments through hierarchical finance theory ?

►**Hypotheses of study**

H_{10}: there is not statistically significant impact of the growth in assets or investments on retained earnings in industrial companies listed in Kuwait stock exchange.

H_{11}: there is statistically significant impact of the growth in assets or investments on retained earnings in industrial companies listed in Kuwait stock exchange.

H_{20}: there is not statistically significant impact of the growth in assets or investments on size of debt in industrial companies listed in Kuwait stock exchange.

H_{21}: there is statistically significant impact of the growth in assets or investments on size of debt in industrial companies listed in Kuwait stock exchange.

►**Goals of study**

This study aims at analyzing and clarifying the following points:

- know the content of hierarchical finance theory as one modern theories which explain the financing behavior for companies;

- explain the relationship between the growth in assets or investments and retained earnings because this last uses to finance the increasing in the growth in assets or investments;

- explain the relationship between the growth in assets or investments and the size of debt because this last uses to finance the increasing in the growth in assets or investments in case of insufficient the internal finance;

- an attempt to test the hierarchical finance theory to explain the financial behavior in economic companies.

►**Importance study**

The importance of this study lies in testing the extent to which economic enterprises depend on the theory of hierarchical financing in the practical reality of economic enterprises, given that this theory is considered one of the most important modern theories that explain the financing behavior of enterprises.

1-1- Previous studies

Study of oscar Domenichelli entitled: the pecking order theory in the reality of small and medium enterprises, the study aimed at discussing the main factors that drive small and medium enterprises in Italy to follow the approach of hierarchical finance theory. The study found that the financing options for small and medium enterprises clearly follow the hierarchical finance theory for three reasons: first, small and medium enterprises suffer from the problem of the financing gap, which prevents them from obtaining

capital or capital at a low cost, as well as awareness of all possibilities and aspects of external financing, thus the main source of long-term financing is resorted to, represented in retained earnings, and if necessary, bank loans are resorted to, this is similar to the characteristics of the hierarchical finance theory. Second, the symmetry of interests between existing shareholders and their managers who are often the same people and the large asymmetry of informations between stakeholders in enterprise and foreigners supports the traditional hierarchy for hierarchical finance theory in small and medium enterprises. Third, a strong refusal to abdicate even partially of control by existing shareholders may determine the following financing for SMEs in general: internal financing, the external loans from traditional lenders, then external loans from non- traditional lenders. Moreover, the study concluded that some characteristics of Italian SMEs and their financial environment can influence on follow the hierarchical finance theory. (Oscar, 2008, pp. 61-71)

Study Agha Jahanzeb et al entitled: trade- off theory, pecking order theory, market timing theory, a comprehensive review for structure capital theories. The study examined the role of different capital structure theories in decision making relative debt preferences. The study included on the main works of Miller and Modigliani (1958) which was a new study of its kind in the field of capital structure. The purpose of this study is to analyze the three theories: trade-off theory, hierarchical finance theory and market timing theory. Literature clear that the two theories (trade-off and hierarchical finance theory) have always dominated on capital structure decisions, but last theoretical and empirical work shows that market timing theory has also challenged basic theories of capital structure, where managers are always keen to take of the advantages of market timing. (Agha, Khan S, Norkhairul, & Meisam, 2014, pp. 11-18)

Study of Soku Byoun entitled : the empirical analysis of dynamic capital structure ; a comparative between pecking order theory and trade-off theory. The Study searches the effects of hierarchical finance theory and trade-off theory in dynamic framework. While the results are in favor of the hierarchical finance theory, it found that companies with greater financial needs are linked to large debt ratio, this is corresponds with hierarchical finance theory because it expects companies to follow an hierarchy style with the additional financing needs, which means that companies are likely to have a wide range of debt ratio with variable financing needs. It also found that companies with a large debt ratio tend on average to have a smaller asset base and greater deviation in asset values compared to companies with a narrow debt ratio. This generally supports both the hierarchical finance theory and trade-off theory for dynamic capital structure, it seems that the two theories are complementary rather than competing. (Soku, 2002, pp. 127-136)

Study of Sreedhar T.Bharath et al entitled: does asymmetric informations drive capital structure decisions? This study aims to test whether asymmetry

information is an important determinant of capital structure decisions as suggested by the hierarchical finance theory for a sample of American companies during the period 1973-2002. The study found that informations asymmetry affects the capital structure decisions of the study sample companies. This result is a powerful to control for leverage factors (size, tangibility, profitability). Generally, this evidence explains why the hierarchical finance theory success only partially in explaining all capital structure decisions of companies. (Sreedhar T, Paolo, & Guojun, 2007, pp. 3211-3243)

