CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

This chapter reviews the most relevant theories and empirical studies related to the Sukuk announcement, Sukuk yield spreads, Sukuk liquidity determinants, and its impact on the shareholders' wealth. This chapter is organized into three sections, each of which covers one issue related to the Sukuk issuance, as follows: Section 3.2 discusses the theoretical base and previous empirical studies on stock market reactions to announcements of the Sukuk issuance, noting that the reviewed theoretical bases have been cited from the empirical Western, which stands for the conventional bond impact on the stock market, while the reviewed empirical studies have been cited on both conventional and Islamic approaches. Section 3.3 provides a discussion of the theoretical base and previous empirical studies on new Sukuk issuance yield spreads and stock volatility. Section 3.4 discusses the theoretical base and previous empirical studies on the determinants of Sukuk liquidity associated with the stock price. Finally, section 3.5 provides a conclusion and summary for the chapter.

3.2 Sukuk Announcements and Stock Market Reactions

There is considerable interest from scholars and investors regarding the stock market reaction, especially towards major financial events. Sukuk issuance announcement forms one of the most important financial events within the stock market. The growing interest in the stock market reaction towards the Sukuk issuance announcement has emerged recently. This notable interest can be attributed to the

stability of the Islamic financing instruments during the financial global crisis in 2008, which attracted more investors to investigate the influence of Sukuk issuance announcements on the stock market.

3.2.1 Theoretical Background of Sukuk Announcement and Stock Market Reaction

Earlier studies on the capital structure formed the base for scholars to investigate the optimal capital structure and its role in maximizing shareholders' value extensively. Specifically, the work of Modigliani and Miller (1958), one of the earlier studies, discussed the way firms finance their investments. These authors assumed that firms pay attention to the way their capital is financed because shareholders' wealth is influenced by the cost of capital. They built their model based on the assumption of a perfect capital market, which neglects the taxes, trading, and bankruptcy costs, and the information asymmetry (Loncarski, Ter Horst, & Veld, 2005). Modigliani and Miller, in this assumption, have highlighted the perfection of the stock market in providing valuable information that clarifies the financial performance of the firm. This information mitigates the asymmetric knowledge of investors, which enables them to assess the level of investment risk and return.

Precisely, the earlier discussion of Modigliani and Miller (1958) raised an argument about stock market reactions to the capital restructure, which formed a basis for scholars to deeply investigate the proposed assumptions. The theorem states that, under a given market, in the absence of taxes, bankruptcy costs, and asymmetric information, that is, in an efficient market, the value of a company is not affected by the way in which the company is financed. It does not matter if the capital of the company is obtained through the issuance of shares or debt, nor does it matter what the dividend

policy of the company is. Therefore, the Modigliani-Miller Theorem is also often called the principle of irrelevance of capital structure. It is the appearance of corporate taxes that undo that irrelevance in the financing structure since the cost of debt is reduced since it is an expense that is paid before the income tax. Along with the proposition of Modigliani and Miller (1958), Masulis (1978) identified three situations of capital changes, in which a firm has the right to increase its capital through issuing common stock, preferred stock, and debt. Masulis (1978) expanded the capital structure by including the preferred stock as a new source of financing the firm capital.

The proposition of Modigliani and Miller (1958) assumes the symmetry of information held by the firm and investors. Therefore, a firm that suffers financial problems, such as covering expected losses from operations, would avoid any financial decision for restructuring the capital that may affect the firm value, taking into account that investors hold sufficient information about the purpose of the capital structure. Instead of that, it is better for the firm to adopt internal financial reforms to achieve two objectives; first, to avoid any negative reaction from the investors, which results from aggravating the problem by maximizing the expected losses with the cost of financing. Second, obtaining a positive or neutral reaction that results from the internal financing instead of issuing risky debt (Smith, 1986). Hence, it is better for the firm in this situation to reconstruct its capital structure relying on the internal financing source.

