



“The effects of Capital structure on firm’s Profitability. (UK case, Retail sector)”

Programme: MBA in Finance and Banking

Academic Year: 2018-2019

Student: Mediana Hilaj- 1705337



**Master's Degrees by Examination and Dissertation
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1. This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed: Mediana Hilaj

Date: 28 February 2019

2. This dissertation is being submitted in partial fulfilment of the requirements for the degree of Master in Business Administration.

Signed Mediana Hilaj

Date : 28 February 2019

3. This dissertation is the result of my own independent work/investigation, except where otherwise stated.

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Signed candidate: Mediana Hilaj

Date: 28 February 2019

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Date: 28 February 2019

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CAIS AM GYMERADWYAETH MOESEGOL – Lefel MA

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Mae'r ffurflen hon i'w llenwi gan bob myfyriwr MA cynnal ymchwil, prosiectau neu gynyrchiadau. Dylai'r ffurflen hon gael ei chwblhau gan y myfyriwr mewn ymgynghoriad â thiwtor y modiwl. Rhaid i bob ffurflen gael ei ystyried gan y Pennaeth Ysgol/Cyfadrn / Gyfadrn. Rhaid i bob ffurflen gael ei gyflwyno i Fwrdd y Gyfadrn Moeseg. Bydd y ffurflen yn cael ei adrodd i'r Pwyllgor Moeseg y BrifYsgol/Cyfadrn os anarferol a / neu y tu allan arfer arferol.		This form is to be completed by all MA students conducting research, projects or productions. This form should be completed by the student in consultation with the module tutor. All forms must be considered by the Head of School/Faculty. All forms must be presented to the Faculty Ethics Board. The form is only to be reported to the University Ethics Committee if it is unusual and/or falls outside of normal practice.

ADRAN 1 – MANYLION MYFYRIWR

SECTION 1 - STUDENT DETAILS

Enw Llawn Full Name	Mediana Hilaj		
Ysgol/Cyfadrn/ Cy- fadrn School/Faculty	University of Wales, Trinity Saint David	Rhif Myfyriwr Student Number	1705337
Tiwtor y Modiwl/ Cydlynnydd Rhaglen Module Tutor/ Pro- gramme Co-ordinator	Jia Miao	Enw'r Gradd Name of De- gree	MBA in Finance and Banking
Teitl dangosol yr Traethawd Hir:		Indicative Title of Dissertation:	
Capital Structure effects on firm's profitability.(UK case, Retail sector)			

ADRAN 2 – GWEITHGAREDD YMCHWIL

SECTION 2 – RESEARCH ACTIVITY

Ydy'r prosiect yn cynnwys:	Does the project include:	Ydy / Yes	Nac
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			ydy/Na
Defnyddio holiadur neu offeryn ymchwil tebyg (atodwch gopi drafft)	Use of questionnaire or similar research instrument (attach draft copy)		+
Defnyddio prawf ysgrifenedig neu gyfrifiadurol	Use of written or computerised test		+
Cyfweliad (cysylltwch gwestiynau posibl)	Interview (attach provisional questions)		+
Dyddiaduron	Diaries		+
Arsylwi ar gyfranogwyr a hwythau'n ymwybodol o hynny	Participant observation with their knowledge		+
Arsylwi ar gyfranogwyr a hwythau ddim yn ymwybodol o hynny	Participant observation without their knowledge		+
Recordio fideo neu sain	Video or audio-taping		+
Mynediad i wybodaeth bersonol neu gyfrinachol heb gydsyniad penodol y cyfranogwyr	Access to personal or confidential information without the participants specific consent		+
Defnyddio unrhyw gwestiynau, ysgogiadau prawf, cyflwyniad y gallai rhai cyfranogwyr eu profi fel rhywbeth sy'n achosi niwed / tramgwydd corfforol, meddyliol neu emosiynol	Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive		+
Cyflawni unrhyw weithredoedd allai achosi embaras neu effeithio ar hunan-barch	Performance of any acts which may cause embarrassment or affect self-esteem		+
Ymchwilio i gyfranogwyr sy'n ymwneud â gweithgareddau anghyfreithlon	Investigation of participants involved in illegal activities		+
Gweithdrefnau lle defnyddir twyll	Procedures that involve deception		+
Gweini unrhyw sylwedd, cyfrwng neu blasebo	Administration of any substance, agent or placebo		+
Dull arall o gasglu data neu fformat cyflwyno (esboniwch)	Other method of data collection or presentation format (please explain)	+ Online data collections from companies websites and in London Stock Exchange website	

Os 'Na' wedi cael ei dicio ym mhob blwch, dylai'r ffurflen gael ei llofnodi gan Bennaeth yr

If 'No' has been ticked in each box, the form should be signed by the Head of School/Faculty/Faculty and

Ysgol/Cyfadrn / Gyfadrn a'r canlyniad a adroddwyd i'r Pwyllgor Moeseg ar ddiwedd y semester.

Os 'Ydw' wedi cael ei dicio mewn un neu fwy o'r blychau, rhaid i'r myfyriwr gwblhau'r ffurflen hon a'i chyflwyno i diwtor y modiwl. Rhaid i'r ffurflen wedyn yn cael ei ystyried yn y Bwrdd Moeseg Gyfadrn cyn dechrau ar unrhyw waith ymchwil.

the outcome reported to the Ethics Committee at the end of the semester.

If Yes has been ticked in one or more boxes, the student must complete this form and submit it to the module tutor. The form must then be considered at the Faculty Ethics Board prior to the start of any research.

Llofnodau

Os nad oes unrhyw faterion moesegol sylweddol, dylid ffurflen hon gael ei chwblhau a'i llofnodi gan y myfyriwr a'r goruchwyliwr ac yna llofnodi gan Bennaeht yr Ysgol/Cyfadrn.

Signatures Mediana Hilaj

If there are no significant ethical issues, this form should be completed and signed by both the student and the supervisor and then signed by the Head of School/Faculty.

N/A

Myfyriwr / Student

Mediana Hilaj

Dyddiad: / Date:

28 February 2019

Cydlynnydd y prosiect / Tiwtor

Project co-ordinator / Tutor

Arolygwr / Supervisor

Dyddiad: / Date:

Jia Miao

28 February 2019

Pennaeth Ysgol/Cyfadrn / Head of School/Faculty

Dyddiad: / Date

Dr. Audsin Dhas

28 February 2019

ADRAN 3 – MANYLION Y PROSIECT / YMCHWIL / CYNHYRCHIAD

SECTION 3 – PROJECT / RESEARCH / PRODUCTION DETAILS

1. **Braslun o'r prosiect**

Project outline

N/A

2. **Disgrifiad**

Rhowch fraslun cryno o'r prosiect, heb unrhyw jargon, ac yn cynnwys beth bydd angen i'r cyfranogwyr ei wneud. Esboniwch unrhyw dermau technegol neu derminoleg sy'n benodol i'r ddisgyblaeth (Uchafswm 300 o eiriau.)

Description

Provide a brief outline, free from jargon, of the project including what participants will be required to do. Explain any technical terms or discipline specific terminology (Max 300 words.)

N/A

3.	Dulliau Arfaethedig: Rhowch fraslun o'r dulliau casglu data neu o natur yr amser mewn ymarferiadau (hyd at 500 o eiriau).	Proposed Methods: Outline how the data will be collected or the nature of rehearsal time (up to 500 words).
----	---	---

The data will be collected from financial statements that companies included in the study have published in their online websites and in London Stock exchange website.

5.	Lledaenu Gwybodaeth / Cynulleidfa: Rhestrwch i bwy y rhoddir neu y dangosir copi o'r canlyniadau neu adroddiad / cyflwyniad terfynol.	Dissemination of Information / Audience: List to whom a copy of the results or final report presentation will be given or shown.
----	---	--

The presentation will be submitted to university website and will be accessed from the assessment office and the lecturers responsible for the dissertation assessment.

6.	Lleoliad y Prosiect: Nodwch bob lleoliad lle y cesglir data neu y cynhelir ymarferiadau / cynhyrchiad.	Location of Project: Identify all locations where data will be collected or rehearsals/ production will take place.
----	--	---

The main location that the data will be collected are companies websites and London Stock Exchange

7.	Cymeradwyaeth Arall: Oes angen cael cymeradwyaeth unrhyw sefydliad arall cyn cychwyn neu gwblhau'r prosiect? Os felly, gan bwy ac a ydy wedi'i sicrhau eisoes?	Other Approvals: Is there a requirement for approval from any other organisation / institution prior to starting or completing the project? If so, by whom and has it been obtained?
----	---	---

NO

ADRAN 4 – MANYLION CYFRANOGWYR / CYNULLEIDFA

SECTION 4 - PARTICIPANT / AUDIENCE DETAILS

Pwy yw'r cyfranogwyr arfaethedig?	Who are the intended participants?	Ydw / Yes	Na / No
Myfyrwyr / staff Y Drindod Dewi Sant	Students / staff of Trinity Saint David		+
Oedolion (dros oed 16 ac yn gymwys i gydlynio)	Adults (over the age of 16 and competent to give consent)		+

Plant a phobl ifanc dan oed	Children / legal minors		+
Cleifion neu gleientiaid gweithwyr proffesiynol	Patients or clients of professionals		+
Rhywun sy'n cael ei gadw yn y ddalfa neu y mae'r llys wedi cymryd cyfrifoldeb amdano	Anyone in custodial care or for whom the court has assumed responsibility		+
Aelod o unrhyw sefydliad lle mae'n bosibl bod angen i unigolyn arall hefyd gydsynio.	A member of any organisation where another individual may also need to give consent.		+
Eraill: Nodwch: / Others: please identify:			

Nifer, Oed a Ffynhonnell y Cyfranogwyr Rhowch fanylion yr demograffeg y cyfranogwyr / gynulleidfa.		Participant / Audience Number and Age Provide details of the demographics of the participants / audience.
Nifer o Gyfranogwyr / yn y Gynulleidfa	Participant/ Audience number	N/A
Grŵp oedran y Cyfranogwyr/y Gynulleidfa	Participant/ Audience age group	N/A

ADRAN 5 – RISGIAU YN PROSIECT

SECTION 5 – RISKS IN PROJECT

Bydd y diffyg ateb cadarnhaol i bob un o'r cwestiynau hyn yn arwain at y gofyniad eglurhad a gallai arwain at oedi yn eich ymchwil. Dim neu Dim NID yn dderbyniol.	A lack of a positive answer to all of these questions may result in the requirement of further explanation and a delay in your research. None or Nil is not acceptable.
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Risg Posibl: (corfforol, seicolegol, cyfreithiol, cymdeithasol neu economaidd)		Potential Risk: (physical, psychological, legal, social or economic)		
A oes unrhyw risg bosibl i:		Is there any potential risk to:	Ydw / Yes	Na / No
A	Cyfranogwyr?	Participants?		+
B	Ymchwilydd?	Researcher?		+
C	BrifYsgol/Cyfadrn?	University?		+

2	Rheoli Risg: Os oes, beth yw'r risg a sut y bydd yn cael ei reoli?	Management of Risk: If yes, what is the risk and how will it be managed?