Study of Ben Amor Atiyet entitled : the pecking order theory and static trade-off theory ; comparative the explanatory power in French companies. The aim of this study is to reconsider the theory of capital structure and to compare the explanatory power of the hierarchical finance theory and the static trade-off theory using a sample of French companies listed in financial market during the period 1999-2005. The result of study shows that the estimation of both empirical models to explain the financial structure favors the hierarchical finance theory in French companies. This result can be explained through existing the asymmetric informations involves inverse selection problems, while the static trade- off theory is not suitable for explaining the issuance of new debt by companies French. The evidences the hierarchical finance theory proposals indicate that the internal financing deficit is the most important factor that can explain the trend towards new debt issuance. (Ben Amor, 2012, pp. 1-14)

Study of Johanna Labba and Evelina Ostholm entitled: testing pecking order theory and trade-off theory in Canadian mining and software industries. This study aims to test the two main capital structure theories: hierarchical finance theory and trade- off theory in order to determine debt ratio in mining and software industries in Canada. The result of the study indicate that there is weak reliance on the hierarchical finance theory, while the trade-off theory is more suitable for the software industries. (Johanna & Evelina, 2012)

Study of F.Reniers entitled: testing pecking order theory in technology companies, the study seeks to test the hierarchical finance theory on American high technology companies for the period 2007- 2017, the technology industry is known for its low debt to equity ratio. According hierarchical finance theory, these companies must have large amounts of internal resources represented in retained earnings, otherwise technology industries will resort to debt to meet the shortage of finance. The study found that the reliance on hierarchical finance theory in American technology companies is weak, especially for small companies. (Reniers, 2017, p. 01)

Study Shikh Jibran et al entitled: pecking order theory, empirical evidence from the reality of the Pakistan non financial sector. The study aims to test

the hierarchical finance theory for capital structure of companies listed in Pakistan stock exchange during the period 2001-2008. The results indicate that the companies listed in Pakistan stock exchange follow the weak style for hierarchical finance theory, which means the option of relying on internal equity (retained earnings) and debt is most preferred, and the companies use limited amount of external equity for reinvestment. (Shikh, Wajid, Waheed, & Muhammad T, 2012, pp. 86-95)

Study of Tommi Laisi entitled: the pecking order theory in a bank – centered lending environment; experiences from the economies of northern Europe. The aim of this study is to know the extent to which northern European companies follow hierarchical finance theory in their annual financing decisions. Using the sample data consists of all finnish, Swedish, Norwegian, Danish and Icelandic companies listed in stock exchange during the period 2005-2014. The results of the study show that northern European companies in generally follow the hierarchical finance theory in their annual financing decisions. (Tommi, 2016, p. 07)

Study of Sabiha Kacem Hachem entitled: the new financial structure theories; empirical application on pecking order theory. The research aims to identify the most important modern theories of the financial structure and focus on the hierarchical finance theory through two stages: the stage of growth and the stage of maturity. The research concluded that there are a number of factors that affect the financing behavior which follow by companies; the most important of these factors is the retained earnings. The research also concluded that companies follow a financing behavior which is consistent with hierarchical finance theory, i.e the companies depend on internal resources and then debt and external shares as a last resort. (Hachem Sabrina, 2015, p. 26)

The study of Peter Hogfeldt and Andris Oborenko entitled:" Does market timing or pecking order theory determine capital structure ?" the research aims to explore the idea that a company financing behavior depends crucially on how its ownership structure affect the cost differential between internal and external equity. If ownership is dispersed, the cost differential is relatively small. By issuing public offers when market to book values are high, incumbent shareholders benefit if equity is mispriced. The market timing theory predicts that company lower leverage is mainly the cumulative result of successful market timing. But if ownership is separated from control, agency costs due to widespread use of dual –class shares drive a wedge between the costs of internal and external equity as new external shareholders demand compensation. This generate on enhanced pecking order new equity is issued only when internal financing and debt are insufficient to finance the investments while public offers are not used since compensating transfers from incumbent to external shareholders needed. The main result of the study the behavior of US IPO companies are consistent with the market timing

theory, while the enhanced hierarchical finance theory best explains how Swedish IPO companies behave and why market timing is not important. (Hogfeldt & Oborenko, 2005, pp. 1-25)