The capital structure is defined as the specific combination of debt and equity that a company uses to finance its operations (Abor, 2008). According to Andrés, Arce, and Thomas (2017), there is a belief that a "moderate" use of indebtedness allows the cost of the total capital of the company to be reduced, to achieve an increase in the value of the shares. Despite this, by increasing the proportion of debt, the risk of insolvency will increase, which is reflected in a decrease in the value of the shares. There should

therefore be an optimal level of indebtedness that achieves a minimum capital cost, and, at the same time, maximizes the value of the company. Therefore, the firm should only succeed with the proper mix of debt and equity. Since the proposal of the irrelevance of the debt of Modigliani and Miller (1958), financial economists have advanced a number of theories to explain the variation in the debt ratio between different firms. In the pecking order theory, the existence of taxes and bankruptcy costs justify the relevance of the debt (Myers & Majluf, 1984a). In the signalling theory, the relevance is due to the asymmetry of the information, since managers have information that investors do not have (Ross, 1977). A third relevant theory is the agency theory proposed by Jensen and Meckling (1976), which is derived from the conflict between corporate managers, external shareholders, and bondholders. In the absence of costs and benefits, that is, in perfect capital markets, the firm's market value is independent of its capital structure, as the Modigliani-Miller theorem demonstrates.

In reality, market imperfections that have been presented as determinants of the firm's optimal capital structure can be placed in the category of taxes, bankruptcy costs, and agency costs. The general result of these extensions is that the combination of leverage-related costs (such as bankruptcy and agency costs) and a fiscal advantage of debt produces an optimal capital structure from a level of debt financing, since the tax advantage contrasts with the probability of incurring costs. Thus, in addition to the theory of Modigliani and Miller (1958), a number of important theories are used to explain the decisions of the capital structure. These are based on tax benefits associated with the use of debt, bankruptcy costs, agency costs, and asymmetric information. An alternative approach is associated with the theory of dissimilar preferences for alternative funding sources (Pecking Order Theory).

Firms seek to issue Sukuk for many reasons, of which, gaining the benefit of high leverage is one. As the external debt gives tax savings or "tax shield", it is a tax benefit that companies use to reduce the weighted average cost of capital through indebtedness. The cost of issuing debt (the interest rate) is always cheaper than the return expected by the shareholders of the company that issues capital and is bought by investors with a higher level of risk as a target of higher returns. Another reason for a company to decide to issue debt is that the shareholder benefit can also be derived from a combination of the repurchase of their own shares and dividends. For the case of Sukuk, issuing Sukuk for a firm is an alternative to obtain financing, as indicated above. However, it is not the same in that Sukuk is used to pay more debt constantly than if that money is used to reinforce the company's investments. Furthermore, the type of industry plays a vital role in determining the purpose of the Sukuk issuing.

The event of an announcement for issuing Sukuk by the firm can be interpreted differently by investors. In other words, the weak financial situation of the firm will be interpreted negatively by shareholders, such as the potential investors, as an indicator of the severe position of the firm within the stock market. Taking into consideration that increasing the level of firm leverage calls both shareholders and potential investors to revise their decisions towards holding the firm shares (i.e. shareholders) or invest in risky debt issuances (i.e. investors) (Eckbo, Masulis, & Norli, 2007; Parsons & Titman, 2007), previous related studies (Dann & Mikkelson, 1984; Eckbo, 1986; Jen, Choi, & Lee, 1997; Long & Sefcik, 1990; Marquardt & Wiedman, 2005) have identified significantly negative reactions from the stock market. The negative market reaction should be viewed as a cost of issuing the security. That is, management's choice of bond financing may function as a "signal" to investors that management is highly confident about the firm's future, thus allowing the issuer to avoid much of the negative

information costs that attend conventional bond announcements. But, if the market response to the bond is negative, on average, there is also a good deal of variation in that response, with quite a few cases of zero or even positive returns. Also, it is attributed to activities in the market's reaction to different kinds of bond issuers.

In general, most of the previous studies find negative reactions by the stock market to the issuance announcements of debt, while a few studies have shown significantly positive reactions from the stock market (Rahim, Goodacre, & Veld, 2014). The dominance of a negative reaction from the stock market can be interpreted as the asymmetry of the information between the firm managers and the investors, which is contrary to the assumption of symmetry information of Modigliani and Miller (1958). The argument for this conflict is attributed to the fact that investors perceive those managers decide to issue debt if the firm stock is undervalued. As with the situation of the undervalued price of stocks, the firm burdens extra cost of financing, this results from the difference between the intrinsic and the market value.