N/A

3	Os ydych yn delio â phlant ac oedolion sy'n agored i niwed a ydych wedi gwneud cais am dystysgrif DRS?	If you are dealing with children and vulnerable adults have you applied for a DRS certificate?
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N/A

ADRAN 6 – MONITRO, ADBORTH A CHYFRINACHEDD

SECTION 6 - MONITORING, FEEDBACK AND CONFIDENTIALITY

1.	Monitro: Os ydych yn sylwi ar unrhyw ymddygiad sy'n groes Cod y BrifYsgol/Cyfadrn Ymarfer, unrhyw ganllawiau a gyhoeddir gan y gymdeithas broffesiynol priodol neu weithred anghyfreithlon. Amlinellwch eich strategaeth adrodd.	Monitoring: Should you observe any behaviour that contravenes the University's Code of Practice, and guidelines published by the appropriate professional association or is illegal outline the strategy of your reporting action.
----	--	--

No

		Ydw / Yes	Na / No
A wnewch chi roi gwybod am unrhyw ymddygiad sydd yn erbyn Cod Ymarfer y BrifYsgol/Cyfadrn neu sy'n anghyfreithlon?	Will you report any behaviour that is against the University's Code of Practice or is illegal?		+
A ydych yn darparu adborth i'r cyfranogwyr?	Will feedback be provided to participants?		+
A fyddwch yn dogfennu'r 'caniatâd i gymryd rhan yn y prosiect'	Will you be documenting the 'consent to participate in the project'		+

ADRAN 7 – STORIO, DIOGELWCH A MYNEDIAD I DDATA

SECTION 7 - DATA ACCESS, STORAGE AND SECURITY

		Ydw / Yes	Na / No
1.	Ydych chi'n gyfrifol am storio a diogelwch y data eu casglu?	+	
2.	Sut y bydd y data yn cael ei storio?		
In my PC	How will the data be stored?		

3.	Mynediad i Ddata: Pwy fydd yn cael mynediad at y data? A oes unrhyw amodau i gael mynediad?	Data Access: Who will have access to the data? Are there any conditions to access?
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N/A		
4.	Cyfrinachedd / Anhysbysrwydd: Rhestrwch y dulliau a fydd yn cael eu defnyddio i sicrhau cyfrinachedd ac anhysbysrwydd y cyfranogwyr.	Confidentiality / Anonymity: List the methods that will be used to ensure the confidentiality and anonymity of participants.
N/A		

ADRAN 7 – DATGANIAD

SECTION 7 - DECLARATION

Rhaid i'r adran hon gael ei chwblhau gan bob parti perthnasol cyn y gellir cyflwyno'r cais i'r Bwrdd Moeseg Gyfadran.		This section must be completed by all concerned parties before it can be submitted to the Faculty Ethics Board.	
Datganiad Mae'r wybodaeth a gynhwysir yma yn gywir, hyd eithaf fy ngwybodaeth a'm cred. Rwyf wedi ceisio dynodi unrhyw risgiau a phroblemau sy'n gysylltiedig â'r prosiect / ymchwil neu gynhyrchiad ac rwyf yn cydnabod f'ymrwymadau innau a hawliau'r cyfranogwyr.		Declaration The information contained herein is, to the best of my knowledge and belief, accurate. I have attempted to identify any risks and issues related to the project/research or production and acknowledge my obligations and the rights of the participants.	
Llofnodau Dylai'r ffurflen hon gael ei chwblhau a'i llofnodi gan y myfyriwr a'r goruchwyliwr lofnodi ac yna gan Ben-naeth yr Ysgol/Cyfadrn/		Signatures This form should be completed and signed by both the student and the supervisor and then signed by the Head of School/Faculty	
Myfyriwr / Student Mediana Hilaj		Dyddiad: / Date: 28 February 2019	
Cydlynnydd y prosiect / Tiwtor Project co-ordinator / Tutor Jia Miao Arolygwr / Supervisor Jia Miao		Dyddiad: / Date: 28 February 2019 28 February 2019	
Pennaeth Ysgol/Cyfadrn / Head of School/Faculty Dr. Audsin Dhas		Dyddiad: / Date 28 February 2019	
Rhaid i bob cais am ymchwil ar sail cyfweiliadau gynnwys y dogfennau canlynol:		All interview based research applications must provide the following pro-forma documents:	

1. Ffurflen gydsynio ddrafft 2. Sampl o'r cwestiynau a ofynnir 3. Taflen wybodaeth am yr ymchwil sy'n esbonio'n glir ddiben y prosiect, y deilliannau disgwyliedig a'r rheini y dangosir y canlyniadau iddynt.	1. A draft consent form 2. A sample of the questions that will be asked 3. An information sheet on the research that clearly explains what the project is, what the expected outcomes are and who the results will be shown to.
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DYCHWELWCH I'R GYFADRAN MOESEG CYDLYNYDD
PLEASE RETURN TO THE FACULTY ETHICS CO-ORDINATOR

Cadeirydd y Pwyllgor Moeseg Gyfadran /Chair of the Faculty Ethics Committee

Dyddiad: / Date:

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Acknowledgements

I, Mediana Hilaj, attending the MBA in Finance and Banking at The University of Wales Saint David declare that I am the author of this work which is in fulfilment with the university requirements and policies. I want to express my sincere gratitude to the supervisor of my dissertation, Jia Miao for his professionalism, commitment and continuous support that helped me to do a professional work.

I am thankful to GOD that gave me the motivation and guidance to finish this case study.

My highest gratitude goes to my father that always trusted me and supported me.

Yours Sincerely,

Mediana Hilaj

Chapter I

1.1 INTRODUCTION

Capital structure and liquidity are two factors that many investigations and research papers have suggested as important factors on firm's value. The researcher in this paper will try to find out if there is a relationship between shareholder's wealth leverage and liquidity. "Chapter 1" will define the background of the study, aims, objectives, research question following by a summary of the methodology and ending with limitations of this research paper.

1.2 Background of the Research

Decision makers of different organisations may face challenges when making decisions in any point of time. These decisions include a wide variety of management decision but three of the major decisions which are respectively related with our case study include financing decision which consists on choosing the way the company will finance its operating activities or financing new investments in new projects, Dividend decision which is related to dividend payments and policies. Investment decision which is related to decision made in order to choose the most profitable project by assessing these projects in different ways such as NPV method etc. This research will discuss when the leverage affects the companies profitability, negatively, positively if there is no correlation between them. Britain is a developed country with an open trade regime whose economy grew continuously since 1990. Today London economy is the fifth largest economy worldwide and it is characterised by the most efficient investment and business environment in the world. It is also considered a healthy financial environment but according to a report from Bank of England financial leverage in UK companies is still less than it was in 2008. However, leverage portion has now begun to increase due to the increase of borrowing in debt markets from property companies such as real estates. In 2018 the corporate leverage has reached the level of around £26 billion.

This study will select and examine 23 retail companies listed in London Stock Exchange. Their financial statements will be used to see how their capital structure has affect their value during the period of the last five years (2014-2018). According to an article from London

Stock Exchange Group in 2016 the sales in retail sector grew 6.6% year-on-year and was considered the highest increase since in 2011 when non-food sector contributed the most in this increase. This may suggest that Brexit was not a threat to investors but in the second half of 2016 the value of the pound decreased which was a negative sign in investor's perspective. However, the online retailing was growing fast which was an opportunity for businesses to maintain a healthy sales volume. In 2015, UK retail sales reached the level of 339 billion pounds where 15.2% of this volume was contributed from online retail sales while the number of the retail outlets was 290315. As a developed country United Kingdom possess healthy financial markets, as a consequence companies can easily access these markets in times when they need to raise their funds. In a report of the Bank of England there is suggested that there is a small number of companies operating in the UK that issue equity and public bonds. It is argued by Bank of England that the size of the company is a key determinant of issuing public bonds. and this is supported by their results in their database where 90% of public bond issuers are larger than £60 million and companies smaller than £250 million are hardly ever traded in secondary capital markets. Since extending the public capital markets leads to many benefits Bank of England has decided to build the Corporate Bond Secondary Scheme in 2009 which aims to help companies to issue primary bonds when the secondary market is not working well, Bank of England (2011). According to Bank of England , UK companies have a targeted level of financial leverage which tends to be responsive to tax benefits when financing by debt and risk of bankruptcy which is related to the expected costs of financial distress. Managers have to consider many criteria when deciding the mixture of debt financing and equity financing. In one hand managers prefer choosing equity financing since it is not a compulsory obligation, meaning that it is up to them if they will pay dividends or not and secondly shareholders are paid the last and thirdly, if the company face problems and is risked to be bankrupt, firms does not have to pay back the money invested by investors but they just share the incomes from selling firms assets after paying debtors. On the other hand issuing shares have some disadvantages, starting with the first one which consists on loosing ownership. Simply put, the more shares issued the less the firms is owned by existed shareholders especially when company issue shares to new investors. When managers decide to choose debt financing they take into consideration some benefits such as: debt is less costly than equity in company's perspective. Furthermore, different from equity holders, debt holders do not have control in the company. Another difference between equity and debt is related with tax advantages, explained by the fact that when choosing debt as a finance resource, company has to make interest payments which is a cost for the company, consequently it is

tax deductible, while in case of equity the company have to pay dividends which are not tax deductible but on contrary, shareholders may be taxed two times. Firstly, they will be taxed on their earnings by dividends and secondly will they will pay tax on capital gain which is the difference in the share price during a period of time. Another way of financing could be through the decrease of networking capital which is related to liquidity. Companies may choose to have a low ratio of liquidity and use that money to finance their projects. This way of financing has its positive and negative sides which will be discussed through this study. Managers should keep an eye on other factors when deciding between alternatives of financing and choosing the best mixture of financing based on advantages and disadvantages of the alternatives.

