A STUDY ON THE IMPACT OF SAVING RATE AND GROSS DOMESTIC PRODUCTS TOWARDS IPO UNDERPRICING: EVIDENCE IN MALAYSIA

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ABSTRACT

This study is to determine the level of IPO underpricing and examines the impacts of macroeconomic variables (i,e,. saving rates and GDP) with few control variables towards IPO underpricing on Bursa Malaysia from 2012 to 2016. The result shows that underpricing exists in the first day of trading during the particular period and reported 68.49% of IPOs underpriced. Both linear and OLS regression models are used to distinguish the relationship between various independent variables and dependent variable with control variables. The linear regression show that only GDP affect the IPO underpricing but there is no impact of saving rate towards IPO underpricing. Empirical findings from OLS regression show that both saving rate and GDP with the control variables (i,e,. year of operation or establishment, size of company, underwriter status and issue period) are significant in influencing the IPO underpricing. In addition, the findings also conclude only GDP is significantly difference on the sub-samples of high and low underpricing.

Keywords: Initial Public Offering, Initial Return (Underpricing), Macroeconomic Variables, Linear Regression, OLS Regression, Malaysia

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CHAPTER 1 INTRODUCTION

1.1 Introduction

With the intention to start up a company, the capital is raised from a few investors in illiquid market. Unfortunately, this capital would not last longer for long run expansion of the company. The best alternative is to issue common stock to a huge quantity of diversified investors for facilitate and acquires additional capital (Edris, 2012). According to Barnes and Walker (2006), there are four main ways common stock can be issued by firms which are rights issues, offer for subscription, private placements, and initial public offering.

A rights issue is an offer to subscribe for or purchase additional securities in proportion to existing shareholders' holdings. When the management team offers a small number of targeted investors to take up new shares at a stated price, it is known as offer for subscription. Private placement normally occurs when a lead issue manager or underwriter sell new issue shares to institutions and placing the fee after they subscribe shares from the firm at a given price. Private placement is conceptually similar to an offer for subscription in outcome, but differs somewhat in implementation. A placing can potentially be either very worthwhile or highly costly for the underwriter (Barnes and Walker, 2006).

The process a company issues the shares in the primary market before trading in the secondary markets to the public is known as initial public offering (IPO). The form of

IPO may be undertaken as public listing, offer for sale or a combination of both (Chong Fen Nee, 2008). Generally, the smaller and younger companies seeking funds to expand via IPO issuance, the large privately-owned companies will also issue IPO when planning to be listed and publicly traded (Thokozani Patmond Mbhele, 2013). The major requirement and changes to the listed company is to disclose all the private information regarding the firm's financial health and operations.

Initial public offerings (IPOs) symbolize an important element of stock market activity. The function and importance of IPOs in financial markets keep changing over the years. For instance, the allocation of new capital in Asian capital markets is the most key function of the IPO. Compared with other developed country like North America (825), Europe (1098) and Australia and New Zealand (504), Asia had the larger number of IPOs (2956) in 2005. Asian IPOs have risen almost 64% from $25 billion of total capital in Year 2001 to $41 billion of total capital raised in 2005 (David Nga and Eliza Wu, 2010). In a nutshell, the importance of IPOs is obviously in most countries, especially in developing countries such as Malaysia.

Since the establishment of the Bursa Malaysia (formerly known as Kuala Lumpur Stock Exchange) in 1973, the IPOs statistic show the number increase from from 262 companies to 904 companies in 2016. The listing process start from discussion of issuers with adviser until the listing day on Bursa Malaysia which will take for seven months depend on availability of the latest audited accounts, due diligence work, and the size and complexity of the IPO (Bursa Malaysia, 2017). There are requirements on the support of

professionals and an evaluation of a company's readiness and fitness when listed on Bursa Malaysia. Therefore, there are two benchmark assessments for the companies named as the regulatory benchmark and the market benchmark. There are two sets of rules in regulatory benchmark for the purpose in determine whether a company is best suited for a Main Market listing (combination of Main and Second Board) or an ACE Market (previously known as MESDAQ Market) listing. Meanwhile, the market benchmark is solely driven by market expectations without any prescribed set of rules.

During the IPO process, there are two anomalies named as short term underpricing and long term underperformance occur. The associated results and global evidence implied that IPO companies provide the positive short-run (initial) returns (Chong & Puah, 2009), so-called underpricing. The situation where the closing price is higher than the offer price in first trading day is known as underpricing. The reason of these phenomena is result of the offer price on IPO shares is too low and there is swift appreciation in the stock price on the first trading day on the stock exchange. Long-term underperformance occurs when the company unable to maintain the performance at the time of IPO and tends to drop after the IPO period. The rationale behind both of these anomalies is explained by the asymmetric information hypothesis. For the purpose to guide the investors, this study will more focus on short run returns. The key essential of underpricing is for both the company and the investors to determine the pricing of IPO. Therefore, this study argues that information in the prospectus and current economic conditions are vital in explaining the IPO underpricing.

1.2 Background of Study

The primary motive for the company selling the shares in the public is to raise the capital for the expansion of business (Espinasse, 2011). Generally, the company will sell the shares via Initial Public Offering (IPO) with the expectation to create the liquid market (Ritter, 1991). The solid economic growth and sustained strength in the equity markets ensuring the IPOs maintain their allure.

In Malaysia, the IPO companies will become publicly traded companies if the company listed on the Bursa Malaysia. From August 3, 2009 onwards, there are two markets in Bursa Malaysia, named as MAIN and ACE Market. The MAIN Market is a merger by of Main and Second Boards into a Single Unified Board. The MESDAQ Market will be transformed into an alternative market for emerging companies of all sizes and sectors and will be called the ACE Market. While the Main Market consists of established companies with strong track records, the ACE Market facilitates the listing of emerging companies from all sectors instead of only high-growth or technology-based companies. Figure 1 showing the number of IPOs listed in Bursa Malaysia from 2012 to 2016. Even the number slightly decreases, still the IPOs consider as the main ways for raising the capital.

There is an ordinary phenomenon known as IPO underpricing where there is a positive return of a new stock on the listing day compared to its offering price. The usual trend in stock market is IPO underpricing. Studies from Chi and Padgett, (2005); Nguema and Sentis (2006); Borges, (2007); Yamamoto, (2009); Samarakoon, (2010); Banerjee, et al.,

(2010); Islam, et al, (2010); Boulton, et al., (2012); Agathee, et al., (2012); Darmadi and Gunawan, (2012); Ekkayokkaya and Pengniti, (2012); concluded there was existence underpricing during initial stock exchange trading.

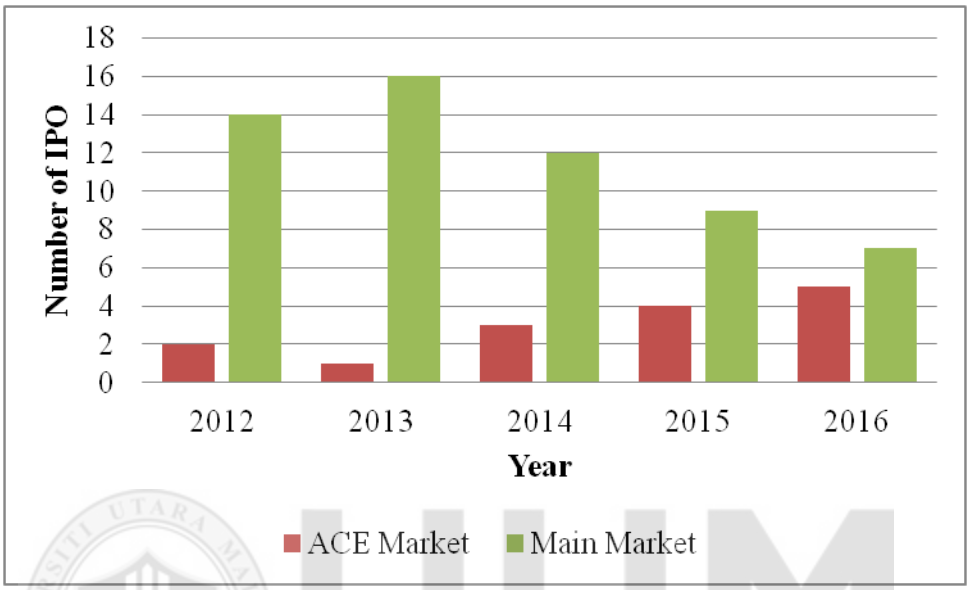

Figure 1: Number of IPO in Bursa Malaysia from 2012 to 2016

The degree of underpricing in Asian markets was recorded as higher than the developed country. For instances, the degree of underpricing recorded in Malaysia was 46.44% in 2006 (Yeap, M. 2006), 31.4% for Singapore in 2000 (Loughran et al., 2000), 96.56% for India in 2003 (Balwilder Singh and RK Mittal., 2003) and 22% for US market in 2006 (Lowry et al., 2006). Interestingly, David Ng and Eliza Wu (2010) found that initial underpricing in developed Asian markets where there is stringent of listing requirements, (Hong Kong, 21.43%; Japan, 34.04%; and Singapore, 33.10%) is lower than the emerging Asian markets in 2010 (China ,202.63%; Korea, 70.30%; and Malaysia, 61.81%). Additional, looking at the Asian stock markets, the initial performance of IPOs which are reported by Chen, Choi, and Jiang, (2007); Chorruk and Worthington, (2010);