1-2- Theoretical Framework

The financial structure is the combination of the financing sources chosen by enterprises to cover its investments. The enterprise chooses its financial structure in light of many considerations. (Ben Younes, Bechichi, & Mjalakh, 2021, p. 190) . Many theory addressed the financial structure of enterprise such as Myers (1984) peresented the hierarchical finance theory, and Ross (1976) presented the arbitrage pricing theory (Gharbi & Badrouni, 2020, p. 20). We focus in our study on hierarchical finance theory.

1-2-1- The hierarchical finance theory concept

The hierarchical finance theory came from study of Donaldson in 1961about financing behaviors of a simple large companies, he indicated that management makes extensive use of internal financing sources with no recourse to external sources unless internal sources are insufficient, and then the company needs to the external sources. This theory assumes that the company when searching for financing its investments prefers to use different sources of financing, and it prefers in the first place the internal financing sources represented in retained earnings, and if internal sources insufficiency the company resorts to the external sources represented in debts and its issuance of ordinary shares as a last resort when it becomes unable to absorb new debts. (Hachem Sabrina, 2015, p. 28)

The hierarchical finance theory is taken from the works of Myers (1984) and Myers and Majluf (1984) where they assumed that there are three sources of finance available represented especially: retained earnings, debts and equity. The retained earning not includes adverse selection problem, but the equity is subject to serious adverse selection problems, while debts involves little adverse selection problem. From this perspective, retained earnings are a better source of financing, and debts are a better source of financing than equity. Accordingly, the company finances all its investments using retained earnings, and if the amounts of retained earnings are insufficient, the financing will be done with debts, and therefore the company does not resort to equity financing in its operations accept in the case of insufficient issued debts. (Murray Z & Vithan K, 2003, p. 220)

1-2-2- The assumptions of hierarchical finance theory

The basic assumptions of hierarchical finance theory proposed by Myers and Majluf (1984) and extended by some researchers as follows: (Abosed & Adebiyi, 2012, p. 35)

- new shares must be issued to outsiders, the assumption means that the issuance is made directly to outsiders or that if a rights issue is used, the existing shareholders sell their rights;
- Even in the case of using the issued rights, the company bears costs that do not enjoy the same treatment as the of the debts issued. By the same token, equity is subject to a lower valuation than debts;
- Managers know more information about a true value of current assets of company than owners or shareholders (asymmetric information);
- Managers know more informations about true value of a potential investments project for company.

1-2-3- The pecking order financing hierarchy

According to the hierarchical finance theory the companies follows the hierarchy of financing as follows: (Abosed & Adebiyi, 2012, p. 36)
- Internal financing is preferred for investment opportunities, partly because of the avoidance of external scrutiny of capital suppliers; also there is no floatation costs associated with the use of retained earnings. In this case, the target dividend payout ratio is determined by ensuring a certain level of retained earnings to cover long-run investment opportunities;
- when the cash flows are not sufficient to finance all the desired investment opportunities, external financing must be resorted to, and here direct debt is preferred, debt has less intervention in management by capital suppliers, and debts costs are lower than other types of external of financing, also asymmetric informations and financial considerations, for example investors consider debts financing as good news;
-After this hierarchy, company is financing by preferred shares, which contain some advantages of debts;
- When the financial resources from the previous financing sources are insufficient, ordinary shares are issued as a last resort. (Khaouani & Chaib, 2017, p. 71)

Van Horne (1998) sees that companies management benefits from hierarchical financing in finance their investment because this method provides of management the following advantages: (Abosed & Adebiyi, 2012, p. 36)
- using retained earnings in first makes management to avoidance scrutiny from both capital suppliers and floating costs;
- the use of debts ensure that there is less intervention in management by creditors, and the cost of debts are lower than other types of external financing;
- playing on asymmetric information and signaling effects, investors consider debts financing as good news about the company positioning.christozov (2006) pointed out that information asymmetry occurs when one party to a transaction has more and better information than the other parties. (Amamra & Hakmi, 2017, p. 104)

- Issuance of debts indicates that the company management believes that the shares are undervalued, and the debts are valued either at a higher value.

2- Research Methods, tools and measures

We analyze in this part the population and period of study then the variables of study as well as the tools of data collection.