1.3 Aims and objectives:

Capital structure is a very important issue and there are many comments and investigations made by different scholars related to its effects on firm's performance. Myers(2011) argued that there is no general model or theory about the best mix of debt and equity because every firm has its own specific factors which affects borrowing decision-making. The specific factors that will be taken into consideration when examining the correlation between leverage and the value of the firm include liquidity ratios, leverage ratios, and size of the companies. By comparing theories with empirical studies and empirical results from our case there can be evidence of which of these theories or empirical studies stands for London companies. The aim of this study is to help managers choose the optimal mix of debt and equity and in the other hand to help them in deciding the level of liquidity or networking capital. There will be a critical analysis and comparisons of literature review suggestions, empirical researches, findings from different scholars, annual reports of different companies and analysis of these annual reports aiming to see what happen in practice with the relationship of leverage and profitability in UK public listed retail companies. By analysing the results and then comparing them with the capital structure theories and empirical studies about it, there can be seen which of the theory or suggestion from empirical researchers stands for UK.

1.4 Research Question

Different suggestion from different scholars and theories are given regarding to the correlations of gearing with the value of the firm. Some of them suggests a correlation like trade-off theory, while some others like MM theory see capital structure as an irrelevant factor on firm's profitability.

This research aims to give an answer what happen in the practice with this relationship in UK retail sector:

- Do leverage and liquidity have any impact on a firm performance, if yes, which is the optimal liquidity level and the optimal mixture of Debt and Equity? If yes, how large are the friction costs for a company that is far away from the optimal leverage?

1.5 The Methodology

In this research paper secondary data will be employed and they will be granted from annual reports and financial statements of the selected companies. There will be two stages of this study. It will start with the first stage which consists on the literature review by identifying the suggestions given by different theories and authors about the capital structure and its relevance to the value of a firm. It will be divided in two sections, theories by different authors and empirical researches. After that, there will be examination of about 23 companies in the UK, analysing their financial statements during the period of 2013-2018 and by calculating the ratios that are related to leverage, liquidity and the value of the firm. The calculations will be illustrated by graph using MS-EXCEL. After calculating all the ratios for five years, there will be used quantitative methods to find out the relevance between liquidity, leverage and performance. There will be two types of data. Basic data which includes all the information collected by journals, reading, financial statements, empirical researches, surveys etc. On the other hand these basic data will turn into processed data which consists on processing these data through econometric models and generating the variables which are necessary to for creating the models and testing hypothesis of this study. The analysis will be done with the aim to see if how the right financing decisions would contribute to the organisation's profitability and to what criteria should be taken into account when choosing the mixture of financing.

1.6 Limitations of the Study

There are some factors that can limit this study results to be accepted absolutely as the right answer. One of these factors is the period taken into consideration. The research paper will discuss among the period of 2013-2018. This is only 5 years investigations without considering what has happened in the past and what can happen in the future. Also, there will be investigation for 23 companies only which is relatively small number when considering how many companies operate in UK because 23 companies cannot represent other millions of businesses. Furthermore the companies included in the study are public listed companies but

there are many other limited companies operating in retail sector industry in the United Kingdom. On the other hand every company has its own specific factors which should be taken in consideration when deciding the corporate leverage. Some of them are size of the firm, inflation rate, interest rate, borrowing facilities, level of profit, tax, risk, GDP etc. Furthermore, there are mentioned above only factors that can be measured and controlled but it should not left behind the some other factors such as government policies, economic and political stability of the country cannot be neither measured, nor controlled but they can affect corporate leverage.

Chapter II

2.Literature Review

Chapter II will cover the literature review from different authors about capital structure, liquidity, leverage and performance. Also, there will be empirical researches that have discussed these areas.

2.1 Capital Structure Theories

Capital structure refers to the way that a particular company finance its activities through debt finance or equity. To continue with the analyses of the effect of capital structure to the value of the firm it should be started with the concepts of the cost of capital. In investor's perspective cost of capital is defined by Arnold (2013) as the required return of capital invested by investors in a particular company. It is also called as weighted average cost of capital and the formula is as below. $WACC = k_E w_E + k_D$, where here $WACC$ – the weighted average cost of capital, k_E –cost of equity, w_E - weight of equity, proportion of equity finance to total finance, k_D - cost of debt, w_D - weight of debt, proportion of debt finance to total finance.

Since interest expenses are tax deductible it should be into consideration the fact that cost of debt is calculated after tax benefit, which means: $WACC = k_E w_E + k_D(1 - T)w_D$, where T - is the tax rate.

The value of the firm is the result of capitalizing the earnings from the project by the cost of capital invested in that project. $V = \frac{\text{Earnings}}{WACC}$

By having a look to this formula it can be said that the value of the firm may change due to

change in earnings, weighted average cost of capital, or due to changes in both of them. It is important to mention that capital structure cannot affect EBIT but it can have an impact on the net profit which is directly related to shareholder's wealth.

Different authors are of the different opinions when discussing about capital gearing. The discussions about leverage are made based in some assumptions:

- Enterprises finance their activities through only two sources, Debt and Equity.
- Dividend payout ratio is 100%, which means that all the net profit will be given as dividends, thus, company will not keep retained earnings.
- Mix of debt and equity does not have any impact on business risk.
- There are no taxes on personal earnings or corporate earnings.
- Investment decision does not change.

Modigliani and Miller theory (1958) stated that the level of gearing does not have any impact on firm's value. According to this theory, firms that are identical will have identical profits and there will be no difference in profits if investors switch their securities from a highly leveraged firm to a non-leveraged one. On the other hand as supported by Arnold (2013) it should be said that Miller and Modigliani (1958) theory is based in the assumptions below:

- There is no difference between interest rate of individuals and investors, thus, it is considered same as the risk-free interest rate.
- Investors have the same information as managers do, so they are well-informed of risk and return of securities and in this way they are rational in their choice.
- There is no tax neither in personal or corporate income.
- Capital markets are assumed to be perfect which means that investors can freely buy, sell or exchange between securities.
- They made this theory assuming that there are no transaction costs.

Modigliani and Miller (1963): In this theory, Modigliani and Miller consider including tax as one of the factors when calculating the cost of capital. With the tax included in this theory, here comes the advantage of using debt finance since it reduces the tax payments. Based on this, Modigliani and Miller suggested an extreme approach that a firm should be as highly leveraged as possible. But, being as highly leveraged as possible could lead to some negative effect which will be analysed in the trade-off theory paragraph.

Trade-off Theory: While Modigliani and Miller excluded tax and some other factors such as cost of financial distress, cost of asymmetric information, agency costs of debt, this theory take into consideration all of these factors and according to it, there is an optimal capital structure when the value of the firm is maximized. Marsh (2012) is of the opinion that effects that the mix of debt and equity has on the enterprise value are very considerable. As suggested by this theory, if the firm continue to increase the level of debt finance, there comes a point beyond which the cost of capital starts to increase,(Clayman et al, 2012). The explanation of this theory is as below:

This theory supports the fact that since interest expenses are tax deductible thus, it gives the opportunity for companies which use debt financing to have a higher profit and a higher after-tax return to shareholders. But, Myers (2001) argued that choosing trade off strategy does not mean that firms will be always profitable because of some reasons. Firstly, firms that borrow money have to make interest payments for a certain period and if firms borrow a large amount of money the present value of interest payments will offset the money increased by tax shield. Secondly, debt is not fixed and debt capacity depends on company's performance. If it performs well, it will be able to borrow but if it performs poor it will be forced to pay the debt. The third reason is regarding to financial distress. Cost of debt is lower than cost of equity due to the fact that in investor's perspective, debt is less risky so they require lower profit, while the return that investors require when investing in shares is higher due to the higher risk that this investment possess. Consequently, an increase in borrowing will decrease the WACC gradually but this happen until a certain point. At this stage the increase in debt financing will not change the WACC. After that point if the company continues to increase the level of borrowing it will be seen as like something with that company is not going well so in shareholder's perspective it will be more risky to invest in shares to this company. As a consequence the required return from shareholders will be higher which means a higher cost in company's perspective. K_e will be higher than K_d and K_d will increase as well due to the large amount of borrowing. This leads to an increase in WACC, consequently the value of the firm will be decreased.

Pecking order Theory: After Donaldson (1961) introduced this theory, later Myers and Majluf (1984) supported it. According to them firms should follow a pecking order when deciding the way of financing. The first choice of borrowing should be internal financing through

retained earnings of the company and equity, than using debt which is in accordance with Myers(1984). However it cannot be accepted as a universal theory. For instance, in the presence of asymmetric information cost of debt financing is less important than cost of issuing new securities. On the other hand there is a disadvantage when issuing new shares because in this way company dilute its ownership. Furthermore using only its own money would prevent the growth of the company. Michael L. Lemmon and Jaime F. Zender (2010) tried to test capital structure theories and they concluded that due to the limitation of debt capacity, firms have either limited or no flexibility when choosing financing instruments. Thus, using equity would be seen less as a negative signal when comparing with a similar firm that would choose debt financing. Titman and Wessels(1988) conducted an empirical research which emphasized the pecking order theory suggestion about the negative relationship between capital structure and profitability.