Samarakoon, (2010); and Moshiran, Ng and Wu, (2010) are more than 30%. (Ahmad-Zaluki et al, 2011)

Underpricing brings the enjoyment of positive return to the investors, but acts as significant costs to the issuing firm. This anomaly contradicts with the purpose of companies in raising funds and violate efficient market hypothesis. Based on Fama (1998), the market where the securities price are fully reflect with the information is known as efficient market. Underpricing considers as irrational action because the issuing company leave so much money on the table. Even the underpricing is irrational, the phenomena are continuing across the countries. Thus, this study is investigate the degrees of IPOs underpricing on the first trading day on Bursa Malaysia and provide the insight what impact the underpricing.

1.3 Problem Statement

The dominance of positive initial returns for IPOs has mystified finance academics for decades. There are various models and hypotheses were proposed by a large body of finance literature in explaining the underpricing phenomenon. The investor can earn the positive returns when the investor subscribes new IPO issues at the offer price and sells them at the closing price on first trading day. Underpricing is inconsistent with the capital market efficiency where there is positive return at the first trading. The importance of underpricing towards investors and issuers is determining the pricing of IPO. The previous studies more focus on the characteristics of company. The market condition is critical in determine the pricing; hence this study is focusing in macroeconomic variables. The study focuses on the macroeconomic variables were mainly examined in the developed country and there was only one research done by Ameer (2012) with the evidence in Malaysia.

Macroeconomic variables are affecting the number of IPOs in developed and emerging capital market. This is because the cash flow of many companies and influence risk-adjusted discount rates affected by changes in macroeconomic (Ameer, 2012). Theoretically, the stock market participants require the macroeconomic variables in making decision on the investment. Based on the neoclassical economic theory, the gross domestic products (GDP) is leading indicator of business cycle which able provides the signal when the entrepreneur seeks for financing. If there is increase in GDP, the number of IPOs will increase. The liquidity preference theory explaining the people desire to hold the quantity of money for speculative purpose is a function of interest rate (Keynes,

1936). People prefer to hold their wealth in one form of interest bearing asset or another when the interest rate is high. This theory concluded that increase of interest rate, people will tend to save more.

The researcher suggested that the IPO underpricing may be affected by some unique market-specific features and cause there is varies of degrees of underpricing across the countries. The lower levels of underperformance observed as the reason of the listing standards are usually stringent in more developed stock markets. The theories explained underpricing are based on agency costs, asymmetric information and signaling. However, there is no major theoretical explained the cause for underpricing. (Ritter and Welch, 2002) Hence, there is no entire theory or hypothesis can applicable for all times and across countries.

In IPO Process, there are three main parties involve, namely issuing firm, underwriter and investors. This will create three type of relationship between the parties. First type is the relationship between the investors, which mainly focus on how the investors' perspective on the company. This is explained by using the Winner's Curse Hypothesis which first proposed by Capen, Clapp and Canpbel (1971) and belief that the uncertain in any style of auction is the auction value of the objects. The people who overvalued the auction objects consider as winner this is because the rate of return from the auction is usually lower than the abnormal return. Rock's (1986) model, explained that there is information asymmetry between the informed and uninformed investors. The latter investors have more opportunities to subscribe to the IPO compared to informed investors, and they will

face the winner's curse. Underwriters have to lower the offer price with the purpose to get the attraction from more uninformed investors. The more uncertain the market value of the listed companies, the more underpricing will be on the IPO.

Besides that, there is relationship between the issuer and underwriter. Underwriters are consider the important player in determine the pricing as they tend to have more information on the capital market and the offering price compared to the issuing company. The goal of the issuing firm is to maximize the issuing revenue but the underwriters is focus on how to maximize their commission fees. This is lead the underwriters may reducing the issuing price to maximizing the commission fees. This is well explained by Agent-Based Modeling (ABM) which proposed by Baron (1982).

Lastly, the signaling hypothesis can use to explain the relationship between the issuer and investors (Allen and Faulhaber 1989; Grinblatt and Hwang, 1989; Welch, 1989). In order to leave a good taste for investors, the issuer may tend to underpriced the IPO. This could provide the signals or insight to the investors about the quality of listed companies for outside investors. The rationale behind is the outside investors have difficulty distinguishing between good and bad corporations in the IPO markets.

The theories and hypotheses explain the triangle relationship in the IPO process. The parties are wishes to know the possibility of underpricing before the offering. Underpricing occur when a difference of the two pricing mechanisms between primary market and secondary market. Basically, the agreement between issuer and underwriter

has set the price of shares to sell in primary market, IPO. Meanwhile the secondary market's price is established by market mechanism based on the demand and supply. Underpricing happened when the pricing that occurred in secondary market on the first day is significantly higher than the current pricing of IPO shares (Dwi Martani,Ika Leony Sinaga and Akhmad Syahroza, 2012).

Since the macroeconomic changes able affect the investment, the parties should start with determine the macroeconomic variables that affect the underpricing. In emerging market, the central bank will play a main role through the monetary policies whereby central bank will intervenes the policy to adjust the increase in inflation in efforts to attract the institutional and retail investors as well fund managers to participate in the market. Therefore this study seeks to address the gap in empirical research in examining the influence of macroeconomics variables on the IPO underpricing. This study is focus on two macroeconomic variables, named saving rate and GDP affect the IPO underpricing on Bursa Malaysia.

1.4 Research Objectives

The research objectives are as below:

- To examine the impact of saving rate on IPO underpricing.
- To examine the impact of GDP on IPO underpricing.
- To examine the differences of saving rate and GDP on the sub-samples of high and low IPO underpricing.

1.5 Research Questions

The research questions are as below:

- What is the impact of saving rate on IPO underpricing?
- What is the impact of GDP on IPO underpricing?
- Are there differences of saving rate and GDP on the sub-samples of high and low IPO underpricing?

1.6 Significance of Study

This study was examines the influence of the macroeconomic variables that affect the IPO underpricing on Bursa Malaysia. There are two group of people could be benefiting, which are the investors and the IPO issuers.

Investors that have less investment knowledge, so-called uninformed investors usually move based on the gut feelings or the trend of market. When the uniformed investors heard the news that the company could perform well after the listing, they just follow the trend and invest based on a piece of the information. This is considers as cognitive bias. Besides it, when the investment performs well in the short-run, the investors will think the better performance on the long run. The investors do not discover that this is just the strategy of company to attract the investment from them. The study will provide the insight to the investors on the phenomenon of the underpricing and understand how the firm's characteristics and market effects related to the IPO underpricing. Furthermore, the investors could compare the information and make a wise investment decisions. This study explore about the returns on IPOs, and also help investors in making the decision regarding the best time of selling these shares to getting the maximum return on their investments.

Indeed, the company choose to be listed as a public traded company is to raise the funds. However, the company usually offer the shares at a discount price relative to its true value. This could create the positive returns to the investors at the first trading day. The motive behind this strategy to attract the investors purchases the shares and ensures the

successful of the listing. Besides it, this set up the illustration to the investors that the company will perform better in the long run. The support of the investors is important to raise more funds and achieve the sustainability of the company.

Thus, the company should understand the macroeconomic variables that could determine the degree of underpricing to increase the participation of the investors to achieve the purpose in raise the fund. The company should understand when is the best time to list on stock exchange and the price they could offer.

1.7 Scope of Study

This study is conducted on IPO companies listed on MAIN market and ACE market of the Bursa Malaysia. The period of observation is from year 2012 until year 2016. This study uses secondary data of the prospectus information in collecting the IPOs related variables which are available on Bursa Malaysia Website (2017). Besides it, the macroeconomic data for the period 2012 to 2016 are collected from International Monetary Fund Website (2017).