2-1- Sample and period of study

The sample of study is determined by industrial companies listed in Kuwait stock exchange during the period 2012 to 2016, the number of 28 companies but we excluding fourth companies because their data are not available during the period of study. Also, there are two enterprises that only have data for three years, so the total panel views=116 .The main reasons for choosing these companies as a study sample is the strength of their financial situations, it is also a companies not newly established which means the possibility follow the extent of applicability the principles of hierarchical finance theory to explain their financing behavior.

2-2-Variables of study

According the principles of hierarchical finance theory in the field of finance which provides the companies depends mainly on its internal financial resources, in case insufficient this last the companies uses the debt then they uses the external equity as a last resort. Thus we analyze the relationship between the growth of assets or investments as a independent variable and the size of retained earnings as a dependent variable. On the other hand we analyze the relationship between the growth of assets or investments as a independent variable and the size of debt as a dependent variable to find out the extent to which the companies depending on debt to finance the growth of assets or investments in case of insufficient the retained earnings to finance the growth of assets or investments.

2-3- Tools of data collection and its analysis

The study based on secondary source represented of books, studies and researchs which are related to the subject of study for representing the theoretical framework. But the primary information related applied side collected from industrial companies guide issued by Kuwait stock exchange and other reports from website Kuwait stock exchange. We used panel data and eviews 10 to extract regression coefficients for independent variable (growth of assets or investments) and extract coefficient of determination (R^2) and then interpret the data and take an appropriate decision to accept or reject the hypotheses.

2-4- Study Model

Given the content of the hierarchical finance theory, the companies relies mainly on internal resources represented in retained earnings in order to finance the increase in assets or investments, if internal resources are

insufficient, they will be resort to external resources represented in debts in order to finance the increase in investments, and issuing shares is used only as a last resort. Accordingly, the study includes two models:

The first model: the relationship between growth of assets or investments and retained earnings

This model include dependent variable represented in size of retained earnings and independent variable represented in growth of assets or investments, in addition to the inclusion of other controlled variables. This model can be displayed according to the following equation:

$$\textbf{Log RE} = \alpha_i + B_{it}\,\textbf{G.Assets} + B_{it}\,\text{LogDebts} + B_{it}\,\text{ROE} + \varepsilon_i$$

Whereas:

RE: retained earnings is the dependent variable

G. assets: growth of assets or investments

Debts: the size of debts

ROE: return on equity

ε_i: random variable

The second model: the relationship between growth of assets or investments and size of debts

This model include on dependent variable represented in size of dept and independent variable represented in growth of assets or investments, in addition to the other controlled variable, the second model of study can be displayed according the following equation :

$$\textbf{Log Debts} = \alpha_i + B_{it}\,\textbf{G.Assets} + B_{it}\,\text{Log RE} + B_{it}\,\text{ROE} + \varepsilon_i$$

Whereas:

Debts: size of debts is the dependent variable

Re: retained earnings

G.Assets: growth of assets or investments

ROE: return on equity

ε_i: random variable

3- Results and its Discussion

3-1- Estimate the panel models

In order to achieve the goal of the study, we use three panel models: the fixed effects model (FEM), the pooled regression model(PRM) and the random effects model(REM). Based on the eviews 10 program, we presented the following results:

3-1-1- Estimate the first model

The results of estimating the first model of the relationship between size of retained earnings and growth of assets or investments is shown in the following table:

Table No01 : results of estimate the panel models

Period=2012-2016	N=24	T=5	Total panel views=116

Explanatory variables	Pooled regression model (PRM)	Fixed Effects Model (FEM)	Random Effects Model(REM)
Constante	-5 ,615149	-3,821860	-4,250713
G.Assets	0,951931	0,702478	0,758448
Debts	-0,723456	-0,452141	-0,503033
ROE	0,005804	0,017630	0,015794
R-square	0,180744	0,787061	0,158213
Adjusted R-Square	0,158799	0,724854	0,135666
Prob (F- statistic)	0,000053	0,000000	0,000229
Durbin-Watson	0,480591	1,716610	0,442271

Source : eviews 10(appendice 01)

After estimating the three panel models represented in the fixed effects model(FEM) , the pooled regression model(PRM) and the random effect model(REM), in second stage, we compare these models to extract the appropriate model for the study using many test.