2.2 Empirical Researches on Capital Structure

Capital structure is a very important choice for managers when they are deciding the balance of debt and equity to finance their day to day operating activities, firm's assets or financing for future growth. Most of the time managers tend to choose the optimal mix of debt and equity in order to have the minimum cost of capital structure. On the other hand there are many factors that may limit managers when choosing the balance of debt and equity. For example, Milos(2015) in his research paper suggested that capital structure in Romanian listed companies is negatively related with size of the firm, tangibility, profitability, growth and liquidity. In this paper the negative correlation between capital structure and firms profitability is interpreted as firms with lower profitability rely more on leverage than firms with higher profitability because firms higher-profitable can finance their activities internally. On the other hand Booth et al (2001) in their research paper found that tax benefits do not play any role when deciding the balance of debt and equity. Other suggestions are made from other authors in their empirical studies. Chen, J., Strange, R. (2005) took a sample of 972 Chinese listed companies and they examined their capital structure determinants finding that the most significant determinant of capital structure is profitability where more profitable firms are less leveraged, while they pointed out a contradictory result about the size and the age of the firm. According to them, there was a significant and positive effect of firm size in the market value of debt ratio and no impact on the book value of the debt ratio. On the contrary they suggested that the age had a significant and positive impact on book value of the debt ratio and no effect on

the market value of the debt ratio. On the other hand they saw taxation and growth rate as irrelevant factors when deciding the way of financing. Other suggestions were made by Shiva, T and Girish, S (2017) in their empirical study where they capital structure in pharmaceutical industry in India finding that size, growth, profitability, liquidity and tax shield have no impact on borrowing decision-making. Roger, J et al (2012) conducted a research about determinants of capital structure in UK retail industry and their results suggested that liquidity and profitability in UK retail sector are significantly negatively related to financial leverage which reflects the pecking order theory and it is in accordance with an earlier research from Hutchinson and Hunter (1995) who stated that retail companies in UK finance their activities internally using retained earnings rather than debt. In that way seeing profitability as the main generator of retained earnings means that firms with higher profit are less leveraged. Meanwhile, another conclusion of Roger, J et al (2012) was regarding the size of the firm which had a significant positive correlation with the financial leverage supporting the trade-off theory. Financial leverage refers to the amount of debt that one organisation borrows to finance their activities. There are many cases when firms need to borrow money such as, in cases of expansion companies suffer from lack of funds which force companies to borrow money in order to meet the liquidity needs. Other cases could be when deciding to buy new assets, investing in new projects, financing day to day operating activities etc. Managers may finance these activities through internal sources such as retained earnings, sales of assets and reduction of working capital or through external sources such as loans, bank overdrafts, equity financing, factoring, leasing, capital ventures, preferred stock, trade credit and hire purchase etc and the most common ratio to measure financial leverage is total debt divided by total equity Ross et al (2002) and this was later supported by Marsh (2012) in his book. But, Titman and Wessels (1988) used total debt divided by total assets as a measure of leverage in their research paper suggesting that there can be expected different results when using book value or market value. Rajan and Zingales (1995) in their research paper argued that this is not the best ratio to be used due to the fact that some of the liabilities may not serve as a way of financing. They mentioned accounts payable which are liabilities which serve for transaction purposes not serving as a source of financing, leading to an overstatement of leverage. According to an academic article (2018) about leverage ratios, the higher the firm is leveraged, the higher the risk and the higher the return on equity. The aim of managers is to find an optimal mix of debt and equity where net benefits of this mix could be the highest. Korteweg, A (2010) employed panel data to estimate the present value of net benefits when firms use debt financing concluding that net benefits for low-debt firms increase when they increase debt

financing but in one certain point if the leverage is increased very high the net benefits starts to decrease. In this research paper it is suggested that there exist an optimal capital structure and net benefits in this case could be 5.5% of the firm value. Reporting practises and governance structure impact the debt to equity ratio. Salla and Benjamin (2010) stated in their research paper that Russian companies with private controlling shareholders have considerably less debt in their capital structure than firms with state controlling shareholders and firms with private controlling shareholders finance their growth opportunities with external sources while companies with private controlling shareholders use internal sources for growth opportunities. Some empirical studies suggest that asymmetric information is an important determinant of mix of borrowing. Abkari et al (2009) examined some USA firms for three decades. They examined the impact of asymmetric information on the borrowing mix concluding that there was a strong relationship between mix of debt and equity with asymmetry of information.

2.2.1 Empirical studies of capital structure effects on profitability

Profitability of a company refers to the degree to which companies can generate earnings through their business activities. It is not an absolute amount like profit but it is a metric through which managers and investors can indicate the ability of one particular company to generate earnings. Profitability can be measured through three ratios, return on equity(ROE), return on assets(ROA) and return on investments(ROI),(Marsh 2012). Profitability is an important issue in creditor's and investor's perspective, and the impact of capital structure on it is an issue that should not be left behind. For this reason, many researches have attempted to find the relationship between these two variables. Starting with the theories, according to pecking order theory there is a negative relation between them while trade-off theory suggests a positive relation between capital structure and profitability. Rajan and Zingales(1995) were the first among the scholars that attempted to find the relationship between these two variables. They suggested that there is a negative relation between capital structure and profitability and according to them this significance of the relationship depends on the size of the company, suggesting that the bigger the size of the company is, the stronger this negative relationship became. Foster and Young(2013) conducted a research to see the capital structure determinants in emerging countries divided by geographic region and they concluded that in 10 countries included in the research there was a negative relationship between profitability and leverage which is in accordance with an earlier research paper by Majumdar & Chhibber (1999) who suggested a negative relationship between gearing and profitability in Indian

firms. On the other hand, in a later research study by Nissim & Penman (2003) that included American listed companies they found a positive relationship between gearing and profitability. Habib (2014) suggested that there is no close relationship between debt ratios and firms profitability ratios but there was an impact of leverage on the net profit. Reddy and Narayan, (2018) examined the effect of capital structure on profitability in 10 pharmaceutical companies in India concluding that the leverage has a negative impact on profits of the firm but this impact was insignificant meaning that Pharmaceutical firms in India do not use too much level of debt financing for growth opportunities. Dalci(2018) in his empirical study about capital structure effects on profitability for listed manufacturing firms in China stated that the relationship between leverage and profitability was upside down U-shaped which means that there could be a positive relationship between leverage and profitability which is due to the tax advantages and the negative relationship is attributed to financial distress, bankruptcy cost, information asymmetry and agency costs. Herciu and Olgrean(2017) argued in their research work that there is a strong impact of leverage on profitability but the way and the degree it affects positively or negatively depends on the sectors. They found that there was a very strong positive correlation between variables in telecommunication sector, health care and technology sectors which was over 0.5, whilst in motor vehicles & parts sector and in energy sector the relationship was positive but weaker. Earlier studies have approved the significant relationship between capital structure and profitability. Gill & Mathur (2011), in their empirical research found that there was a positive relationship between debt to equity ratio and profitability in Canadian service industry companies while there was a negative correlation between variables for Canadian firms operating in manufacturing industry which is in line with a later research study by Korkmaz (2016) that examined manufacturing companies listed in Istanbul Stock Exchange with the aim to see the effects that mix of debt and equity financing could have on companies profitability and this research paper results suggested the negative correlation between variables.

2.2.2 Empirical studies of Liquidity effects on capital structure and profitability.

Liquidity is the degree to which one company is able to meet its short term obligations and the ability of converting its assets into cash. Liquidity is an important indicator for stakeholders. For example employers could be interested to know the liquidity of the company because in this way they can realize the ability of the company to pay its obligations related to employees such as salaries, pensions etc or it may be important for suppliers to know the liquidi-

ty of the company before they sell their goods to this company. The liquidity of a company can be measured through three liquidity ratios, current ratio, quick ratio and cash ratio (Marsh,2012). It could be said that it is good for a company to have a high liquidity ratio because in this way it can meet all of its short term obligations and a high liquidity is a good indicator in stakeholder's perspective. On the other hand this high ratio leads to what is called opportunity cost which means that instead of keeping too much cash the company could invest these cash in any project and increase its profitability as a consequence. There is no optimal liquidity level, either debt level because it depends on the industry nature, business features, scale of operations etc (Opler, et al.,1999). For example shareholders would prefer a low liquidity ratio since in theory there is an inverse relationship between liquidity and profitability. For this reason this paper will mention some empirical researches that give different suggestion regarding to the relationship between these two variables. Prasit et al,(2011) conducted an empirical research in Thailand where they found that relationship between liquidity and leverage is inverted. Anderson and Carverhill(2012) found that there is a close relationship between profitability, liquidity and capital structure in firms with moderate leverage, explaining that the increase in profitability is accompanied with a decrease in the liquidity target level while there is a positive relationship between capital structure and liquidity because according to them a higher level of long term debt leads to a decrease in the optimal use of short term debt, consequently an increase in liquidity level. In the same year another author Sohan(2012) conducted an empirical research in Bangladesh arguing the positive correlation between liquidity and leverage. Reddy and Narayan (2018) suggested that there is a positive relationship between liquidity and profits of the companies in pharmaceutical industry in India.