According to Dann and Mikkelson (1984), negative reactions are not necessarily systematically related to the purpose of issuance only. Rather, it could be linked to other reasons, either to high debt securities size that target new investments, or to serve the current firm debt. In their view, the stock market prospectus has sufficient information to judge and assess the firm financial position, which works to direct the investor's decisions. In this debate, later studies than Dann and Mikkelson (1984), such as Fields and Maisis (1991), investigated the US market, and commented that the US stock market denounced the neglect of the issuance nature and purposes. Furthermore, Fields and Maisis (1991) attributed stock price reactions to three determinants: the owner's structure effect, tax shield, and market information. The previous work of Modigliani and Miller (1963) attributed the tax shield as one of the leading reasons or factors behind

the increasing stock price, thus considering that a tax shield represents a leverage attraction advantage, which is expected to increase the return of the stock in case of straight debt (Fields & Mais, 1991; Franco Modigliani & Merton H Miller, 1963). Firms that report recurring and growing profits may be tempted to issue fixed-income instruments that reduce the payment of the income tax rate.

3.2.1.1 The Pecking Order Theory (POT)

The Pecking Order theory bases its assumptions by stating that there is no optimal capital structure, but, rather, managers use the hierarchy of preferences when making new investments. That is to say; first, they resort to financing with internal funds because there is no information asymmetry, then debt is used, and, as a last alternative to the issuance of shares. This theory provides great importance within organizations because most companies are not in search of an optimal combination but rather trying to finance their new investments with their internal financing due to the aversion, they have for the asymmetry of information in the capital market.

Myers (1984) stated that companies prefer to finance themselves with internal resources by reinvesting profits to take advantage of the investment opportunities in the market. He also argued that when companies require external resources, they prefer to use the debt (i.e., loan or bond) and that, when this possibility is exhausted, the issuance of bonds is chosen. Due to the presence of information asymmetries between the firm and potential funders, it is argued, according to the pecking order hypothesis (Myers 1984), that firms finance their needs in a hierarchical manner according to an order of priorities. First, using available internal funds, that is, internal resources (for example, retained earnings), then with risk-free debt or risky debt, and, finally, only, if necessary, through the issuance of shares. According to this approach, changes in the debt ratio of

the company do not imply a movement towards an optimum or objective level of this coefficient, but, rather, a response to external resources is needed once the internal ones have been exhausted.

According to Myers (1984), this preference reflects the relative costs of the various sources of financing due to the existence of information asymmetries. It has been considered that agency costs are one of the main determinants of debt. These agency costs come from the conflict of interest between the shareholders and the debt holders. It is proposed that such conflicts create incentives for shareholders to act for their own benefit at the expense of debt holders. Given this, debt holders may require protection clauses and monitoring devices, which increase the cost of debt. Myers (1977) argued that this type of problem is especially serious for the assets that give the company the option of undertaking future growth opportunities. The greater the company's investment in such assets, the less it will be financed with debt, thereby indicating a negative relationship between debt and growth opportunities. Myers (1977) also points out that this agency problem is mitigated if the company issues short-term debt instead of long-term debt.

Myers and Majluf (1984) addressed that the financial structure aims to reduce the inefficiencies in investment decisions caused by the asymmetry of information. Another study, proposed by Myers and Shyam-Sunder (1994), highlighted the importance of the theory that uses a hierarchy of preference for the use of resources when there is an internal deficit that forces the company to access external resources.

Myers (1984) brought together the factors studied: tax savings for debt, agency costs, financing, and bankruptcy, to suggest that managers must balance these factors to reach the optimal capital structure and concluded that it would balance taxes for debt with bankruptcy cost. Ratifying the above, Bradley, Jarrell, and Kim (1984) used a

regression model of the optimal capital structure determined by non-debt tax shields and expected costs of financial distress. This research found a direct relationship between the expected cost of bankruptcy and the reduction of taxes by means of tax deductions and also related the ratios of leverage and the industry to which the company belongs. The theory suggests that a company decides to finance itself; first, with internally generated capital, the primary reason is that they are free of asymmetric information; secondly, by external indebtedness; thirdly, by issuing bonds; and, finally, issuing shares as these are assimilated negatively because the owners cede part of the company and also face incomplete information that is in the market.