Fisher test:

This test is used to compare between the fixed effects model(FEM) and the pooled regression model(PRM). If the probability value is less than 5%, it is preferred to rely on the fixed effects model as a first stage, and if the opposite, the pooled model is preferred. looking at the table below, we note that the probabilistic value of fisher is estimated at 0,0000 , which is less than the level of significance 5% , thus the preferred model at this stage is the fixed effects model.

Table No 02 : Fisher test

Effects test	statistic	d.f	prob
Cross section F	11.018074	(23.89)	0.0000
Cross section chi-square	156.297142	23	0.0000

Source : eview 10(appendice 02)

Hausman test:

This test is used to compare between the fixed effects model on the one hand and the random effects model on the other hand. If the probability value is less than 5%, the fixed effects model is considered appropriate for the standard study, but if it is opposite, the random effects model is the appropriate. Through table N^0 03 below, we note that the probability value of hausman test is estimated at 0,0052, which is less than the level significance 5%. Therefore, the appropriate model for the study is the fixed effects model (FEM).

Table No 03 : Hausman test

Test summary	Chi-sq statistic	Chi-sq .d.f.	prob
Cross section random	14.790261	4	0.0052

Source : eviews 10(appendice03)

Estimate fixed effects model for the first model:

After performing both fisher test and hausman test , and ensure that the fixed effect model is the appropriate model for the standard study, we display the model through the following table.

Table No 04 : The fixed effects model for the first model

variables	coefficient	prob
C	-3,821860	0,0217
G .Assets	0,702478	0,0011
Debts	-0,452141	0,0342
ROE	0,017630	0,0713
R-Square	0,787061	
Adjusted R-Square	0,724854	
(F-statistic)	12,65228	
Prob (F-statistic)	0,000000	
Durbin-Watson	1,716610	

Source : eviews10 (appendice 01)

3-1-2- Estimate the second model

The second model represent of the relationship between the size of debts as dependent variable and growth of assets or investments as independent variable. The results of estimation model can be presented using the three panel models (FEM. PRM. REM) through following table:

Table No 05 : The results of estimating panel models for second econometric model

Period=2012-2016	N=24 T=5	Total panel views=116	
Explanatory variables	Pooled regression model (PRM)	Fixed Effects Model (FEM)	Random Effects Model(REM)
Constante	-2,247202	-2,946606	-2,718003
G.Assets	0,363967	0,454018	0,424265
RE	-0,108325	-0,109305	-0,110331
ROE	0,002035	-0,001730	-0,000834
R-square	0,176657	0,654484	0,194480
Adjusted R-Square	0,154603	0,553547	0,172903
Prob (F- statistic)	0,000070	0,000000	0,000021
Durbin-Watson	0,699808	1,691353	1,366732

Source : eviews 10(appendice 04)

After estimating the three panel models represented in the fixed effects model, the pooled regression model and the random effect model, in the second stage, we compare these models to extract the appropriate model for the study using a set of test.

Fisher test

The table N^006 below shows the results of fisher test to compare between the fixed effects model and the pooled regression model as a first stage for choosing the appropriate model for the standard study.

Table No 06 : Fisher test

Effects test	statistic	d.f	prob
Cross section F	5.351376	(23.89)	0.0000
Cross section chi-square	100.726861	23	0.0000

Source : eviews 10(appendice 05)

Through Table N^0 06 we noted that the probabilistic value of fisher is estimated at 0,0000, which is a value less than of the level of significance of 5%. So the fixed model is appropriate model at this stage.

Hausman test

To compare between the fixed effects model on the one hand and the random effects model hausman test is used. The table N[0] 07 below shows the results of this test.

Table No 07 : Hausman test

Test summary	Chi-sq statistic	Chi-sq .d.f.	prob
Cross section random	12.911012	4	0.0117

Source : eviews 10(appendice 06)

Through the table N[0] 07 the probabilistic value for hausman estimated at 0,0117, which is less than the level significance 5%, thus the fixed effects model also the appropriate model for standard study in second model.

Estimate the fixed effects model for the second model

After performing tests to compare between the panel models, it was confirmed that the fixed effects model is appropriate model in our study, the table N[0] 08 shows the results of fixed effects model for second model of study, which the size of debts is considered as a dependent variable and the growth of assets or investments as an independent variable.