1.8 Conclusion

This chapter is contains with the foundation of research. This research is useful to stock issuer, investors, and public to learn more about the latest information of the IPO underpricing. The most important is, they can know the different macroeconomic variables towards IPO underpricing.

The following chapter will talk about the literature reviews that obtain from previous study to show the understanding of the variables. Consequently, this research project will give advantage to investors who are interested in stock industry and company who want to list as IPO, this research will help them more on their requirement on knowledge and let them can make their own decision before listed and invest.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

In this chapter, there were the summary on previous researchers' work critically mainly in the field that associate to the determinants of IPOs underpricing.

The chapter layout will discuss the literature review by the past researchers' research; study the method that used by the past researchers; determine the relationship between the independent variables and dependent variables is it showing positively, negatively or no related; the hypotheses development is stated to decide whether to accept or reject the null hypothesis; and the summary of this chapter.

2.2 Initial Return

Initial return generally refers as the discrepancy between offer price of a new issue and closing price at the first day of trading (Yong, 2007; Chong & Puah, 2009). It is also known as underpricing since most of the previous studies on various stock markets worldwide have proved that the IPO reported in abnormal positive return.

There are few previous studies have been defined the underpricing. When there is significance rising of the IPO market price over few days after the initial listing, the situation is refers as underpricing (Hutagaol, 2005). When a private company seeks to list its shares on stock exchange, they will offer the shares at a discount price relative to its true value (Murugesu and Santhapparaj, 2009). This circumstance appears the positive excess returns in the short run and so-called as the initial IPO underpricing which is a generalized phenomenon around the world (Gajewski and Gresse, 2006).

Underpricing occur when a difference of the two pricing mechanisms between primary market and secondary market. Basically, the agreement between issuer and underwriter has set the price of shares to sell in primary market, IPO. Meanwhile the secondary market's price is established by market mechanism based on the demand and supply. Underpricing happened when the pricing that occurred in secondary market on the first day is significantly higher than the current pricing of IPO shares (Dwi Martani et al, 2012).

Underpricing can be describes as the percentage profit from the offer price to the closing price of shares at the first trading day (Jones and Swaleheen, 2010). Generally, this underpricing generates the return for investors and reduces the underwriter risk. The IPO literature is populated with countless illustrations of new issues being underpriced. In the case study of Netscape (listed on 9 August 1995), the stock price rose by 108 percent from the opening price at 28 dollars to close at 58.25 dollars on the first trading day. This consider as the most outbreak underpricing phenomenon (Loughran and Ritter, 2002).

2.3 Macroeconomic variables

2.3.1 Saving Rate

Saving rate is explained as the proportion of net saving to net disposable income (Ansgar Belke et al 2012). This is means the part of disposable income where the household decide not to spend or consumed (Ugwuanyi, 2004). Classical economists deemed the saving is essential and create for investment, where the savings go up as investment increases because the interest rate and economic growth will be forthcoming.

However, Marshall (1920) mentioned that the volume of savings tends to increase if interest rate offered for capital increase and the individual will invest lesser. Ameer (2012) examined the impact of the local macroeconomic variables towards the numbers of IPOs in an emerging market. He concluded that the hot IPO market regime develops when the willingness of entrepreneur or manager to step into the IPO market and investors begin undergo the extremely positive returns and their expectation about the future interest rate. On the other hand, the investors believe that the future earnings are expected to decrease by reason of the higher interest rate in future when a government pursues monetary tightening. This will keeps investors away from the IPO markets as the valuation of shares would be affected due to lower dividend yield, thus causing cold IPO market.

While, Acha and Acha (2011) concluded that both savings rate and lending rates respectively unable to predict the savings and investment. The reasons were lack of confidence in the banking system, low income and preference for cash. Tomas Meluzin and Marek Zinceker (2014) found out that IPO numbers in Poland able explained by the reference interest rate but are not supported by empirical evidence.

In the form of testable hypothesis, this proposition is developed into;

i. There is a positive relationship between saving rate and the IPO underpricing;
ii. There is positive relationship between the saving rate and GDP towards IPO underpricing;
iii. There is a positive significant differences of saving rate on the sub-samples of high and low IPO underpricing.

2.3.2 Gross Domestic Product (GDP)

Gross domestic product (GDP) is measures of national income and output for a given country's economy at a given period of time. The measurement is the total market value of all final goods and services produced within the country in a given period of time, normally one year. (Alex Reuben Kira, 2013)

La Porta et al. (1997) review the impact of economic conditions on the number of IPOs using a sample of 49 countries. The research results show that the quality of law enforcement explained there is high co-relationship between the level of GDP per capital on the number of IPOs. Tomas Meluzin and Marek Zinceker (2014) examined a statistically significant relationship between GDP growth rates and the number IPOs. Sylvia Kovandova and Marek Zinecker (2015) indicate the GDP has no statistically significant affect on the number of new issues. This result implies that the IPO activity in the Polish capital market between 1993 and 2012 no affected by business cycle. Accordingly, this study proposes the following hypotheses;

i. There is a positive relationship between the GDP and the IPO underpricing;
ii. There is positive relationship between the saving rate and GDP towards IPO underpricing;
iii. There is a positive significant differences of GDP on the sub-samples of high and low IPO underpricing.

2.4 Control Variables

The determinants of the IPO underpricing differentiate into three categories, which are the relationship between the investors, relationship between the issuer and underwriter; and relationship between the issuer and investors. The relationship between the investors is explain by the Winner's Curse Model (Rock, 1986) and tested by the year of operation or establishment and the size of the company. Underwriters' status is use to examine the relationship between the issuer and underwriter. While, the Signalling Model (Allen and Faulhaber, 1989) explain the market effect related to the underpricing. The market effect is the issue period.

2.4.1 Year of Operation or Establishment

Year of operation or establishment indicates how long the company can sustain in the market (Abidin, S. et al, 2011). According to Tianwei Zhang (2012), age of the firms before issuing shares means the number of years in existence before going public which is an important variable to measure the asymmetric information on underwriters and investors. When the IPO firms are missing the track record and lack of public scrutiny are subject to uncertainties regarding quality of the firm.

The previous studies done in Malaysia indicate the negative relationship between the year of operation or establishment and the initial return (Abidin, S. et al, 2011; Ahmad-Zaluki et al, 2012). The long operating histories and the information of the older companies could be obtained and expose to the investor help in reducing the information asymmetry. As the period of the operating in the company, the

company considers as more skillful and mature. With the experience in the operation, the investors feel confident to invest and cause the underwriter set the price equal or higher to the true value of the company. The younger firms have limited operating history and difficult to forecast future cash flows (Adel Boubaker and Mediha Mezhoud, 2011).

However, there were some studies found the inconsistent results. According to Islam et al (2010), the year of operation or establishment is positive related to the degree of underpricing on the Chittagong Stock Exchange. This is means that the older company would increase the level of underpricing to encourage the public participations into the older companies. But, these results contradict with the ex-ante uncertainty hypothesis. Some of the studies found that the year of operation or establishment cannot affect the IPO returns and consider year of operation or establishment as control variable (Puan Yatim, 2011; Bansal and Khanna, 2012; and Najet Younesi, Aref Mahdavi Ardekani and Mohammad Hashemijoo, 2012).

2.4.2 Size of company

Size of company is the market capitalization which computed as the natural log of total number of shares offered multiplied by IPO offer price or the natural log of gross proceeds from going public (Edward Wong Sek Khin et al, 2016; Che-Yahya, N. et al, 2017).

The big companies that having the better diversified to the capital of investment and well control system in resources. This would provide the longer survival and profitability for the company and reduce the uncertainty risk to the investors. According to the Ritter (1984), the big firms are convenience to value because of ease of estimating the cash flows. The offer price would be set relative to true value and hence, the level of underpricing would decrease (Adel Boubaker and Mediha Mezhoud, 2011). This negative relationship is explained when there is more number of shares offered the more subscriptions for shares will be fulfilled (Che-Yahya, N. et al, 2017). Without any doubt, the smaller of the company size, the more short-run returns be generates (Recep Bildik and Mustafa K. Yilmaz 2008). The motive of the positive returns is to compensate the angst about the future performance and risk on greater of the uncertainty that the investors would be bear. This could increase the faith of the investors towards the small firm.

The previous studies in Malaysia had shown the different approaches to the size of company. According to the Abidin, S. et al (2011), as the size of the company increase, the higher of underpricing because compensate the risk incurred on the

REIT's company. Besides it, the supporting studies by Ahmad-Zaluki et al (2012) show the positive relationship of the company size with the initial return on the MESDAQ Market. The studies in other country support the results. In 2010, Islam et al found that the size of the company is positively related to the IPO underpricing on Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange respectively.