2.2.3 Empirical researches on size and profitability relationship

Different scholars have attempted to find the link between size of the firms and their profitability. According to Claudiu (2013) profitability is negatively related to firm size, explaining that firms with low amount of non-current assets perform better than companies with higher amount of non-current assets. They used non-current assets ratio as a proxy for firm's size. On the other hand Peter and Darush(2018) suggested that there is no relationships between bank's size in Sweden and profitability. Meanwhile, one of the mentioned determinants of profitability in Malaysia is firm size where Saleh and Mohammed(2018) found in their empirical study a positive relationship between size of the firm and its profitability, meaning that

the higher the size of the company ,the higher the profit and generating economy of scale is one of the explanation for this positive linkage.

2.2.4 Summary of the researches

The aim of the all of the researches above has been finding the relationship between capital structure and firm's profitability including as well two other independent variables that could influence positively or negatively the profitability of the company. Regarding to capital structure there were many suggestion on negative relationship between capital structure and firms profitability as Rajan and Zingales suggested in their early research on 1995, supported later by Majumdar & Chhibber (1999), Foster and Young(2013), Korkmaz (2016) ,Reddy and Narayan, (2018) etc. On the other hand other research papers suggested a positive relationship between capital structure and profitability. One of them was made by Nissim & Penman (2003) followed by Gill and Mathur (2011) while later Habib (2014) argued that there is no important relationship between these variables. However, all of the researches mentioned above are made in different countries and have covered different sectors, consequently it is difficult to accept these results as universal for all companies and sectors worldwide. The capital structure effects on profitability vary from one sector to another. For example, Herciu and Ogorean(2017) found a positive relationship in telecommunication sector, health care and technology which is different from other sectors like motor vehicles and energy the relationship becomes weaker. Furthermore Dalci(2018) suggested the U-shaped relationship which means that there can be positive relationship and negative relationship between these two variables. By having a look at all the researches above, many sectors were covered except retail sector. In this way it would be difficult to accept these results as an universal answer for the retail sector in the UK, consequently, this research paper will cover the retail sector in UK to see the impact of capital structure on firms profitability.

Chapter III

3. Research Methodology

This chapter aims cover the methodology employed in this research study describing it in details, including every step made during the analysis such as data collection, resources, processed data, study design, creating the empirical model and regression model in order to achieve the aim of the study.

3.1 Design of the Study

The first stage of this research paper is the analyses of the theories about capital structure and empirical researches that support or reject these theories. The second step consists on collecting the data from companies chosen and processing them. After this, based on theories from different authors and research studies from different scholars it is time for formulating the model which will include three microeconomic factors: leverage, liquidity and firm's size. In order to see the effects of these variables on profitability there will be formulated the hypothesis and by testing the hypothesis, it will be possible to conclude the results of this study and to make proper recommendations. There will be examination of 23 UK public listed companies operating in retail sector for a five years period of time [2014-2018]. The reason for choosing retail sector is due to the lack of previous researches on capital structure effect on profitability. Meanwhile, the reason for choosing companies listed on London Stock Exchange is the accuracy and reliability of their financial statements. While private companies tend to manipulate their profits and financial statements in order to avoid tax or for other purposes, public listed companies tend to present fair values in their financial statements. The second reason consists on the fact that since it will be a study on capital structure, including private companies would make it difficult to get accurate results due to the fact that the access of private firms on capital market is different from public listed companies, therefore there would be possible to see big differences between capital structure of private firms and publicly firms which could lead to some implications. On the other hand retail banks will not be part of this study due to the nature of their activities which is completely different from retail sector. The number of observations will be five years and the same number of variables observed in these years for each company included in this study, therefore there will be a balanced panel set of 115 years observations.

3.2 Collection and Sources of the Data

There are two types of the sources of data. Primary data are these data that the researcher needs to collect the data after conducting surveys and secondary data that have already been collected for other purposes. The sources of this research paper will be secondary data because the data for this study will be collected from companies financial statements and reports and other institutions like Bank of England, London Stock Exchange website etc. The financial data will be gathered from firm's financial statements and the method employed to analyse these data is quantitative method due to the fact that the financial data collected can be numerically measured. The data gathered from financial statements consist on basic data which are used to generate the processed data that consist on variables employed to generate

models and test the hypothesis. When talking about theories, the main source of data are books and when talking about empirical and practical researches the main sources include journals, reports, observations etc.

3.3 Panel Data and Data Analysis Method

Panel data in statistics are multi-dimensional data which are made of multiple phenomena gathered over several periods of time for the same households, firms, individuals, countries etc. (Baltagi, 2005). There can be two cases of panel data, time series and cross sectional. Regarding to the structure of the panel data there are two types of panel data. One is called balanced panel data set in cases that the same number of observations are made for the different companies, individuals, firms, etc that are included in the case study. Meanwhile, if the number of observations is different for each element included in the case study, this is the case of unbalanced panel data set. Panel data was used by Bajramovic (2017) in the research paper about determinants of capital structure in Bosnia and Herzegovina. Vataavu (2016) was another scholar that used panel data to assess the relationship between capital structure and firm's performance. Mohamad (2018) employed panel data regression for an unbalanced panel data set in order to find the relationship between working capital and firm's value for the Malaysia's government linked companies. Meanwhile, Yohan et al (2018) have used panel data in their research study about CEO's turnover effects on corporate sustainability performance for 88 French firms over 13 years, concluding a positive and significant relationship between variables.

In this research paper panel data will be used to generate the econometric model because panel data give us the opportunity to control variables that cannot be measured or observed and observing phenomena obtained during the period of five years for the 23 chosen firms. The observation will be made for five years for each company, therefore the data consists on balanced panel data. There are different models than can be used when testing the hypothesis and different authors have employed different models. One of the models is linear regression which allows us to find the relationship between the dependent variable which is profitability and the independent variables that consist on leverage, size and liquidity. In this research paper the multiple linear regression since there will be three variables considered when making the explanation or the prediction of the profitability. This method will explain the relationship between the dependent variable (Y) which is profitability and dependent variables (X) that include leverage, size and liquidity. After finding the relationship through linear regression this model will be tested through cross-sectional with fixed effect model (FEM). This method

was put in use by Claudiu(2013) a study on capital structure impact on profitability in public-ly Romanian companies and the result using these methods suggested a significant effect of leverage, size and tax rate on profitability and according to FEM there is a negative relationship between debt ratios and profitability meaning that the higher the debt lever, the lower the profit.

3.4 Model Specification

In this study the dependent variable will be profitability which can be measured in three ways. One of them is calculated as net income divided by total assets as used by Claudiu(2013). Another way could be calculated through two ratios. ROE which is return on equity measured as net income divided by total equity and ROA(return on assets) measured as net income divided by total assets. In this study ROA and ROE will be employed to see the phenomena of profitability during the years due to the effect of independent variables. The general model is as below:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + u_{i,n} \quad \text{Where}$$

- Y is the dependent variable
- X is the independent variable
- α is constant
- $\beta_1, \beta_2, \beta_n$ are the coefficients that tell the contribution of each variable on the dependent variable
- $u_{i,n}$ represents the firm specific factors effects that are not considered in this study (u_i) and time specific factors that are not observed in this research per(u_n).

Specific Model

$$Prof_{i,t} = \alpha + \beta_1 * Leverage + \beta_2 * Liquidity + \beta_3 * Size + u_{i,n}$$

3.5 Hypothesis and Variable Measurement

In order to test the relationship between capital structure, liquidity and size with firm's profitability there will be used financial ratios for each of these variables and then the coefficients before the variables will conclude the relationship between each variable with profitability. There will be two hypotheses. One of the hypotheses is called the Null hypothesis(H_0) which

suggests that there is no significant relationship between variables in a set of observations. The opposite hypothesis is called Alternative hypothesis(H_a) which propose a statistical significance between variables within the observations. In order to evaluate which of the hypotheses should be rejected or accepted there will be employed *P-value* which is a statistical measure between 0 and 1. A p-value which is equal or lower than 0.05 indicates that the null hypothesis should be rejected, consequently, the alternative hypothesis will be accepted as true. On the other hand, a p-value greater than 0.05 or 5% suggests that null hypothesis is true and will be accepted while the alternative hypothesis will be rejected.

Profitability is the dependent variable in this research, therefore the hypotheses of this study are:

Hypothesis 1

H_0 : “There is no significant relationship between capital structure and firm’s profitability”

H_a : “There is a significant negative relationship between capital structure and firm’s profitability”

Variable measurement

Profitability will be measured through two ratios. ROE which is return on equity calculated as net profit divided by total equity and ROA which is return on assets calculated as net profit divided by total assets.

Capital structure measurement will be made using two leverage ratios. Debt to Equity ratios which is measured as Total Debt divided by Total Shareholder’s Equity and Debt to Assets ratios which is calculated as Total Debt divided by Total Assets.

Hypothesis 2

H_0 : “There is no significant relationship between liquidity and firm’s profitability”

H_a : “There is a positive or negative relationship between liquidity and firm’s profitability”

Liquidity ratios will be calculated in three ways: Current ratio as Current Assets divided by Current Liabilities, Quick ratios as Current Assets-Inventories divided by Current Liabilities and Cash ratio calculated as Cash divided by Current Liabilities

Hypothesis 3

H_0 : “There is no significant relationship between size and firm’s profitability”

H_a : “There is a positive or negative relationship between size and firm’s profitability”

Firm’s size will be calculated through NCAR which is calculated as Non-current Assets divided by Total Assets as suggested by Claudiu(2013).

3.6 Summary of the variables measurement and expected relations to profitability

Table 1.Variable measurement and expected relationship

Independent Variables	Variable Measurement	Relationship to Profitability
Financial Leverage	$1. D/E = \frac{\text{Total Debt}}{\text{Total Equity}}$ $2. D/A = \frac{\text{Total Debt}}{\text{Total Assets}}$	Negative
Liquidity	$1. CR = \frac{\text{Current Asstes}}{\text{Current Liabilities}}$ $2. QR = \frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}}$ $3. \text{Cash } R = \frac{\text{Cash}}{\text{Current Liabilities}}$	Either positive or negative relationship
Size	$1. NCAR = \frac{\text{Non-Current Assets}}{\text{Total Assets}}$	Either positive or negative relationship

Chapter IV

4.Regression results

This chapter will start with an explanation of descriptive statistics and continuing with the regression results interpretation, explanation and analysis.