The theory of hierarchy (Pecking Order) states that companies base their debt decision on financing costs, opting first to borrow internally and that if it is not possible to contract debt in the financial sector, as the second option is not viable, it will seek financing through bonds or shares. However, it will prefer the issuance of bonds because when issuing shares, the firm loses shares over the capital. With this theory, it can determine if the companies follow this order at the time of indebtedness or, alternatively, seek an optimal capital structure.

Asymmetric information constitutes the main basis for this theory, assuming that firm managers possess more information about the firm value than potential investors (Myers & Majluf, 1984a). Hence, taking the right decision about the optimal structure of securities essentially relies on firm managers' decisions, assessing between the internal finance and external debt. According to Myers and Majluf (1984), increasing the firm capital by issuing new stocks will result in a negative impact. The stock market reaction, in this case, will be explained as an overpricing of the firm's share, as the firm gets a profit from the difference in the intrinsic and market value. Thus, firm managers tend to tie their equity issuance decisions to the market timing condition, which suggests

that the optimal issuing time results in a higher stock price (Baker & Wurgler, 2002). Hence, the risk aversion behaviour of potential investors from the firm issuance leads to adverse reactions among them. While a step forward taken by firm managers towards issuing bonds will take a less severe reaction; the particular interpretation of potential investors views this decision as a wise behaviour by managers, as they headed Sukuk issuance instead of stocks, which has higher cost of financing, thus realizing that firm managers have sufficient information that meets current shareholders' interests.

Concurring with the assumption of the pecking order theory, the empirical evidence from the US offered by Eckbo, Masulis, and Norli (2007) covered the issuance of securities from 1980 to 2004. Their survey seemed to support the assumption of Myers and Majluf (1984) in that the highest negative average abnormal return (AAR) to the stock return found for the equity issuance is -2.22%, and the convertible bond issues announcement value is -1.82%. Moreover, the straight debt issuance announcement showed less negative reactions with the AAR value at -0.24% (Eckbo et al., 2007).

Investigating the reasons behind stock market reactions has received high attention. In this regard, Billingsley, Lamy, and Smith (1990) argued that different types of debt lead to different reactions from the stock market. The warrant-bond type varies the convertible bond type that leads to different reactions and announcing a warrant-bond instead of a convertible bond can be interpreted based on the assumption of asymmetric information. This is viewed so by potential investors, especially when the firm issuance of warrant-bond reflects a stable financial condition, while the convertible debt gives a bad impression about the financial situation of the firm, as the convertible bond has to be revaluated at the conversion time, which means that there is higher potential risk to be assessed lower than at the time of issuance. Despite the less negative

impact on the stock market from the warrant-bond announcement compared to that of the convertible bond, the different significant reaction from the stock market is attributed to the structure of securities.

However, studies from different stock markets, such as the Dutch market, showed a less associated negative abnormal return from the warrant bond compared to the convertible bond (De Roon & Veld, 1998). Subsequently, the results from the German stock market confirmed those of the Dutch stock market. Gebhardt (2002) supported the assumption that the warrant-bond announcements have a less significantly negative AAR compared to the convertible bond (Gebhardt, 2002).

Conversely, Kang and Stulz (1996) reported a different result from the Japanese stock market, where a more negative abnormal return resulted from the warrant-bond announcements than that resulting from the convertible bond. It is concluded that the market condition articulates the stock market reaction and that, in a stable financial condition, the stock market reaction seems to have a zero or positive return reaction, which is due to the low level of risk aversion by the investors. Meanwhile, in an unstable financial condition, investors bear a higher level of risk aversion, which leads to a negative stock reaction.

3.2.1.2 The Under-reaction Theory

According to Stein (1992), as cited by Kim and Han (2019), if the information of new assets spreads out to the stock market, a case of no reaction will possibly occur in the short-run due to this public information, as investors take time to assess the information, while an over-action is expected from investors to the prospectus information. Stein (1992) emphasized the role of information in driving the stock market behaviour. His framework is based on two main pillars: news-watchers and

momentum traders. These two groups' reactions rely on the strategies used for extracting the market information. News-watchers rely more on private information, which will cause under-reactions in the short term. While momentum traders gain profits from the under-reactions of assets to price changes. These two agents have a paradoxical behaviour towards the market information. In other words, news-watchers take their actions based on relevant future fundamentals, while the momentum traders adopt their actions based on the historical prices of assets.