Even there were number of studies supporting the relationship between the size of the company and degree of the underpricing, the studies by Najet Younesi et al (2012) had been show the different result. They found that there is no relationship between the company size and initial returns.

2.4.3 Underwriter Status

Generally, the issuing firm will choose the underwriter in good marketing services as the underwriter is important in promote the IPO share and improve the relationship between the issuer and potential investors. Besides it, they also critical in decide the offer price to ease the attractive from the investors. The underwriter status is a dummy variable and defines as the highest number of IPOs managed by an underwriter during the period of study (Jelic,et al.,2001; Nashirah and Uzaki, 2014).

The study by Carter concluded that the issuing firm was look for more reputable underwriter than the less reputable (2010). The reason is the underwriter with

good reputation contribute the better long term investment compare to the less reputable (Paudyal et al,1998). Besides it, the positive relationship between the underwriter reputation and underpricing is because the good reputable underwriter signals the good and safe investment to the investors. The investors tend to pay more for the investment and push the share price upwards (Edward Wong et al, 2016).

However, there are studies showing that there is negative relationship between the underwriter status and IPO underpricing. The rationale for the negative relationship is the results of changes in the economic condition (Beatty and Welch, 1996). The pre-market service such as offer price adjustment and road show activities that provided by good reputable underwriter tends to decrease the IPO underpricing on the shariah-compliant companies. However, the same study show there is no impact on the underwriter reputation on the IPO underpricing for the non-shariah compliant companies (Nashirah and Uzaki, 2014).

2.4.4 Issue Period

Generally, the investors are curious to know when is the best timing to buy an IPO to gain the returns. On the other hand, in order to maximum the profit, the companies are eager to learn when to issue their securities. Subsequently, it is essential to analyze the market conditions in Malaysia to present better decision making.

The concept of "hot" IPO markets is based on the issuance volume (Agrawal, 2006). The hot market is when the years that records as the highest IPO proceeds and the highest number of IPOs relative to the average number of annual IPOs. The cold market is when the years recorded as the lowest number of IPOs during the period of study (Recep Bildik and Mustafa K. Yilmaz, 2008). A hot IPO market is characterized by an unusually high volume of offerings, severe underpricing, frequent oversubscription of offerings and to a certain extent, by concentrations in particular industries. In contrast, cold IPO markets have much lower issuance, less underpricing, fewer instances of oversubscription and larger offerings (Bante and Abdud H., 2010)

Guo et al. (2010) found that a hot period is when there is high level of underpricing, positive market conditions, abundant supply of IPOs, and short waiting time to listing after prospectus issue in the Chinese A-share market. The underpricing happen in the hot issue period because the underwriter try to compete with the other IPOs and reduce the failure in the issuance by lowering the price (Ljungvist et al., 2006; Thomadakis et al., 2012; Boehme and Colak, 2012). This is match with the supply and demand theory where there is excess of supply than demand in the market, the price of the share is discounted to compete.

Opposing, the previous studies found the coefficient of the market conditions is negative relationship to the initial return. The underpricing is decrease as IPO volume is high (Ahmad-Zaluki et al, 2012). According to Recep Bildik and

Mustafa K. Yilmaz (2008), the findings shown that cold market IPOs always, even on their first days in the market, significantly outperform because the trading price that investor could sell higher than the offer price that the investor buy. Whereas, the hot market IPOs do not show the underpricing and continue to do so until the end of the three years holding period.

2.5 Conclusion

To conclude all the point above, this chapter had provide a lots of literature review. To provide the summary of study on the relevant field and critically reviewed by authors to create a sustainable foundation is the main purpose for this chapter. To better understand the concept of variable, the researchers suggest to read and refer this chapter since it include the literature review of the level of underpricing, saving rate, GDP, year of operation or establishment, size of company, underwriter status and issue period.

Besides that, the relationship between dependent variables and independent variables are provided by the theoretical framework and conceptual. At last, the methodology of the research will be formulate in chapter 3 to discuss ways of collecting and analyzing data to empirically test the hypotheses.

CHAPTER 3 METHODOLOGY

3.1 Introduction

This chapter consists of overview of the methods that apply in the study. The elements that covered in this chapter include sample selection, data collection method, measurement, and method of analysis. This chapter will study about how the research is being conducted.

3.2 Research Design

3.2.1 Type of Study

This study consists two parts to analyse the data, which are the descriptive statistics and inferential analysis. There are two independent variables to predict the outcome of a dependent variable. This study is an explanatory study which investigates the causal and correlational relationship among dependent and independent variables in affect the short term performance of Malaysian IPOs.

3.2.2 Source of Data

Data for each company are gathered from secondary sources of data. The closing price on the first trading day of IPO companies is collected from Bursa Malaysia. The data for macroeconomic variables for the period 2012 to 2016 are collected from International Monetary Fund (IMF) (2017). In addition, the annual reports of IPO companies and their prospectus are downloaded from the website of Bursa Malaysia (2017) and the database of DataStream.

3.2.3. Unit of Analysis

In order to measure the independent variables, all the data are from the organization level where the age and size of the company can collect through the prospectus or the company website. For the underwriter status, the number of underwriter underwriting the IPO is available in prospectus. The issue period is available when all the data be collected.

3.2.4 Population Frame

The period of this study is from 2012-2016; the reason of this selection of sample is to closely study the most recent IPOs to relate with the determinants. Based on the article in Bloomberg (2012), the number of IPOs around the world in 2012 recorded as the lowest level since the financial crisis where the signs of an economic slowdown. The purpose of start the study in 2012 is to examine the affect of macroeconomic variables when the economic slowdown.

According the data from www.bursamalaysia.com, there were 73 companies being listed on the Bursa Malaysia from 2012 to 2016. Meanwhile, there were 58 companies be listed under MAIN Market and 15 companies under ACE Market. On Bursa Malaysia, there are ten major sectors to differentiate the type of companies, named as Construction, Consumer Products, Finance, Hotel, Industrial Products, Infrastructure, Plantation, Property, Technology and Trading / Services under MAIN Market. There are five sectors to differentiate the type of companies, named as Consumer Products, Finance, Industrial Products, Technology and Trading / Services under ACE Market.

3.2.5 Sample and Sampling Technique

For this study, the sectors to be focus are Consumer Products, Industrial Products, Trading/Services, Construction, Plantation, Properties, Finance and REITS. There were 50 companies listed under those sectors and be used as the sample size of this study.

The sample data is included the companies that are listed into Bursa Malaysia between the periods of 2012 to 2016. Table 1 presents the population and sample of the companies that be listed from 2012 to 2016. The highest number of listing was 17 companies which were listed during the year 2013 but the 13 companies were used for this study. The next highest listings were in 2012 with the number of 16 companies listed during the year but 11 companies were used for this study. The next highest contributing year in terms listing was 2014 and there were 15 companies listed during this year and there are 10 companies used as sample. The lower contributing year in terms listing was 2015 and there were 13 companies listed during this year and there are 6 companies used as sample. The lowest number of companies listed in the year 2016 with 12 companies listed and there are 10 companies used as sample.

Table 1: Number of IPOs from 2012 to 2016 and Number of IPOs included in Research

Year of Listing	Population	Sample	Percentage of IPOs Included
2012	16	11	68.75%
2013	17	13	76.47%
2014	15	10	66.67%
2015	13	6	46.15%
2016	12	10	83.88%
TOTAL	**73**	**50**	**68.49%**

Table 2 shows that the highest number of companies that were listed with the Bursa Malaysia was from the trading or services sector. There were 22 companies listed during this period. The second highest number of companies that were listed from consumer product and industrial product sector with recorded 7 companies. The next higher was construction sector with 4 companies listed. The lower number of companies listed were plantation and properties sector with 3 companies. The lowest were finance and REITS sectors which only 2 companies listed in the period of study.