4.1 Descriptive Statistics

Descriptive Statistics consist on a brief summary of the main features of the data collected and then analysing these features. In general, descriptive statistics is the first stage when conducting an empirical research and then it is followed by empirical analysis in depth. Descriptive Statistics are made from many coefficients but in this research paper there will be mentioned and explained some of them as listed below.

Mean which is the average or in other words the central tendency of all elements included in the observation for each variable and it is measured as the ratio of the sum of the data points for each variable divided by the number of observations.

Median is a simple measure of average where the data are ranked from the smallest value to the largest one and the middle value in the rank is the median.

Standard Deviation is a statistical tool which shows how the numbers are spread or dispersed from the mean and it is calculated the square root of the variance, $s = \sqrt{s^2}$ where

$s = \sqrt{\frac{\sum_{i=1}^n (X_i - X)^2}{n-1}}$ where X_i is the value of the (i) data point, X is the mean and n refers to the number of observations included in the study.

Skewness is a statistical tool which shows the extent of asymmetry in the probability distribution graph or in other words it shows the degree to which a distribution vary from normal distribution. It is calculated by subtracting the median by the mean and then dividing by standard deviation and the result could be negative, positive or undefined.

Maximum is the highest value of the data points received from the observations.

Minimum is the lowest value obtained within the observations.

Pearson's correlation coefficient is another statistic tool which serves to evaluate the degree to which variables are correlated. Correlation Coefficient varies from -1 to 1 and the sign before the correlation coefficient indicates the negative or positive relationship between variables respectively. Correlation matrix is the table that contains the correlation coefficients for all of the variables taken into consideration in the study.

The Tables above contains all the descriptive statistic tools mentioned above and a brief explanation of the values respectively.

Table 2 “Descriptive Statistics”

	Profitability Ratios		Leverage Ratios		Liquidity Ratios			Size
	ROE	ROA	D/E	D/A	Current Ratio	Quick Ratio	Cash Ratio	NCAR
Mean	0.02	0.06	0.58	0.16	1.52	0.90	0.36	0.50
Median	0.12	0.06	0.20	0.08	1.22	0.57	0.21	0.45
St Dev	1.62	0.10	1.39	0.35	1.13	1.01	0.42	0.22
Skewness	-9.48	-0.91	4.79	6.36	2.59	3.23	3.02	0.16
Min	-16.54	-0.41	0.00	0.00	0.31	0.16	0.00	0.13
Max	2.14	0.30	9.59	2.69	7.10	6.08	2.83	0.87

By observing the table above it can be seen that the mean for the debt to equity ratios is 0.58 which means that for every dollar invested by shareholders 58 pence goes to debtors. This ratio can be considered as a healthy ratio for some reasons. For instance, if companies tend to borrow a high amount of money this means that they have been aggressive in the way they have financed their activities and as a consequence there is expected to face volatile earnings due to the additional interest expenses. In that way it can be said that these companies will have stable earnings. Secondly, is a normal trend to due to the nature of the businesses. Retail sector is not a capital intensive industry like manufacturer, oil and other industries, therefore there is not needed to much initial capital investments, or funds needed for maintenance, improvements or expansion purposes. Furthermore, this ratio is low and this is a good indicator because the nature of retail industry itself is less able to afford high level of debt because retail company's earnings are not stable. For example, changes in the economy could affect their earnings heavily. On the other hand it should be said that a low leverage ratios is not always favourable. It may indicate that companies are not taking advantage from debt financing to grow their business. However, this figure is in contradiction with Modigliani and Miller (1963) that suggested for firms to be as highly leveraged as possible due to tax benefits but, on the other hand, trade-off theory suggested that if firms will be highly leveraged the interest payment's value and financial distress may offset the tax shield.

One thing that may look a little bit strange is the fact that the minimum debt to equity ratio is 0.00 which means that there is any company that do not use debt financing at all but use only equity. Meanwhile, there can be seen the existence of any retail firm that its liabilities are 959% of its equity which is a very high ratio. However, by observing the standard deviation for debt to equity ratio which is 1.39 it should be said this little bit high figure indicates that answers received are not very close to the mean, therefore, it can explain the two extreme examples of minimum and maximum mentioned above.

By having a look to profitability ratios it can be observed the mean for return on equity which is 0.02 or 2%, meaning that for every one dollar of shareholders invested it generates 2 pence income which is very low but as the high figure of the standard deviation for this ratio (1.62) suggests, all companies included in this study are not very close to this low profitability ratio. The high standard deviation which is 1.62 indicates that the data points for profitability ratios are very dispersed from the mean. This can explain the two extreme figures of the minimum of -16.54 and the maximum of 2.14. It can be said that in finance skewness is very important for investors because it focuses on the extremes of the data points for the profitability rather than focusing on the average. The negative skewness in this case indicates that data points are negatively skewed or skewed to the left, consequently it indicates that that data points tend to fall to the higher sides, meaning that overall companies tend to have higher profit than the average.

Regarding to leverage ratios it can be noticed that overall, retail companies in UK have a healthy liquidity ratio of 1.52 on average. Also, standard deviation remains a little bit high (1.13) for this ratio as well, which means that not all data points are very close to the value of 1.52, however the maximum figure for this ratio shows a strange liquidity ratio of 7.10 which in one point of view could be said that the ability of the company to pay its short term obligations is very high but it should be taken into consideration which types of current liabilities this company has and their ability to be liquid. By comparing the current ratio with quick and cash ratio it can be concluded that this high ratio is not because the company has too much inventory or too much cash but it is because of other current assets that are less liquid, consequently it cannot be said that the company that has a current ratio of 7.10 is very healthy in meeting its short term obligations. One example could be account receivables which are part of current assets but it depends how quickly the company collects them.

When talking about the size which in this study is calculated as non-current assets divided by total assets shows the portion of non-current assets related to total assets. The mean of 0.50 shows that in overall in UK retail firms, non-current assets made 50% of total assets, simply put these firms have the equal number of current assets and non-current assets and as supported by the low figure of standard deviation there is an indication that this means is very close to almost all the data points. Minimum of 0.13 means that there exist a company that has only 13% non-current assets and 87% current assets, meanwhile maximum of 0.87 suggests by chance exactly the opposite of what minimum suggested, where 87% of the total assets for a company included in this study is made of non-current assets and 13% are current assets.

Table 3 “Correlation Matrix”

	ROE	ROA	Debt to Equity	Debt to Assets	Current Ratio	Quick Ratio	Cash Ratio	NCAR
ROE	1							
ROA	0.51	1						
Debt to Equity	-0.63	-0.30	1					
Debt to Assets	-0.02	-0.07	0.72	1				
Current Ratio	0.04	0.09	-0.15	-0.08	1			
Quick Ratio	0.05	0.04	-0.10	-0.02	0.96	1		
Cash Ratio	0.06	0.00	-0.21	-0.19	0.43	0.44	1	
NCAR	-0.03	-0.18	0.27	0.33	-0.66	-0.55	-0.45	1

The table above represents the degree and direction to which all the variables are related to each other. Negative coefficients indicate that variables are correlated negatively while the positive sign is a signal for a positive relationship, meaning that when one variable change, the dependent variable change in the same direction. By having a look at the figures the figure -0.63 suggests a strong and negative relationship between return on equity (ROE) and leverage (Debt To Equity). This means that the higher the leverage the lower the profitability which is in line with the pecking order theory. Some of the causes that can lead to this relationship is the continuous increase of interest expense, cost of financial distress and bankruptcy, information asymmetry etc.

Another negative relationship can be observed between size and current ratio. The correlation coefficient between them is -0.66 which is relatively high, suggesting that the higher the size of the company, the lower the current ratio. By knowing that current ratio is calculated as current assets divided by current liabilities while size is calculated as non-current assets divided by total assets, there can be an explanation for this relationship. A higher size means that firm's non-current assets contribute a large amount of total assets, meaning that the portion of current assets is low related to total assets. Consequently, this could serve as an indicator of a poor liquidity due to the fact that a higher amount of the firm's cash will be needed for assisting firm's ongoing investments in non-cash assets.

The table contains some positive correlation coefficients that suggest positive relationship between different variables but these coefficients overall are very low, meaning that the positive relationship is weak.

4.2 Regression Models and Results

This section will discuss the results of the models included through Panel Least Squares method. The method has used cross-sectional with fixed effects. There will be 6 adjusted regression models of the impact of the independent variables like leverage, liquidity and size on the dependent variable that is profitability.

4.2.1 Model I

$$ROE_{i,t} = \alpha + \beta_1 * Leverage + \beta_2 * Liquidity + \beta_3 * Size + u_{i,n}$$

Table 4: Regression results for Model 1

Variable	Coefficient	Prob	Relationship to ROE
C	-0.200376	0.4922	
D/E Ratio	-0.910066	0.0254	Significant
Current Ratio	0.223831	0.1415	Insignificant
NCAR	0.509652	0.0923	Insignificant

R-squared	Prob(F-statistic)
0.600880	0.000000

In the model 1 there will be used return on equity (ROE) as the dependent variable and leverage, liquidity and size as independent variables.

Firstly, there is a need to explain statistical indicators included in the table above.

Probability (Prob) in this panel data explains the relationship between each independent variable with the dependent variable. If probability for one variable is less than 5% or 0.05, this means that null hypothesis will be rejected and alternative hypothesis should be accepted saying that there is a significant relationship between this independent variable with the dependent variable. In the table above it can be seen that the Prob for Debt to Equity ratio is 0.0255 indicating the significant effect of leverage on profitability for the 115 observations included in this study. Regarding the way these variables are correlated it can be explained by the coefficient which in case of debt ratios is -0.91009, meaning that there is a negative relationship

between capital structure and firms profitability. This concludes the theory that the higher the level of debt the lower the profitability which happens due to the increase in the cost of debt which include interest expenses which agree with the pecking order theory and Michael L. Lemmon and Jaime F. Zender (2010) that suggested equity financing rather than debt financing. On the other hand it is in contrast with Modigliani and Miller(1963) theory that suggest firms to be as highly leveraged as possible.