Table No 08 : The fixed effects model for the second model

variables	coefficient	prob
C	-2,946606	0,0002
G .Assets	0,454018	0,0000
RE	-0,109305	0,0342
ROE	-0,001730	0,7213
R-Square	0,654484	
Adjusted R-Square	0,553547	
(F-statistic)	6,484075	
Prob (F-statistic)	0,000000	
Durbin-Watson	1,691353	

Source : eviews 10(appendice 04)

3-2- The statistical interpretation of fixed effects model results

Looking at the test of both fisher and hausman, it was found that the fixed effects model is the appropriate model for the standard study, the results of this model can be interpreted as follows:

3-2-1- Statistical significance test for estimated parameters

We noted from table N[0] 04 and table N[0] 08 above that the probabilistic value of the independent variable (G.Assets) is significant at level 5% , where the probabilistic value of the independent variable(G.Assets) in the first model is estimated at (prob=0,0011). In the second model, the probabilistic value of the independent variable (G.Assets) is estimated at (prob=0,0000). So it can be said that: the independent variable significantly affect on the size of retained earnings in first model and the size of debts in second model. Also for the control variables, it is noted that they are all significant at the level 5%. And significant at 10% in relation to the return on equity (ROE) in the first model (prob= 0,0713) and not significant in the second model.

3-2-2- Analyze R-Square

From table N^0 04 and table N^0 08, we note that the correlation coefficient in the first model is estimated at 0,787061meaning that 79% of the changes in the size of retained earnings are explained by the independent variable(G.Assets or investments) and the controlling variables represented in size of debts and return on equity. The correlation coefficient in the second model is estimated at 0,654484 i.e 65,44% of the changes in the size of debts explained through independent variable (G.Assets or investments) and the controlling variables represented in the size of retained earnings and return on equity.

3-2-3- Testing the models quality

Through table N^0 04 and table N^0 08, we note that the overall significance of the first model is estimated at Prob (F-statistic)= 0,0000 which is less than of significance level 5%, meaning that the estimated model is statistically significant. And for the second model the overall significance estimated at Prob (F-statistic)=0,0000 which is also less than the level of significance 5% , meaning that the estimated model is statistically significant. So both models are acceptable statistically.

On the other hand , the value of Durbin-Watson in the first model is estimated at : 1,716610 which is a value close to 2, meaning that no problem of autocorrelation between the residuals in the first model, and the same is true for the second model where the value of Durbin-Watson is estimated at : 1,691353 which is also a value close to 2, meaning that there is no autocorrelation problem between the residuals in the second model.

On the other hand, we note from table N^0 09 below that there is no autocorrelation problem between independent variable, the largest value did not exceed 32,5% which was between the size of debts and the growth of assets or investments. From table N^0 10, we also note that there is no autocorrelation problem between the independent variables in the second model, where the largest value of the correlation did not exceed 33,17% between retained earnings and growth of assets or investments. From the above it can be said that : both models are characterized by the quality.

Table No 09 : correlation matrix for the first model

correlation	RE	G.Assets	ROE	Debt
RE	1,000000			
G.Assets	0,331790	1,000000		
ROE	0,040806	0,027895	1,000000	
Debt	-0,140635	0,325487	0,035613	1,000000

Source: eviews 10

Table No 10 : correlation matrix for the second model

correlation	Debt	G.Assets	RE	ROE
Debt	1,000000			
G.Assets	0,325487	1,000000		
RE	-0,140635	0,331790	1,000000	

ROE	-0,035613	0,027895	0,040806	1,000000

Source : eviews 10

4- Test the hypotheses

4-1- Test the first hypothesis

The results obtained from estimating the fixed effects model through table N^0 04 indicate that the growth in assets or investments has a positive impact on the size of retained earnings, where the value of the effects is estimated at 0,702478 which means that the growth of assets or investments by 1% leads to an increase in retained earnings by 70,24% in order to finance the growth in assets or investments, and we noted that this effect is significant, where the probability value is estimated at : 0,0011which is less than the level of significance 5%, and this leads to acceptance the alternative hypothesis(H_1), and we reject the null hypothesis(H_0).

4-2- Test the second hypothesis

Through the results obtained from estimating the fixed effects model from table N^0 08, we note that the growth in assets or investments has a positive impact on the size of debts, where the value of the effect is estimated at : 0,454018, this means that the growth of assets or investments by 1% leads to an increase in the size of debts by 45% in order to finance the growth of assets, we noted that this effect is significant, where the probability value is estimated at : 0,0000 which is less than the level of significance 5% , meaning that the alternative hypothesis(H_1) is accepted and the null hypothesis (H_0) is rejected.