The under-reaction theory of Stein (1992) provides a thinking base for interpreting the market behaviour. The assumptions of the under-reaction theory indicate that these two agents (i.e., news-watchers and momentum traders) have the rationality and are able to deal with the market information perfectly. Within the explanation of this theory, the market behaviour is led by utilizing the public information partially, where individual investors are not able to digest full information rationally. The lack of the stock market agents in adopting advanced strategies to assess the assets' pricing resulted from the lack of extracting the market information optimally. Hence, overreactions will be expected in the long run as a result of accumulating market information. The impact of this information will determine the market reactions but not for a long time as the full rationality of such information will lead the stock market back to equilibrium.

3.2.2 Theoretical Framework of Sukuk Announcement and Stock Market Reaction

3.2.2.1 Trade-Off Theory

The proposition of Modigliani and Miller (1958) assumes that there is symmetry in the information held by the firm and investors. According to the theory, a firm should

finance its capital majority through debt to increase the value of the firm, which gives more leverage and provides a tax shield, as well as lower financing interest than that paid for internal financing.

According to this theory, a firm that aims to expand its operations would rely more on debt, taking into account that investors hold sufficient and information symmetry about the purpose of the capital financing. From another viewpoint, under the trade-off theory, firms will only take decisions (i.e., issuing new stocks or debt) if they expect benefits from the issuance, such as financing its capital and maximizing the stock return of the firm within the stock market. An implication of the theory is that the market reaction to both equity and debt securities will be positive, which is due to the stock market imperfection, where the case of symmetry information occurs.

The first theoretical approach to the capital structure focused on determining whether there were any functional relationships between the debt ratio, the cost of the weighted average capital, and the value of the company. These were developed in perfect market scenarios but reached contradictory conclusions. However, Modigliani and Miller (1958) served as a reference for subsequent investigations that relaxed the restrictions of their hypotheses, giving rise to some imperfection or real market situation. According to Serrasqueiro and Caetano (2015), currently, not all the imperfections that a stock market have can be identified, and not all have been taken into account to assess their impact on the company's debt-to-value ratio. Hence, there is a consensus that the value of companies can vary through indebtedness due to the fiscal effect and other market imperfections, such as the costs of financial difficulties (Carpenter & Petersen, 2017), agency costs (Priya & Mohanasundari, 2016), and information asymmetry (Chauhan, Kumar, & Chaturvedula, 2016), in many cases

determining an optimal capital structure that compensates the costs with benefits as assumed by the trade-off theory.

According to Dann and Mikkelson (1984), negative reactions are not necessarily systematically related to the purpose of debt issuance only. Rather, they could be linked to other reasons, such as high debt securities size that targets new investments, or to serve the current firm debt. In their view, stock market prospectus has sufficient information to judge and assess the firm's financial position, which works to direct the investor's decisions. In this debate, later studies to Dann and Mikkelson (1984), investigated the US market, such as Fields and Maisis (1991), who commented that the US stock market denounced the neglect of the issuance nature and purposes. Furthermore, Fields and Maisis (1991) attributed stock market reactions to three determinants: the owner's structure effect, tax shield, and market information. The previous work of Modigliani and Miller (1963) attributed the tax shield as being one of the leading reasons or factors behind the increasing stock price, thus considering that a tax shield represents a leverage attraction advantage that is expected to increase the return of stock in the case of straight debt (Fields & Mais, 1991; Franco Modigliani & Merton H Miller, 1963). Firms that report recurring and growing profits may be tempted to issue fixed-income instruments that reduce the payment of the income tax rate.

3.2.2.2 Pecking Order Theory

Financing firm capital by debt has received much attention in the finance literature. The Pecking Order theory of Myers and Majluf (1984b) based its assumptions by stating that there is no optimal capital structure, but rather that managers use the hierarchy of preferences when making new investments. First, they resort to financing

with internal funds because there is no information asymmetry, then debt is used, and, as a last alternative, the issuance of shares.