Current ratio is related positively with the return on equity in this case study but the relationship between them is insignificant which is explained by the figure 0.1415 which is greater than 0.05. In theory, companies should keep a target level of liquidity where they can meet their short term obligations but it is suggested not keeping too much cash because in this way they can deprive the company to invest in new projects, consequently depriving an increase on firm's profitability. However, our findings suggest that the level of liquidity does not have an impact on ROE.

NCAR which is size of the company calculated as non-current assets divided by total assets has a probability of 0.0923, indicating that the size of the company does not have a significant impact on ROE, being in contrast with Claudiu (2013) that suggested the negative relationship between size and profitability. This ratio shows the portion of long term assets that a company has comparing with the current assets. In general having a high portion of long term assets means more capital investments and more capital investments could lead to higher profitability. However in our case that includes only retail industry in UK, it seems that the portion of non-current assets is not a profitability determinant. This may be due to the nature of the business. Companies included in our case are not part of a capital-intensive industry where most of the assets base should be made of non-current assets.

R-squared is a statistical measure that shows the degree to which the variation the dependent variable (ROE) is explained by the variation of independent variables (leverage, liquidity and size). The value of the R-squared ranges from 0 to 1 or 0% to 100%. By knowing this, it can be said that 60% of the changes in ROE is explained by changes in leverage, liquidity and size, while the remaining 40% of variation is explained by other factors that are not included in this study.

F-statistic tests the model as a whole. It shows if R-squared is significant or not. If the value of F-stat is smaller than 0.05, it indicates a significance of R-squared. In this model F-stat is 0.0000 which means that the R-squared is significant and the model fits at a degree of 95%.

Model I (Equation)

$$\text{Profitability} = -0.2 + (-0.91) * \text{Leverage}$$

4.2.2 Model II

$$\text{ROE}_{i,t} = \alpha + \beta_1 * \text{Leverage} + \beta_2 * \text{Liquidity} + u_{i,n}$$

Table 5: "Regression results for Model 2"

Variable	Coefficient	Prob	Relationship to ROE
C	0.143104	0.4998	
D/E Ratio	-0.875417	0.0328	Significant
Current Ratio	0.117354	0.3999	Insignificant

R-squared	Prob(F-statistic)
0.587896	0.000000

In the equation II there will be included only two variables, liquidity and leverage. This model is explained 58% by variation in liquidity and leverage and as suggested by F-stat this equation suits the model.

By observing the probability value, it is noticeable the significant relationship between leverage and profitability while the negative coefficient of debt ratio suggest a negative relationship between these two variables. Meanwhile the probability for liquidity is bigger than 0.05, suggesting an insignificant impact of liquidity on firm's profitability. The model number II is in line with findings in model number I.

Model II (Equation)

$$\text{Profitability} = 0.14 + (-0.88) * \text{Liquidity}$$

4.2.3 Model III

$$ROE_{i,t} = \alpha + \beta_1 * \text{Leverage} + \beta_2 * \text{Size} + u_{i,n}$$

Table 6: "Regression results for Model 3"

Variable	Coefficient	Prob	Relationship to ROE
C	0.205633	0.0389	
D/E Ratio	-1.417824	0.0000	Significant
NCAR	0.325431	0.2387	Insignificant

R-squared	Prob(F-statistic)
0.591014	0.000000

Model III excludes liquidity and include only leverage and size to see the joint impact of these variables on the profitability. By having a look to the statistical results above it can be concluded that leverage remains a significant factor on determining firm's profitability and the relationship continuous to be negative suggesting the equity financing as a better choice. On the other hand the variation in profitability does not depend on firm's size which is the same finding as in model number 1. The R-squared and F-stat values suggest that the model is accurate and it is statistically important.

Model III (Equation)

$$\text{Profitability} = -0.2 + (-1.42) * \text{Leverage}$$

4.2.4 Model IV

$$ROA_{i,t} = \alpha + \beta_1 * \text{Leverage} + \beta_2 * \text{Liquidity} + \beta_3 * \text{Size} + u_{i,n}$$

Table 7: "Regression results for Model 4"

Variable	Coefficient	Prob	Relationship to ROA
C	-0.215064	0.1365	
D/E Ratio	-0.489119	0.0150	Significant
Current Ratio	0.163418	0.0305	Significant

NCAR	0.371042	0.0137	Significant
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R-squared	Prob(F-statistic)
0.683207	0.000000

Model IV will use Return on Assets as a measure of profitability because in retail sector this is a very important ratio since inventory is the main source for generating sales. The model will include three variables, leverage, liquidity and size. This model represents us other findings. As evidenced in the table above, probability value stands lower than 0.05 for all of the variables which means that all the variables have a significant impact on ROA but the way they impact the profitability is different. For instance, leverage has a negative relationship while size and liquidity have a positive relationship with profitability ratio. Simply put, the higher the liquidity ratio, the higher the return on assets which is in accordance with Reddy and Narayan (2018) findings in their investigation of pharmaceutical industry in India. On the other hand it should be said that in theory keeping a large amount of current assets means an increase in maintenance costs which leads to a decrease in profitability and furthermore current assets include cash which means that keeping a high level of cash restrict firm's profitability. For instance, in the retail sector, companies need a sufficient inventory to satisfy customer needs, but a large amount of inventory could lead to an increase in maintenance costs. For these reasons the relationship between liquidity and ROA should be examined in further studies.

Regarding the size, this model suggests that the higher the size ratio, the higher the profitability. It is in accordance by Saleh and Mohammed(2018) that related this positive relationship with the economy of scales. According to them bigger companies can generate economy of scales, consequently they have higher profitability ratio.

Model IV (Equation)

$$ROA = -0.21 + (-0.49) * \text{Leverage} + 0.16 * \text{Liquidity} + 0.37 * \text{Size}$$

4.2.5 Model V

$$ROA_{i,t} = \alpha + \beta_1 * \text{Leverage} + \beta_2 * \text{Liquidity} + u_{i,n}$$

Table 8: “Regression results for Model 5”

Variable	Coefficient	Prob	Relationship to ROA
C	0.035000	0.7419	
D/E Ratio	-0.463893	0.0244	Significant
Current Ratio	0.085899	0.2204	Insignificant

R-squared	Prob(F-statistic)
0.660690	0.000000

In this model ROA is used as the dependent variable and liquidity and leverage are the independent variables. Even there will be used another ratio for profitability, the value of probability and the figure of coefficient for leverage suggests the same relationship and significance of this factor on firm's profitability. Meanwhile the probability for current ratio is 0.22 which indicates an insignificance relationship between variables. R-squared is 0.66, concluding that the variation of profitability is 66% explained by variation debt to equity ratio and current ratio while F-stat suggest that R-squared is statistically important. On the other hand as suggested by the figures current ratio does not have a significant impact on profitability. By mentioning this it can be said that the variation in ROA is mostly explained by variations in Debt to Equity ratio.

Model V (Equation)

$$ROA = 0.04 + (-0.46) * \text{Leverage} + 0.086 * \text{Liquidity}$$

4.2.6 Model VI

$$ROA_{i,t} = \alpha + \beta_1 * Liquidity + \beta_2 * Size + u_{i,n}$$

Table9: “Regression results for Model 6”

Variable	Coefficient	Prob	Relationship to ROA
C	-0.450789	0.0001	
Current Ratio	0.321202	0.0000	Significant
NCAR	0.352414	0.0223	Significant

R-squared	Prob(F-statistic)
0.661288	0.000000

The last model will exclude leverage and will include only size and liquidity and ROA will be the measure for profitability. As it can be explained by figures above there is a significant and positive relationship of size and liquidity with firm’s return on assets. Meanwhile the model fits overall and 66% of changes in profitability depend on changes in firm’s size or changes in firm’s liquidity.

Model IV (Equation)

$$ROA = -0.45 + 0.32 * Liquidity + 0.35 * Size$$

Table 10: “Comparison between expected relation of leverage and profitability with research findings”

	Expected relation		Study Findings				
	Trade off Theory	Pecking order Theory	Model I	Model II	Model III	Model IV	Model V
Profitability	Positive	Negative	Negative	Negative	Negative	Negative	Negative

Chapter IV

Conclusion and recommendations

This is the last chapter of this study. It will summarize all the findings of this research study and briefly discuss these findings which will help in making some recommendations that can be used by managers of the retail companies in United Kingdom. The conclusion and recommendations will be combined together to give a better and clear understanding about our case study.

This research paper aimed to give an answer to managers or decision makers when trying to find the optimal capital structure to finance their activities. This paper covered companies listed on London Stock Exchange that operates in retail sector. Many authors that were mentioned during this research paper have different answers in their theories. On the other hand there are many scholars that have attempted to find an universal solution for this important issue but different findings were found in each of their studies about capital structure relationship with profitability. Furthermore, their findings could not be accepted for our case because none of the researches conducted from researchers mentioned in this paper has covered retail sector. Some of the studies suggested a negative relationship between capital structure and firm's profitability, some others suggested a positive relationship between these two variables, while some others suggested no relationship between them. Regarding to theories about leverage effects on profitability there should be mentioned three main approaches. Starting with Modigliani and Miller(1958) that argue that no matter if companies choose internal or external financing, the profitability will not be affected. However this theory does not include tax as an important factor when making financing decision. Therefore there was a need for an investigation of the tax advantages when deciding the level of debt and equity in a particular company. It is Trade-off theory that includes tax advantages and bankruptcy costs as important factors to take into consideration when considering the level of debt and equity financing. As this theory suggests, there is an optimal debt level where firms can benefit from tax advantages and in the same time at this point managers are able to avoid bankruptcy costs. Later was Donaldson(1961) that developed another approach regarding financing decisions. The theory is called Pecking Order theory see equity as a better choice of financing rather than debt financing. As it suggests companies should use internal sources to finance their activities such as retained earnings, adjusting dividend payments when considering new investment opportunities, than debt financing and the last one should be issuing new equity.