We noted that the impact of growth in assets or investments on the size of retained earnings is estimating at 70,24% which is much greater than the impact of growth in assets on debts, which is estimated at : 45%, and this means the companies listed in kuwait stock exchange relies heavily on retained earnings as a main source to financing the growth in its assets, while relying less on debts to finance the growth of its assets or investments, this consistent with the content of the hierarchical finance theory.

5- Conclusion:

The research in financial structures for companies is considered one of the most important fields that have taken the attention of financial management

thinkers through research the appropriate financial structure for companies, many financial theories have emerged which explain financing behavior for companies. The beginning of these theories was the theory of Miller and Modigliani (1958) as well as theory (1963) to follow for other theories such as: trade- off theory, agency theory, timing market theory and hierarchical finance theory. The last theory is considered one of the most important modern financial theories which has been developed for empirical testing to make sure of its realism and the extent of its appropriate for financing behavior at economic enterprises. This is our study testing the theory on industrial companies listed in Kuwait stock exchange. We have concluded the following results in this study:

- there is strong correlation between growth of assets or investments and size of retained earnings(71%) in industrial companies listed in Kuwait stock exchange, which means these companies depends heavily on internal resources(retained earnings) to finance the growth of assets or investments ;

- there is weak correlation between growth of assets or investments and size of debt(45%) in industrial companies listed in Kuwait stock exchange, which means these companies depends on retained earnings to finance the growth of assets with companies resorting to low debt in case insufficient the retained earnings ;

- The companies listed in Kuwait stock exchange follow on principles of hierarchical finance theory to explain their financing behavior.

- For the first model, 79% of change in retained earnings can be explained by the independent variables included in the model, which are growth of assets, the debts and the return on equity, this effect is significant(sig=0.000);

- For the second model, 65.44% of change in size of debts can be explained through growth of assets, retained earnings and return on equity(ROE), this effect is significant (sig=0.0000).

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7. Appendices

Appendice 01 : results of estimate the panel models for 1st model

```
Dependent Variable: RE
Method: Panel Least Squares
Date: 11/03/21   Time: 10:38
Sample: 2012 2016
Periods included: 5
Cross-sections included: 24
Total panel (unbalanced) observations: 116
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPT	-0.723456	0.234430	-3.086026	0.0026
G_ASETS	0.951931	0.204265	4.660277	0.0000
ROE	0.005804	0.012740	0.455528	0.6496
C	-5.615149	1.618786	-3.468740	0.0007

R-squared	0.180744	Mean dependent var		1.727984
Adjusted R-squared	0.158799	S.D. dependent var		1.652588
S.E. of regression	1.515704	Akaike info criterion		3.703511
Sum squared resid	257.3041	Schwarz criterion		3.798463
Log likelihood	-210.8037	Hannan-Quinn criter.		3.742056
F-statistic	8.236454	Durbin-Watson stat		0.480591
Prob(F-statistic)	0.000053			

```
Dependent Variable: RE
Method: Panel Least Squares
Date: 11/03/21   Time: 10:38
Sample: 2012 2016
Periods included: 5
Cross-sections included: 24
Total panel (unbalanced) observations: 116
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPT	-0.452141	0.210192	-2.151084	0.0342
G_ASETS	0.702478	0.207897	3.378972	0.0011
ROE	0.017630	0.009660	1.825135	0.0713
C	-3.821860	1.635670	-2.336572	0.0217