Table 2 : Number of IPOs included in Research based on Sectors from 2012 to 2016

Sector	**2012**	**2013**	**2014**	**2015**	**2016**	**Total**
Trading/Services	5	5	4	2	6	22
Consumer Product	1	2	1	1	2	7
Industrial Product	1	3	1	0	2	7
Construction	1	0	1	2	0	4
Plantation	1	0	2	0	0	3
Properties	0	2	1	0	0	3
Finance	1	1	0	0	0	2
REITS	1	0	0	1	0	2
TOTAL	**11**	**13**	**10**	**6**	**10**	**50**

3.3 Measurement of variables

Measure of underpricing/ initial returns

The measurement of short-run performance of IPOs is compute based on the raw initial returns. The raw initial return (RAW) on the first day of trading is calculated as follows: (Gounopoulos et al., 2007)

$$r_{i,1} = \frac{P_{i,1} - P_{i,0}}{P_{i.0}}$$

where,

$r_{i,1}$ is the raw initial return for company *i* on the first day of trading,

$P_{i,1}$ is the first day closing price of company *i*, and

$P_{i,0}$ is the issue price of the company *i*

Based on the formula above, the level of pricing could be categorized into three groups. When there is negative in RAW (RAW < 0), the return considers as overpriced because the closing price of company is lower than the issue price. For example, when the closing price is RM1.00 and the issue price is RM1.20, the RAW is -RM0.20. If the closing price is RM1.40 and the issue price is RM1.20, the RAW is RM0.20. This is consider as underpricing where the closing price of company is higher than issue price, so there is positive in the RAW (RAW > 0). When the closing price is equal to the issue price, there is fairly priced share with RAW = 0. This is means the closing price same as the issue price, RM1.20.

Model on the influence of GDP and saving rate on IPO underpricing

In order to identify factors that may influence the short run performance, this study performs a multivariate analysis. A regression analysis is performed to examine the level of IPO raw initial return in comparison to variables relating to the saving rate and GDP with the control variables of company size, company age, underwriter status, and issue period.

The ordinary least squares (OLS) multiple regression model is estimated as follows:

$$INRETURN_i = \beta_0 + \beta_1 SR + \beta_2 GDP + \beta_3 LOG\_YOE + \beta_4 LOG\_SIZE + \beta_5 STATUS + \beta_6 PERIOD + \varepsilon_i$$

Table 3: Definition for Variables

Variables Explanatory	**Definitions**
Raw Initial Return **($INRETURN_i$)**	Logarithm the initial raw return, and it represents the dependent variable in this study.
Gross Domestic Product **(GDP)**	Total market value of all final goods and services produced within the country in a given period of time, normally one year. (Alex Reuben Kira, 2013)
Saving Rate **(SR)**	Ratio of net saving to net disposable income. (Ansgar Belke, Christian Dreger & Richard Ochmann, 2012)
Year of operation or establishment **(YOE)**	Logarithm of exhibits the calendar year of going public minus calendar year of founding. (Tianwei Zhang, 2012)
Size of Company **(SIZE)**	Logarithm of total number of shares offered multiplied by IPO offer price or the natural log of gross proceeds from going public (Che-Yahya, N. et al, 2017)
Underwriter Status **(STATUS)**	1 for highest number of IPOs managed by an underwriter and zero otherwise. (Jelic,et al.,2001; Nashirah and Uzaki, 2014)
Issue Period **(PERIOD)**	1 for companies that went public in the hot period (2012-2014) and zero otherwise. (Ahmad-Zaluki et al, 2012)
ε_i	Error term

3.4 Research Framework

The purpose of this study is to investigate the relationship between the independent variables (saving rates and gross domestic products) and the dependent variable (IPO underpricing) with the control by few variables (year of operation or establishment, size of company, underwriter status and issue period).

The research model is shown as below:

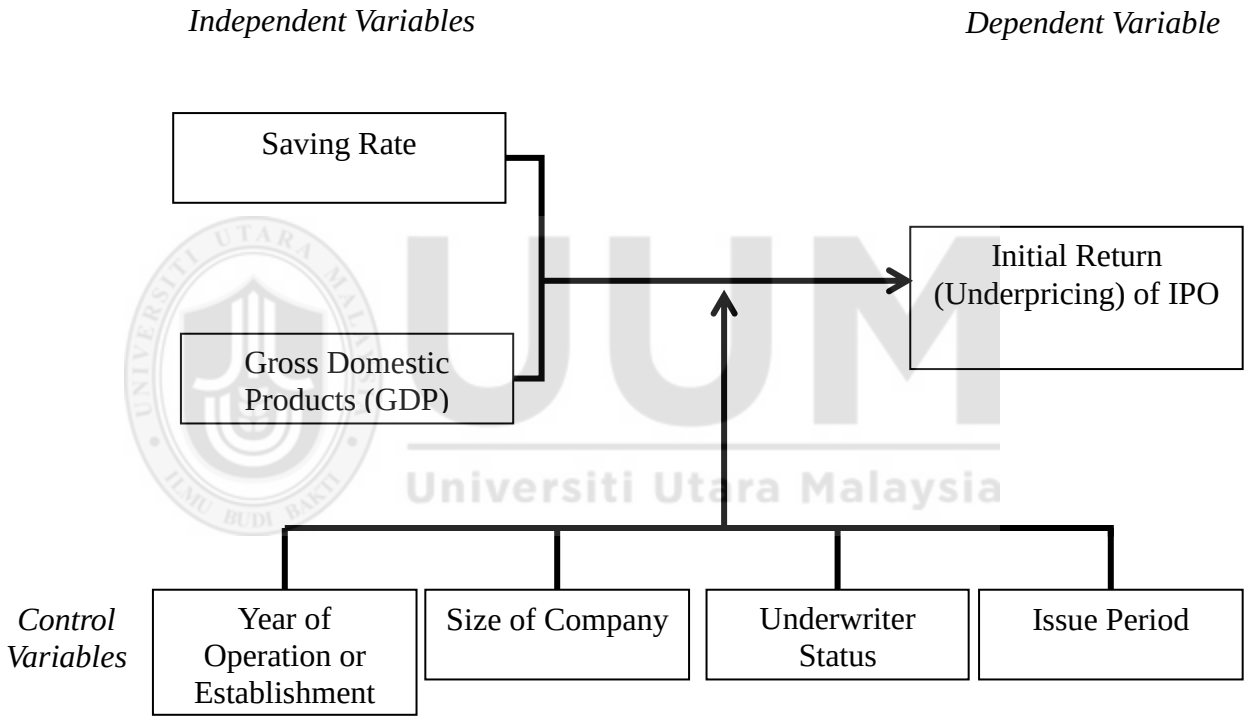

Figure 2: Research Framework

3.5 Data Collection

Data collection could be dividing into two periods, which are date of offer and trading date. According to Ahmad-Zaluki et al. (2007), the offer price on the offer date for each company was collected to compute the raw initial return. Lastly, the closing price on the trading date for each company was collected to compute the raw initial return. The share prices of the company in the particular date were collected from Bursa Malaysia (2017) and the Yahoo! Finance (http://finance.yahoo.com). The saving rate and GDP was collected from International Monetary Fund (2017). The internal data about the company (ie, year of establishment or operation, size of company, underwriter status and issue period) was collected from prospectus extracted from Bursa Malaysia.

3.6 Data Analysis Technique

Following data collection step, the data are statistically analyzed in order to thoroughly investigate into determinants and trend of the short term aftermarket price performance of IPOs in Malaysia. The method of analysis in this study is regression using E-Views and SPSS. To determine the relationship between the individual independent variables with dependent variable, the linear regression be conducted. Besides it, the multiple regression be conducted to test the relationship between all the independent variables with dependent variable. This measurement model is analyzed by ordinary least square (OLS) regression method. The purpose of using OLS is because both of the independent variables and dependent variables are measures at the interval or ratio level.

3.7 Conclusion

The research design that had discussed in this chapter, the researcher had used the secondary data. At the beginning of this study, the researcher had determined the prepared proper sampling design and research measurement. After that, the researcher analyzes the data using the program SPSS version 20 and E-Views, the result had been provided with the data. After the data have been analyzed, it will proceed to next chapter. Lastly, the proposed hypothesis statement to be discussed based on the result which obtained from SPSS and E-Views.

CHAPTER 4 RESULT ANALYSIS

4.1 Introduction

This chapter introduces the data analysis results which are based on the research methodology as studied in Chapter 3. Data analysis is the practice of assessing data with the use of logical and analytical reasoning to study each data component. In this research, the analyzed result for descriptive analysis and inferential analysis are run with the used of Statistical Package for Social Sciences (SPSS) version 20.0 and E-Views.

4.2 Level of Underpricing/Overpricing

This section presents the level of underpricing and overpricing in the MAIN Market of Bursa Malaysia. There were 50 (68.49%) IPOs underpriced, 22 (30.14%) were overpriced and only 1 company (1.37%) were fairly priced. The overall level of underpricing at the Bursa Malaysia was 29.78% with a standard deviation of 33.84. The overall level of overpricing was -20.08% with a standard deviation of 17.88. Table 4 presents the overall level of underpricing/overpricing at the Bursa Malaysia.