This theory relates this order considering a very important factor that is asymmetric information that each way of financing possess.

In our case study one of the findings suggested when observing the descriptive statistics is the overall debt level of retail companies in UK. The average of the debt level is 0.58 which means that overall they are not highly leveraged. Even the mean for debt to assets ratio which is 0.16 indicates that the retail sector in UK tend to use equity financing more than debt financing.

Regarding to regression analysis there are used six models to see the impact of leverage on firms performance. Each of the models has a R-squared 58% and over which means that the in each model the changes in profitability depends on changes of variables included in the model. Furthermore, the f-statistic of each model suggests that R-squared is significant and as a consequence the models fit overall. The main objective of this study is to see the effects of mixture of debt and equity on retail firm's performance but there are used other two variables to get a better and more accurate model. The three variables consist on leverage, liquidity and firm's size.

Profitability: In all of the models, regression results suggest us accepting the alternative hypothesis H_a that shows a significant negative relationship between leverage and firm's value. Simply put, the higher the leverage the lower the profitability. It is in line with pecking order theory that proposes external financing as the last choice. The same findings were concluded from these scholars Rajan and Zingales (1995), Majumdar & Chhibber (1999), Foster and Young(2013), Korkmaz (2016) ,Reddy and Narayan, (2018). Based on these findings a there would be recommended for decision makers to be very careful when deciding the mixture of debt and equity financing because every little change in this mixture would affect firm's performance. It is recommended for them to use equity financing rather than debt for the important fact that a high portion of debt could decrease their organisation profitability and secondly it should be said that a low leveraged company could be attractive in investors eyes as they see the low debt to equity ratios as an indicator that they interest will be protected better than in any other highly leveraged company in cases of bankruptcy. Another reason why managers should choose equity financing is because it is harder for retail sector to manage high level of debt due to the expected fluctuations on earnings when macroeconomic factors change. However this is not to say that retail companies in the UK should be unleveraged at all because firstly, as discussed during the analysis there are mentioned the possible costs of

equity financing and secondly, if managers do not use debt financing at all leads to a limitation of growth opportunities.

Liquidity: Liquidity ratios is an important measure for retail companies because in investors perspective it is a sign of a short term stability since the nature of the retail sector may face seasonal volatility. In theory there should be a benchmark for the level of liquidity where the company can meet its short term obligations but in the same time this liquidity should respect other approaches related with the liquidity. For instance managers should not keep too much cash as it limits company growth or in cases of retail industry keeping too much inventory could lead to higher maintenance costs causing a decrease in profitability. However, Opler, et al.,(1999) argued that there is no optimal and universal liquidity level because it depends on the nature of the business. In our case study, liquidity is included in 5 models where the relationship is positive but in three of them the relationship was insignificant and in two of the models the relationship with firm's value was significant which supports the findings from Reddy and Narayan(2018) found that there was a positive relationship between liquidity and firm's profitability in pharmaceutical sector in India. This means the higher the liquidity ratio, the higher the profit of the company. As long as not all the models suggested the same significance of liquidity it would be difficult to give an answer to the optimal level of liquidity, therefore further studies would be recommended to be conducted to see the exact relationship between liquidity and firm's performance.

Size: Even size is only significant in only two models from four models that it is included. It is difficult to say an universal answer for the relationship of size and firm's profitability, therefore it is suggested a further investigation in coming studies for the effects of size on shareholder's wealth.

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Appendices

Model I

$$ROE_{i,t} = \alpha + \beta_1 * Leverage + \beta_2 * Liquidity + \beta_3 * Size + u_{i,n}$$

Dependent Variable: ROE

Method: Panel Least Squares

Date: 12/27/18 Time: 14:59

Sample: 2014 2018

Periods included: 5

Cross-sections included: 23

Total panel (balanced) observations: 115

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.200376	0.290568	-0.689603	0.4922
DTE	-0.910066	0.400176	-2.274165	0.0254
CURRENTR	0.223831	0.150906	1.483251	0.1415
NCAR	0.509652	0.299518	1.701575	0.0923

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.600880	Mean dependent var	0.235889
Adjusted R-squared	0.488767	S.D. dependent var	0.063864
S.E. of regression	0.045663	Akaike info criterion	-3.139173
Sum squared resid	0.185576	Schwarz criterion	-2.518580
Log likelihood	206.5025	Hannan-Quinn criter.	-2.887277
F-statistic	5.359617	Durbin-Watson stat	3.237823
Prob(F-statistic)	0.000000		

Model II

$$ROE_{i,t} = \alpha + \beta_1 * Leverage + \beta_2 * Liquidity + u_{i,n}$$

Dependent Variable: ROE

Method: Panel Least Squares

Date: 12/27/18 Time: 15:01

Sample: 2014 2018

Periods included: 5

Cross-sections included: 23

Total panel (balanced) observations: 115

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.143104	0.211192	0.677602	0.4998
DTE	-0.875417	0.403844	-2.167711	0.0328
CURRENTR	0.117354	0.138759	0.845740	0.3999

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.587896	Mean dependent var	0.235889
Adjusted R-squared	0.478001	S.D. dependent var	0.063864
S.E. of regression	0.046141	Akaike info criterion	-3.124550
Sum squared resid	0.191613	Schwarz criterion	-2.527826
Log likelihood	204.6616	Hannan-Quinn criter.	-2.882343
F-statistic	5.349634	Durbin-Watson stat	2.949664
Prob(F-statistic)	0.000000		

Model III

$$ROE_{i,t} = \alpha + \beta_1 * \text{Leverage} + \beta_2 * \text{Size} + u_{i,n}$$

Dependent Variable: ROE

Method: Panel Least Squares

Date: 12/27/18 Time: 15:03

Sample: 2014 2018

Periods included: 5

Cross-sections included: 23

Total panel (balanced) observations: 115

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.205633	0.098125	2.095632	0.0389
DTE	-1.417824	0.208627	-6.795966	0.0000
NCAR	0.325431	0.274364	1.186129	0.2387

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.591014	Mean dependent var	0.235889
Adjusted R-squared	0.481951	S.D. dependent var	0.063864
S.E. of regression	0.045967	Akaike info criterion	-3.132145
Sum squared resid	0.190163	Schwarz criterion	-2.535421
Log likelihood	205.0984	Hannan-Quinn criter.	-2.889938
F-statistic	5.419011	Durbin-Watson stat	3.080416
Prob(F-statistic)	0.000000		

Model IV

$$ROA_{i,t} = \alpha + \beta_1 * \text{Leverage} + \beta_2 * \text{Liquidity} + \beta_3 * \text{Size} + u_{i,n}$$

Dependent Variable: ROA

Method: Panel Least Squares

Date: 12/27/18 Time: 15:05

Sample: 2014 2018

Periods included: 5

Cross-sections included: 23

Total panel (balanced) observations: 115

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.215064	0.143116	-1.502722	0.1365
DTE	-0.489119	0.197103	-2.481543	0.0150
CURRENTR	0.163418	0.074327	2.198634	0.0305
NCAR	0.371042	0.147525	2.515123	0.0137

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.683207	Mean dependent var	0.115494
Adjusted R-squared	0.594220	S.D. dependent var	0.035307
S.E. of regression	0.022491	Akaike info criterion	-4.555530
Sum squared resid	0.045020	Schwarz criterion	-3.934937
Log likelihood	287.9430	Hannan-Quinn criter.	-4.303635
F-statistic	7.677627	Durbin-Watson stat	3.237823
Prob(F-statistic)	0.000000		

Model V

$$ROA_{i,t} = \alpha + \beta_1 * \text{Leverage} + \beta_2 * \text{Liquidity} + u_{i,n}$$

Dependent Variable: ROA

Method: Panel Least Squares

Date: 12/27/18 Time: 15:05

Sample: 2014 2018

Periods included: 5

Cross-sections included: 23

Total panel (balanced) observations: 115

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.035000	0.105944	0.330366	0.7419

DTE	-0.463893	0.202588	-2.289835	0.0244
CURRENTR	0.085899	0.069608	1.234040	0.2204

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.660690	Mean dependent var	0.115494
Adjusted R-squared	0.570208	S.D. dependent var	0.035307
S.E. of regression	0.023147	Akaike info criterion	-4.504257
Sum squared resid	0.048220	Schwarz criterion	-3.907533
Log likelihood	283.9948	Hannan-Quinn criter.	-4.262050
F-statistic	7.301856	Durbin-Watson stat	2.793716
Prob(F-statistic)	0.000000		

Model VI

$$ROA_{i,t} = \alpha + \beta_1 * \text{Liquidity} + \beta_2 * \text{Size} + u_{i,n}$$

Dependent Variable: ROA

Method: Panel Least Squares

Date: 12/27/18 Time: 15:04

Sample: 2014 2018

Periods included: 5

Cross-sections included: 23

Total panel (balanced) observations: 115

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.450789	0.110071	-4.095427	0.0001
CURRENTR	0.321202	0.039582	8.114918	0.0000
NCAR	0.352414	0.151497	2.326216	0.0223

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.661288	Mean dependent var	0.115494
Adjusted R-squared	0.570964	S.D. dependent var	0.035307
S.E. of regression	0.023126	Akaike info criterion	-4.506019
Sum squared resid	0.048135	Schwarz criterion	-3.909295
Log likelihood	284.0961	Hannan-Quinn criter.	-4.263811
F-statistic	7.321343	Durbin-Watson stat	3.122439
Prob(F-statistic)	0.000000		