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.787061	Mean dependent var		1.727984
Adjusted R-squared	0.724854	S.D. dependent var		1.652588
S.E. of regression	0.866855	Akaike info criterion		2.752674
Sum squared resid	66.87797	Schwarz criterion		3.393596
Log likelihood	-132.6551	Hannan-Quinn criter.		3.012851
F-statistic	12.65228	Durbin-Watson stat		1.716610
Prob(F-statistic)	0.000000			

```
Dependent Variable: RE
Method: Panel EGLS (Cross-section random effects)
Date: 11/03/21   Time: 10:39
Sample: 2012 2016
Periods included: 5
Cross-sections included: 24
Total panel (unbalanced) observations: 116
Swamy and Arora estimator of component variances
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPT	-0.503033	0.198656	-2.532179	0.0127
G_ASETS	0.758448	0.192229	3.945552	0.0001
ROE	0.015794	0.009376	1.684610	0.0948
C	-4.250713	1.537263	-2.765117	0.0067

Effects Specification

			S.D.	Rho
Cross-section random			1.333900	0.7031
Idiosyncratic random			0.866855	0.2969

Weighted Statistics

R-squared	0.158213	Mean dependent var		0.484753
Adjusted R-squared	0.135666	S.D. dependent var		0.921223
S.E. of regression	0.856920	Sum squared resid		82.24296
F-statistic	7.016783	Durbin-Watson stat		1.408207
Prob(F-statistic)	0.000229			

Unweighted Statistics

R-squared	0.166223	Mean dependent var		1.727984
Sum squared resid	261.8645	Durbin-Watson stat		0.442271

Appendice 02 :Test Fisher for 1st model

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	11.018074	(23,89)	0.0000
Cross-section Chi-square	156.297142	23	0.0000

Appendice 03 : Test Hausman for 1st model

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.790261	4	0.0052

Appendice 04 : results of estimate the panel models for 2nd model

Dependent Variable: DEPT
Method: Panel Least Squares
Date: 11/03/21   Time: 10:26
Sample: 2012 2016
Periods included: 5
Cross-sections included: 24
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G_ASETS	0.363967	0.079222	4.594268	0.0000
ROE	0.002035	0.004931	0.412662	0.6806
RE	-0.108325	0.035102	-3.086026	0.0026
C	-2.247202	0.624045	-3.601028	0.0005

R-squared	0.176657	Mean dependent var	0.514250
Adjusted R-squared	0.154603	S.D. dependent var	0.637883
S.E. of regression	0.586505	Akaike info criterion	1.804603
Sum squared resid	38.52667	Schwarz criterion	1.899555
Log likelihood	-100.6670	Hannan-Quinn criter.	1.843148
F-statistic	8.010249	Durbin-Watson stat	0.699808
Prob(F-statistic)	0.000070		

Dependent Variable: DEPT
Method: Panel Least Squares
Date: 11/03/21   Time: 10:25
Sample: 2012 2016
Periods included: 5
Cross-sections included: 24
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G_ASETS	0.454018	0.097329	4.664749	0.0000
ROE	-0.001730	0.004834	-0.357810	0.7213
RE	-0.109305	0.050814	-2.151084	0.0342
C	-2.946606	0.767398	-3.839736	0.0002

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.654484	Mean dependent var	0.514250
Adjusted R-squared	0.553547	S.D. dependent var	0.637883
S.E. of regression	0.426215	Akaike info criterion	1.332820
Sum squared resid	16.16771	Schwarz criterion	1.973742
Log likelihood	-50.30355	Hannan-Quinn criter.	1.592998
F-statistic	6.484075	Durbin-Watson stat	1.691353
Prob(F-statistic)	0.000000		

```
Dependent Variable: DEPT
Method: Panel EGLS (Cross-section random effects)
Date: 11/03/21   Time: 10:28
Sample: 2012 2016
Periods included: 5
Cross-sections included: 24
Total panel (unbalanced) observations: 116
Swamy and Arora estimator of component variances
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G_ASETS	0.424265	0.085333	4.971885	0.0000
ROE	-0.000834	0.004516	-0.184559	0.8539
RE	-0.110331	0.041657	-2.648583	0.0092
C	-2.718003	0.677683	-4.010728	0.0001

Effects Specification		S.D.	Rho
Cross-section random		0.435343	0.5106
Idiosyncratic random		0.426215	0.4894

Weighted Statistics			
R-squared	0.194480	Mean dependent var	0.206255
Adjusted R-squared	0.172903	S.D. dependent var	0.462592
S.E. of regression	0.421433	Sum squared resid	19.89182
F-statistic	9.013512	Durbin-Watson stat	1.366732
Prob(F-statistic)	0.000021		

Unweighted Statistics			
R-squared	0.169635	Mean dependent var	0.514250
Sum squared resid	38.85524	Durbin-Watson stat	0.699694

Appendice 05 : Test Fisher for 2nd model

```
Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects
```

Effects Test	Statistic	d.f.	Prob.
Cross-section F	5.351376	(23,89)	0.0000
Cross-section Chi-square	100.726861	23	0.0000

Appendice 06 : Test Hausman for 2nd model

```
Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects
```

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.911012	4	0.0117