The maximum level of underpricing at Bursa Malaysia was 160.00% and minimum level of underpricing was 0.86%. The maximum level of overpricing at Bursa Malaysia was -0.10% whereby the minimum level of overpricing was -12.50%.

Table 4: Overall levels of IPOs Underpricing and Overpricing

	Number of Companies	Mean	Maximum	Minimum	Standard Deviation
Underpricing	50	29.78	160.00	0.86	33.84
Overpricing	22	-20.08	-0.10	-12.50	17.88
Fairly Priced	1	0.00	0.00	0.00	0.00

4.2.1 IPO Underpricing on Yearly Basis

Table 5 presents the level of underpricing on yearly basis. The highest degree of underpricing was year 2014 with overall level of 41.08% and 46.97 of standard deviation. The second highest level of IPO underpricing was recorded in the year 2016 with 35.50% and standard deviation of 24.68. The third highest level of IPO underpricing was recorded in the year 2015 with 30.76% and standard deviation of 30.35. The fourth highest was in the year 2013 with 30.30% and standard deviation of 41.53. The lowest degree of underpricing was registered in the year 2012 with mean of 11.90% and standard deviation of 7.65.

Table 5: IPO Underpricing on a Yearly Basis

Year	Number of Companies	Mean	Maximum	Minimum	Standard Deviation
2012	11	11.90	25.00	0.86	7.65
2013	13	30.30	160.00	2.50	41.53
2014	10	41.08	156.82	1.62	46.97
2015	6	30.76	72.86	4.00	30.35
2016	10	35.50	85.33	12.50	24.68

4.2.2 IPO Underpricing on Industry Basis

Table 6 presents the level of underpricing on industry basis. The highest degree of underpricing was recorded in the trading or services sector with mean of 39.40% and standard deviation of 44.97. The next highest level of underpricing was recorded in the properties sector with overall level of 35.83% and 37.40 of standard deviation. The lowest degree of underpricing was REITS with 7.60% and standard deviation of 5.09.

Table 6: IPO Underpricing on an Industry Basis

Industry	Number of Companies	Mean	Maximum	Minimum	Standard Deviation
Trading/Services	22	39.40	160.00	3.24	44.97
Consumer Product	7	27.53	61.25	7.50	18.44
Industrial Product	7	15.39	25.00	2.50	9.43
Construction	4	18.54	35.83	3.39	17.06
Plantation	3	24.43	55.20	1.62	27.66
Properties	3	35.83	78.88	11.33	37.40
Finance	2	18.93	37.00	0.86	25.55
REITS	2	7.60	11.20	4.00	5.09

4.3 Descriptive Statistics

Moving on to determining whether the independent variables (i.e., saving rate and GDP) employed in this study statistically explain IPO underpricing with the control variables (i.e., year of operation or establishment, size of the company, issue period and market volatility), we conduct an ordinary least square (OLS) regression analysis.

4.3.1 Dependent Variable

In order to test whether underpricing exists in Malaysian Stock Market, the first test which is used is to decide if the data for IPO underpricing is normally distributed. The results for testing the normality for IPO underpricing is shown in table 7.

Table 7: Tests of Normality for IPO Underpricing

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
IPO UNDERPRICING	.231	50	.00000	.735	50	.00000

Kolmogorov-Smirnov test is conducted as the Shapiro-Wilk is more appropriate for small sample size (N<50). Based on K-S normality test, there is no normal distribution data as the p-value shown less than 0.05.

Some critics might point out that for the t-test to work optimally the data should be normally distributed, which my sample obviously is not (Table 7). In order to reinforce my finding, I have performed a non-parametric Wilcoxon Signed Rank test as an alternative to the t-test. The Wilcoxon Signed Rank test can be used to test whether the median of a sample is significantly different from zero, and it does not rely on the normality assumption (Israel, 2009).

As shown in table 8, p-value is less than 0.05 at α=0.05. This result indicates that IPO underpricing mean is significantly different from zero at α=0.05. In addition, lower and upper amounts in 95% confidence interval from mean different no include 0. The Wilcoxon test confirms the finding from the t-test with significant 0.000 which is less than 0.05. That is, the median underpricing is statistically different than zero. Hence, the non-parametric Wilcoxon Signed Rank test result indicates that initial return mean is different from zero. Thereupon, the underpricing exists in Malaysian IPOs on the first listing day.

Table 8: Non-parametric Wilcoxon Signed Rank Test

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
IPO UNDERPRICING	6.078	49	0.000	0.0298	0.0199	0.397

4.3.2 IPO Underpricing

From the Table 9, the mean saving rate is approximate to 1.018 with standard deviation of 0.0388. The companies with high saving rate were companies listed on 2014 and the lowest saving rate was companies listed on quarter 2, 2016. The mean for GDP is 122.93 and standard deviation of 9.58. The company listed on quarter 1, 2012 recorded in lowest GDP while the companies with highest GDP were listed on 2016.

Table 9: Descriptive of IPO Underpricing Determinants

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
SR	50	1.0	1.1	1.018	0.0388	0.002
GDP	50	105.8	141.5	122.932	9.5761	91.703
LOG YOE	50	0.0	1.9	1.242	0.3923	0.154
LOG SIZE	50	7.3	10.0	8.094	0.7288	0.531
STATUS	50	0.0	1.0	0.62	0.490	0.240
PERIOD	50	0.0	1.0	0.52	0.505	0.255

4.4 Inferential Analysis

4.4.1 Pearson's Correlation Coefficient

Pearson's Correlation Coefficient is the measurement of the strength of linear relationship between the two variables. This analysis able to determine whether there is positive, negative or no relationship, on the linear relationship between dependent variable and independent variables. If Pearson Correlation is greater than zero, there is a positive relationship between the two variables. If Pearson Correlation is less than 0, there is a negative relationship between the two variables. If Pearson Correlation equal to zero, there is no relationship between the two variables. Besides it, the strength of the relationship either strong or weak could determine. When they are strong positively and strong negatively correlated as their value are higher than - 0.50 and + 0.50. Based on the Pearson's Correlation Coefficient's result, all of the items for each construct show significant result at the significance level of $\alpha = 0.05$.

Table 10 show the correlation matrix between independent variable (i,e, SR, GDP), control variables (LOG_YOE, LOG_SIZE, STATUS, PERIOD) and dependent variable (INRETURN). From the table, only LOG_SIZE, STATUS and PERIOD show the strong negative relationship with INRETURN.

Table 10: Correlation Matrix for 50 companies

		lnreturn	SR	GDP	LOG YOE	LOG SIZE	STATUS	PERIOD
lnreturn	Pearson Correlation	1	0.150	0.313*	0.190	-0.168	-0.060	-0.403**
	Sig. (2-tailed)		0.299	0.027	0.187	0.243	0.679	0.004
	N	50	50	50	50	50	50	50
SR	Pearson Correlation	0.150	1	0.257	0.003	-0.068	0.045	-0.071
	Sig. (2-tailed)	0.299		0.072	0.984	0.638	0.756	0.625
	N	50	50	50	50	50	50	50
GDP	Pearson Correlation	0.313*	0.257	1	0.231	-0.221	-0.130	0.008
	Sig. (2-tailed)	0.027	0.072		0.107	0.124	0.367	0.954
	N	50	50	50	50	50	50	50
LOG YOE	Pearson Correlation	0.190	0.003	0.231	1	-0.216	-0.021	0.155
	Sig. (2-tailed)	0.187	0.984	0.107		0.132	0.883	0.281
	N	50	50	50	50	50	50	50
LOG SIZE	Pearson Correlation	-0.168	-0.068	-0.221	-0.216	1	0.393**	0.014
	Sig. (2-tailed)	0.243	0.638	0.124	0.132		0.005	0.922
	N	50	50	50	50	50	50	50
STATUS	Pearson Correlation	-0.060	0.045	-0.130	-0.021	0.393**	1	-0.010
	Sig. (2-tailed)	0.679	0.756	0.367	0.883	0.005		0.946
	N	50	50	50	50	50	50	50
PERIOD	Pearson Correlation	-0.403**	-0.071	0.008	0.155	0.014	-0.010	1
	Sig. (2-tailed)	0.004	0.625	0.954	0.281	0.922	0.946	
	N	50	50	50	50	50	50	50

Note: *. Correlation is significant at the 0.05 level and **at the 0.01 level.