Based on the pecking order theory, it is better for the firm to rely on internal financing than debt or issuing shares. This is to achieve two objectives, first, to avoid any negative reaction from the investors (due to symmetry information held by managers and investors), and, second, to obtain a positive or neutral reaction that results from the internal financing instead of issuing risky debt (Smith, 1986). Hence, it is better for the firm in this situation to reconstruct its capital structure relying on the internal financing source.

Myers and Majluf (1984b) stated that companies prefer to finance themselves with internal resources by reinvesting profits to take advantage of the investment opportunities in the market. It has also been argued that when companies require external resources, they prefer to use the debt (i.e., loan or bond) and when this possibility is exhausted, the issuance of bonds is chosen; this is due to the presence of information asymmetries between the firm and potential funders.

Myers and Majluf (1984) contended that the financial structure aims to reduce the inefficiencies in investment decisions caused by the asymmetry of information. Another study by Myers and Shyam-Sunder (1994) highlighted the importance of the theory that uses a hierarchy of preference for the use of resources when there is an internal deficit that forces the company to access external resources. The pecking order theory suggests that companies decide to finance themselves, first, with internally generated capital due to the symmetry of information, secondly, by external indebtedness, thirdly, by issuing bonds, and, finally by issuing shares as these are assimilated negatively because the owners cede part of the company and also face incomplete information that is in the stock market.

The pecking order theory states that companies base their debt decision on financing costs, opting first to borrow internally. If it is not possible to contract debt in the financial sector, as the second option is not viable, it will seek financing through bonds or shares. However, managers will prefer the issuance of bonds because when issuing shares, firms lose control over the capital of the company. With this theory it can determine whether the companies follow this order at the time of indebtedness, or, in contrast, seek an optimal capital structure.

Asymmetric information constitutes the main argument of this theory, assuming that firm managers possess more information about the firm value than potential investors (Myers & Majluf, 1984a). Hence, taking the right decision about the optimal structure of securities essentially relies on firm managers' decisions, assessing between the internal finance and the external debt. According to Myers and Majluf (1984), increasing the firm capital by issuing new stocks will result in a negative impact. The negative reaction of the stock market, in this case, will be explained as a response to the higher bankruptcy cost. Thus, firm managers tend to tie their equity issuance decisions to the market timing condition, which suggests the optimal issuing time the higher the stock price (Baker & Wurgler, 2002). Hence, the risk aversion behaviour of potential investors from the firm issuance leads to adverse reactions among them. Whereas if the firm managers issue bonds there will be a less severe reaction, as potential investors will view this decision as a wise behaviour by managers, as they headed Sukuk issuance instead of stocks, which has a higher cost financing, thus realizing that firm managers have sufficient information that meets current shareholders' interests.

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Investigating the reasons behind stock market reactions has received great attention. In this regard, Billingsley et al. (1990) argued that different types of debt lead to different reactions from the stock market. The warrant-bond type varies from the convertible bond type that leads to different reactions and announcing a warrant-bond instead of a convertible bond can be interpreted based on the assumption of asymmetric information. This is viewed so by potential investors, especially when the firm issuance of warrant-bond reflects a stable financial condition, while the convertible debt gives a bad impression about the financial situation of the firm, as the convertible bond has to be revaluated at the conversion time; this means higher potential risk to be assessed lower than at the time of issuance (Billingsley et al., 1990). Despite the less negative impact on the stock market from the warrant-bond announcement compared to that of the convertible bond, the different significant reaction from the stock market is attributed to the structure of securities.

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announcements than that resulting from the convertible bond. It was concluded that the market condition articulates the stock market reaction. In a stable financial condition, the stock market reaction seems to have zero or positive return reaction, which is due to the low level of risk aversion by the investors. Meanwhile, in an unstable financial condition, investors bear a higher level of risk aversion, which leads to negative stock reaction.

3.2.2.3 Market Efficient Theory

Under the efficient capital market hypothesis, Malkiel and Fama (1970) applied the concept of rational expectations to financial markets and hypothesized that financial prices contained all available information. At least, it should not be possible to use past prices to predict future prices and, at best, there would be no difference between the market prices and the fair prices of financial assets. Thus, if markets are "weakly efficient", future prices cannot be predicted on the basis of past prices. This rather restricted statement already contradicts the theory of adaptation expectations, which assumes that past prices contain valuable information for future prices. In agreement with this approach, Kolaric and Schiereck (2016) contended that the so-called "technical analysis" of the markets, which aims to identify past price patterns with a view to predicting future price movements, would be totally absurd.