4.4.2 Linear Regression

The first linear regression is drawn to analyse the relationship saving rates and IPO underprincing. The decision rule set as if p-value less than $\alpha = 0.05$, we shall reject H_0. From the table 11, the p-value is 0.30 which is greater than $\alpha = 0.05$. Therefore, we shall reject H_1 and conclude that year saving rate is no significantly affects the IPO underpricing.

The equation formed from the hypothesis as below:-

$$y = -6.23 + 4.34SR$$

Table 11: Coefficient between Saving Rate and IPO Underpricing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-6.229	4.262		-1.462	0.150
	Savings Rate	4.390	4.183	0.150	1.049	0.299

Dependent Variable: lnreturn

This result is consistent with the previous studies by Acha and Acha (2011) where the savings rate unable to indicate the savings and investment. The reasons were lack of confidence in the banking system, low income and preference for cash.

The second linear regression is drawn to analyse the relationship GDP and IPO underprincing. The decision rule set as if p-value less than $\alpha = 0.05$, we shall reject H_0. From the table 12, the p-value is 0.03 which is less than $\alpha = 0.05$. Therefore, we shall accept H_1 and conclude that GDP is significantly affects the IPO underpricing. The finding is consistent with the finding by Tomas Meluzin and Marek Zinceker (2014).

The equation formed from the hypothesis as below:-

$$y = -6.33 + 0.37GDP$$

Table 12: Coefficient between GDP and IPO Underpricing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-6.333	2.008		-3.154	0.003
	Gross Domestic Product, Real	0.037	0.016	0.313	2.284	0.027

Dependent Variable: lnreturn

4.4.3 Multiple Regressions

The ordinary least square (OLS) regression analysis is perform to examine the relationship between the saving rate and GDP towards IPO underpricing.

Before conduct the ordinary least square (OLS) regression analysis, there was a test be conducted to test the presence of the multicollinearity problem. Table 19 shows the initial bivariate correlation analysis between variables. According to Anderson et al. (1996), as a rule of thumb, inter-correlation among the independents above 0.70 signals a possible problem high multicollinearity potentially leads to large variances and co-variances, large confidence intervals, and insignificant coefficients; it can also contribute to directional inconsistencies. Besides it, Neter et al. (1985) suggest that a multi-collinearity problem can be indicated by having the VIF ≥10.0.

Based on Table 10, none of the other independent variables are particularly highly correlated. The results suggest that multicollinearity is unlikely to be an issue in the regression model. This result is reinforced by the observation that all of the variance inflation factors (Table 13) that all of the variance inflation factors (VIF) are below 4.

Table 13: Variance Inflation Factors (VIF) for variables in the determinants of IPO Underpricing regressions

	SR	**GDP**	**LOG_YOE**	**LOG_SIZE**	**STATUS**	**PERIOD**
VIF	2.26	3.73	3.23	2.72	2.74	1.26

Since the all the variables are no co-related, the OLS is drawn as Table 14 show the summary of multiple regression model that present the relationship between dependent variable and independent variables. Based on the Table 15, the value of multiple coefficients of correlation (R) is 0.60 which indicate that the dependent variable and independent variables are positively association in moderate relationship.

Meanwhile, the value of multiple coefficient of determination, R squared, is shown as 0.3619. This 0.3619 means that 36.19% of the total variation in the IPO underpricing can be explained by the saving rate and GDP with the control by year of operation or establishment, size of company, underwriter status and issue period on Bursa Malaysia. In contrast, there are 63.81% of the total variation in IPO underpricing can be explained by other variables which are not included in this research.

Equation:

$$INRETURN_i = \beta_0 + \beta_1 SR + \beta_2 GDP + \beta_3 LOG\_YOE + \beta_4 LOG\_SIZE + \beta_5 STATUS + \beta_6 PERIOD + \varepsilon_i$$

The Durbin-Watson use to test the presence of autocorrelation which occurs when residual error terms from observations of the same variable at different times are correlated (related). From Table 15, Durbin-Watson is 2.02 within the range of acceptability, 0-4. Therefore there was no serial correlation problem in the data.

According to the Table 15, the F-test shows the result of 4.07 with the p-value of 0.03. This p-value of ANOVA multiple regression model is shown less than the significance level of $\alpha = 0.05$, hence, we can conclude that there is relationship between all of the independent variables (saving rate and GDP) with control variables

(year of operation or establishment, size of company, underwriter status and issue period) considered together and dependent variable (IPO underpricing). This rejects the null hypothesis that there is no significant relationship between the saving rate and GDP with the IPO underpricing.

Table 14: Multivariate Regression Analysis for the Determinants of IPO Underpricing.

Variables	**Dependent Variable: INRETURN**			
	Coefficient	**Standard Error**	**t-statistic**	**Sig**
SR	9.9690	4.9042	2.0327	0.0483
GDP	0.0372	0.0155	2.3990	0.0208
LOG_YOE	0.5397	0.3704	1.4571	0.1524
LOG_SIZE	-0.1163	0.2152	-0.5404	0.5917
STATUS	0.0383	0.3902	0.1239	0.9020
PERIOD	-0.9749	0.2786	-3.4991	0.0011
Intercept	-15.7971	6.1508	-2.5684	0.0138
R=0.6016				
R^2 = 0.3619				
Adj R^2 = 0.2729				
F-Statistic = 4.0652				
Sig F Change = 0.0026				
Durbin-Watson = 2.0209				
Number of Observation = 50				

4.4.4 Mann-Whitney Test

Mann-Whitney Test is use to test the significant difference in scale or ordinal dependent variable by a single dichotomous independent variable. This is use to test the last hypothesis of significant differences of saving rate and GDP on the sub-samples of high and low IPO underpricing. The group 0 is defining for low initial return where the initial return lower than the average initial return. The high initial return classified under group 1 as the initial return higher than the average initial return. The average initial retun for 50 companies listed from 2012 to 2016 is 0.298.

Based on Table 15, the result show that there are 33 companies classified under group 0 where the initial return is lower than the average initial return. Only 17 companies' records the initial return higher than 0.298.

In Table 16, the p-value for saving rate is 0.47 which is greater than 0.05. This is concluded the saving rate does not explained by the subsample of IPO underpricing . Hence, the result show failed to reject H_0. However, GDP show the significant difference on the sub- samples of high and low IPO underpricing. The H_1 is accept as the p-value is 0.023 which less than 0.05.

Table 15 Ranks of IPO underpricing

	D_return	N	Mean Rank	Sum of Ranks
lnreturn	0	33	17.00	561.00
	1	17	42.00	714.00
	Total	50		
SR	0	33	24.79	818.00
	1	17	26.88	457.00
	Total	50		
GDP	0	33	22.14	730.50
	1	17	32.03	544.50
	Total	50		
LOG YOE	0	33	22.97	758.00
	1	17	30.41	517.00
	Total	50		
LOG SIZE	0	33	26.30	868.00
	1	17	23.94	407.00
	Total	50		
STATUS	0	33	25.91	855.00
	1	17	24.71	420.00
	Total	50		
PERIOD	0	33	27.65	912.50
	1	17	21.32	362.50
	Total	50		

Table 16: Test Statistics of IPO underpricing

	lnreturn	SR	GDP	LOG YOE	LOG SIZE	STATUS	PERIOD
Mann-Whitney U	.000	257.000	169.500	197.000	254.000	267.000	209.500
Wilcoxon W	561.000	818.000	730.500	758.000	407.000	420.000	362.500
Z	-5.753	-.723	-2.280	-1.728	-.544	-.329	-1.680
Asymp. Sig. (2-tailed)	.000	.470	.023	.084	.586	.742	.093

Grouping Variable: D_return

4.5 Conclusion

In this chapter, the researcher had analyzes the data with the descriptive and inferential analyses using SPSS version 20.0. Based on the findings, there saving rate and GDP able affect the level of underpricing on Malaysian IPOs. However, there is no significant difference of saving rate and GDP towards the sub-samples of high and low initial return

In the next chapter, the researcher will discuss the findings and recommendation(s) that could be reference for future study. Besides it, the researcher will draw overall conclusion based on the descriptive and inferential analyses.

CHAPTER 5 CONCLUSION AND RECOMMENDATION

5.1 Introduction

This section will be the last of the five parts of the research. In this section, we will be summarizing the descriptive and inferential analyses from the previous chapter, the major findings, implications and recommendation for the future researchers which may be of help and could be taken into consideration when furthering their research.