According to Malkiel and Fama (1970), markets respond to semi-strong efficiency when the prices reflect all publicly available information. In this case, forecasts are impossible not only on the basis of price developments in the past, but also taking into account the new public domain information relevant to the investment decision. Many empirical studies, such as (Bartolucci, Cardinali, & Pennoni, 2018; Patel, Savani, & Poriya, 2017; Syed & Bajwa, 2018) support this claim. However, this

is expected, since forecasting techniques would be used to make investment decisions instead of publishing them if they really gave accurate forecasts.

Finally, Malkiel and Fama (1970) classified markets as "strongly efficient" when prices reflect not only all relevant public information but also internal and privileged knowledge. In this case, the market prices and the fair values of the assets would be identical. However, in most countries the use of inside information for the purchase or sale of securities is illegal. Therefore, an efficient market in its strong form would be a market populated by criminals (Akbas, Armstrong, Sorescu, & Subrahmanyam, 2016). In addition, the concept of strong efficiency suffers from a logical inconsistency: if prices always reflect all information immediately, it makes no sense to look for it. But if no efforts were made to acquire information, prices could not reflect all the information (Sensoy & Tabak, 2016).

According to this theory, the price of a share incorporates all the information available on the issuing company. Due to this circumstance, which is predicted by the semi-strong variant, it is not possible that economic agents can systematically win over the market, since it will incorporate, almost immediately, the “valuable” information possessed by that agent, which was unknown by the rest of the players (or, in equivalent terms, the price will vary in the direction and measure what would be foreseeable if everyone had access to such information). Most stock markets run smoothly and efficiently because many investors are buying stocks and selling stocks regularly. The market has to form an equilibrium point based on those transactions, so the efficient market hypothesis stated that it is difficult to use the information to make a profit. This is due to a time lag between the event occurrence and the information possessed by investors. Different markets tend to operate with different degrees of efficiency. Even among investors who believe in the efficient market hypothesis, most professionals

accept that different asset classes are more risky investments than others, and, therefore, can generate higher returns.

Rajan and Zingales (1995) found similarities in the capital structure between companies in developed countries; basically, they found that, given certain market conditions, such as information asymmetry and free markets, companies converge at close levels in their indebtedness. This occurs because the financial systems of developed countries are stable, and, therefore, companies do not need to vary their leverage greatly. On the other hand, Baker and Wurgler (2002) emphasized the opportunity effect on leverage, which is that companies increase their debt when their share prices are higher (this is related to the financial accelerator theory) in order to maximize growth through debt; that is to say, they take the opportunity to borrow in those moments.

3.2.2.4 Market Timing Theory

The first debate about the role of timing was tested by Bayless and Chaplinsky (1996). This debate attributed the seasoned equity offering to an opportunity signal from the stock market. The result of Bayless and Chaplinsky (1996) sends strong support to managers' concerns about the timing of equity issues and to investment bankers' attempts to make market timing a more integral part of the equity issue decision.

The theory of market timing by Baker and Wurgler (2002) explains the capital structure based on the signals send by the market towards companies, which is why companies tend to issue shares when a favorable behavior is perceived in the market, and they tend to buy back their own shares when market values are lower, evidencing a relationship between the capital structure of the company and the historical behavior of the market. According to this theory, there is no optimal capital structure, and, at all times, the financial structure of the company is the result of financing decisions

accumulated over time. The theory of market timing tries to relate the decisions of companies regarding their level of indebtedness with certain sociological and psychological factors of the components of the companies. These factors can be the psychological attitudes of company managers, the previous experience of managers or their gender. In the case of the theory of market timing, the capital structure evolves as a result of an accumulation of events that occurred with the capital market. The factors that influence financing decision making are information asymmetries and agency costs. "In this theory, there is no optimal capital structure; financing decisions only accumulate over time in the resulting capital structure" (Baker & Wurgler, 2002).