5.2 Overview of Study

The general objective of conducting this study is determine the level of underpricing on Bursa Malaysia from 2012 to 2016. More specifically, the objective of this study is to identify whether saving rate and GDP with control variables affect the IPO underpricing for IPOs listed on Bursa Malaysia. The sample data used are the Malaysian companies listed on the MAIN market and ACE market on Bursa Malaysia that issue IPOs with study period from 2012 to 2016. Referring to the Bursa Malaysia, there were 73 IPO companies listed on Bursa Malaysia during the study period. However, after the data screening process, only 50 companies were selected as the sample of this study where the companies are underpriced. Out of 50 companies, 39 companies were listed under MAIN Market and 11 companies were listed under ACE markets.

5.3 Summary of the Findings

The general objective of conducting this study is determine the level of underpricing on Bursa Malaysia from 2012 to 2016. For the degree of underpricing, there were 68.49% recorded as IPOs underpriced, 30.14% were overpriced and only 1.37% was fairly priced on Bursa Malaysia. The degree of underpricing is slightly higher than the previous studies. For example, Yeap, M. (2006) report 46.44% of underpricing and 61.81% of underpricing reported by David Ng and Eliza Wu (2010) in Malaysia IPOs.

More specifically, the objective of this study is to identify whether saving rate and GDP with control variables affect the IPO underpricing for IPOs listed on Bursa Malaysia. According to the Inferential Analyses, Raw Initial Return (RAW) is use to measure the level of pricing. The RAW consider as no normally distributed data based on the Kolmogorov- Smirnov test. Hence the Wilcoxon Signed Rank test, a non-parametric test, used to test the existence of underpricing in the first day trading on Bursa Malaysia. The test shows the significant and proves the existence of the underpricing.

For determinants the IPOs underpricing, the logarithm of the initial return used as dependent variable. To determine the relationship between the individual independent variables (i,e,. saving rate and GDP) with dependent variable, the linear regression was conducted. Only GDP show there is positive significant relationship towards IPO underpricing.

Besides it, the multiple regressions were conducted to test the relationship of the independent variables with control variables towards dependent variable. The value of multiple coefficient of correlation (R) is 0.60 which indicate that the dependent variable and independent variables are positively association in moderate relationship. Meanwhile, the value of

multiple coefficient of determination, R squared, is shown as 0.3619. This 0.3619 means that 36.19% of the total variation in the IPO underpricing can be explained by the saving rate and GDP with the control by year of operation or establishment, size of company, underwriter status and issue period on Bursa Malaysia. In contrast, there are 63.81% of the total variation in IPO underpricing can be explained by other variables which are not included in this research.

The Durbin-Watson use to test the presence of autocorrelation which occurs when residual error terms from observations of the same variable at different times are correlated (related). Durbin-Watson is 2.02 within the range of acceptability, 0-4. Therefore there was no serial correlation problem in the data. The F-test shows the result of 4.07 with the p-value of 0.03. This p-value of ANOVA multiple regression model is shown less than the significance level of α= 0.05, hence, we can conclude that there is positive relationship between all of the independent variables (saving rate and GDP) with control variables (year of operation or establishment, size of company, underwriter status and issue period) considered together and dependent variable (IPO underpricing).

Mann-Whitney Test is use to test the significant difference in scale or ordinal dependent variable by a single dichotomous independent variable. This is use to test the last hypothesis of significant differences of saving rate and GDP on the sub-samples of high and low IPO underpricing. The result show that there are 33 companies classified under group 0 where the initial return is lower than the average initial return. Only 17 companies' records the initial return higher than 0.298. Only GDP show the significant difference on the sub- samples of high and low IPO underpricing . The H_1 is accept as the p-value is 0.023 which less than 0.05.

The p-value for saving rate is 0.47 which is greater than 0.05. This is concluded the saving rate no explained by the subsample of IPO underpricing .

The decision make to the hypotheses is shown as Table 17.

Table 17: Summary of Decision on Hypotheses

H_0	**H_1**	**Sig**	**Decision**
H_{0A}= There is no significant relationship between the saving rates and IPO underpricing.	H_{1A}= There is a positive relationship between saving rate and the IPO underpricing.	0.30	Failed to reject H_0
H_{0B}= There is no significant relationship between the GDP and the IPO underpricing.	H_{1B}= There is a positive relationship between the GDP and the IPO underpricing.	0.03	Accept H_1
H_{OC}= There is no significant relationship between the saving rate and GDP towards IPO underpricing.	H_{1C}= There is positive relationship between the saving rate and GDP towards IPO underpricing.	0.03	Accept H_1
H_{0D}= There is no significant differences of saving rate on the sub-samples of high and low IPO underpricing .	H_{1D}= There is a positive significant differences of saving rate on the sub-samples of high and low IPO underpricing	0.47	Failed to reject H_0
H_{0E}= There is no significant differences of GDP on the sub-samples of high and low IPO underpricing .	H_{1E}= There is a positive significant differences of GDP on the sub-samples of high and low IPO underpricing	0.023	Accept H_1

5.4 Recommendations

As for the future research, it would be interesting to add the length of the study period to analyse the macroeconomic variables better. The normality of the data could be improved with the increase of the sample size. The findings will be advantageous to more investors and listed company in making the wise decisions.

This study is focused on the IPO underpricing and excludes the overpricing and fairly pricing. This is because the limitation of sample size for the overpriced and fairly priced. The future studies can examine the impact of macroeconomic variables towards the overpriced and fairly price as well.

Lastly, the future studies can include other macroeconomic variables such as the interest rate and exchange rate that could more explains the current economy conditions in Malaysia. The different independent variables involved in the research able increase the significant relationship between the independent variables and dependent variable. This could increase the value of multiple coefficient of determination, R squared.

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Appendices

Appendix 1: List of the Malaysian Companies involved in IPO during the study period

1. 7-Eleven Malaysia Holdings Berhad
2. ABM Fujiya Berhad
3. Aemulus Holdings Berhad
4. AirAsia X Berhad
5. AL-SALAM REAL ESTATE INVESTMENT TRUST
6. BCM ALLIANCE BERHAD
7. Berjaya Auto Berhad
8. Bioalpha Holdings Berhad
9. Bison Consolidated Berhad
10. Boustead Plantations Berhad
11. Carimin Petroleum Berhad
12. Caring Pharmacy Group Berhad
13. Chin Hin Group Berhad
14. China Automobile Parts Holdings Limited
15. China Stationery Limited
16. CLIQ Energy Berhad
17. Dancomech Holdings Berhad
18. Datasonic Group Berhad
19. Dolphin International Berhad
20. E.A.Technique (M) Berhad
21. Econpile Holdings Berhad
22. EITA Resources Berhad
23. ELK-Desa Resources Berhad
24. Felda Global Ventures Holdings Berhad
25. FOUNDPAC GROUP BERHAD
26. Gabungan AQRS Berhad
27. Gas Malaysia Berhad
28. Globaltec Formation Berhad
29. Heng Huat Resources Group Berhad
30. Hiap Huat Holdings Berhad
31. HSS Engineers Berhad
32. Icon Offshore Berhad
33. IGB REAL ESTATE INVESTMENT TRUST
34. IHH Healthcare Berhad
35. Ikhmas Jaya Group Berhad
36. IOI Properties Group Berhad
37. Kanger International Berhad
38. Karex Berhad
39. Kim Teck Cheong Consolidated Berhad
40. Kronologi Asia Berhad
41. Leon Fuat Berhad
42. LKL International Berhad
43. Malakoff Corporation Berhad
44. Matrix Concepts Holdings Berhad
45. MPHB Capital Berhad
46. MyETF MSCI Malaysia Islamic Dividend

47. MyETF MSCI SEA ISLAMIC DIVIDEND
48. MyETF Thomson Reuters Asia Pacific ex-Japan Islamic Agribusiness
49. OCK Group Berhad
50. Only World Group Holdings Berhad
51. Pasukhas Group Berhad
52. Pecca Group Berhad
53. PERAK TRANSIT BERHAD
54. PESTECH International Berhad
55. Ranhill Holdings Berhad
56. Reach Energy Berhad
57. Red Sena Berhad
58. RHONE MA HOLDINGS BERHAD
59. Salutica Berhad
60. SapuraKencana Petroleum Berhad
61. Sasbadi Holdings Berhad
62. SCH Group Berhad
63. Sedania Innovator Berhad
64. Sentoria Group Berhad
65. Solid Automotive Berhad
66. Sona Petroleum Berhad
67. Sunway Construction Group Berhad
68. Tanah Makmur Berhad
69. Titijaya Land Berhad
70. Tune Ins Holdings Berhad
71. UMW Oil & Gas Corporation Berhad
72. Westports Holdings Berhad
73. Xin Hwa Holdings Berhad