Baker and Wurgler (2002) establish that "in this theory, there is no optimal capital structure, for the market timing of financing decisions they only accumulate over time in the resulting capital structure". From this point of view, the capital structure is solely a product of historical financing decisions rather than a primary objective, and, in this context, it coincides with the Pecking Order Theory (Huang & Ritter, 2009). The theory of market timing suggests that neither the Trade-off Theory nor the Pecking Order Theory is consistent with the negative effect of the market value / historical book value ratios on indebtedness; instead, it maintains that companies decide to issue shares based on capital market conditions. The preference between equity and debt issuance induced by these issues persists in subsequent years, because they do not take care to adjust their debt ratios towards a target. In this regard, low indebted companies tend to be those that raised funds when their valuations were high; and, conversely, companies with high indebtedness tend to be those that raised funds when their valuations were low (Baker & Wurgler, 2002). This also happens when it comes to expected prices. If there are expectations of high stock prices, companies will raise capital and go deeper into debt (Kayhan & Titman, 2007). This suggests a negative relationship between valuation and

indebtedness; better valuations (market/book value ratio) will mean equity financing and debt levels will be reduced (Hovakimian, 2006). Corporate executives issue securities depending on temporary variations in the cost of shares and debt, and these issuance decisions have long-term effects on the capital structure. In this way, companies prefer shares when their shareholders perceive that their relative cost is low, and they prefer debt in the opposite case. Fluctuations in the capital markets have long-term effects on capital structure that persist for at least a decade (Baker & Wurgler, 2002).

3.2.2.5 Discussion Outcome

For this thesis, predicting the stock market reaction to debt announcements is initially based on three primary theoretical perspectives – trade-off theory, pecking order theory, and market efficient theory – which are the most common financial principles for structuring a firm's capital.

The two main theoretical bases of the capital structure are identified as perfect markets and imperfect markets. In the first, the first theories about financing decisions, known as classical theories, were developed; the oldest being the traditional proposition and then the irrelevance proposition of Modigliani and Miller (1958). Both propositions focus on the effect of indebtedness on the cost of capital and the value of the company. Subsequently, Miller and Modigliani (1963) introduced corporate taxes to their initial model and reversed their preliminary conclusions. They suggested that since the tax advantage for debt can be fully exploited, the ideal would be to borrow to the maximum level. However, other studies, such as (Catullo, Gallegati, & Palestrini, 2015; Chang, 2015; Dhaene, Van Hulle, Wuyts, Schoubben, & Schoutens, 2017) showed that this

benefit is only partial because companies have an option for tax savings other than debt, and, also, due to the certain investors effect caused by market imperfections.

From the context of imperfect markets, there are three other theories (Miller's irrelevance theory, trade-off theory, and the Pecking Order Theory) that aim to involve some market deficiencies, such as taxes on natural persons, the costs of financial difficulties, agency costs, and asymmetric information. The first deficiency was addressed by Miller (1977), who concluded that the tax benefit due to debt is cancelled and, therefore, resumed the proposition of the irrelevance of the capital structure on the value of the company. The second deficiency is considered by several studies, such as (Castillo, Niño, & Zurita, 2017; Faccio & Xu, 2015), to be of insignificant value, reaffirming a full fiscal advantage for debt. While for Glover, 2016 and Gornall & Strebulaev, 2018, it is valuable, as it reduces this tax benefit to the point where it is stated that the optimal financial structure is one where the costs for financial difficulties are equal to the tax benefits for debt. This approach can be explained by the trade-off theory. The third imperfection is based on the agency theory and arises due to conflicts over ownership and control between shareholders and administrators. This can be more easily recognized in companies without debt and between shareholders and lenders when the company uses debt for financing new projects (Bolte, 2017). There will be a level of debt where the costs of these conflicts are minimal, that is, an optimal debt structure, which is supported by the proposition of the trade-off structure.

This has been explained from two perspectives. The first is based on the aforementioned trade-off theory, which considers that the risk aversion of the manager, as the signals produced in the market by the way of financing the company, are two phenomena that influence the decisions of the manager; and, in the attraction to take full advantage of the tax benefits provided by greater indebtedness, the manager would

only choose a moderate level of it (Nicodano & Regis, 2019). In contrast to the trade-off theory, the second, the Pecking Order Theory, considers that there is no optimal capital structure, and the company first chooses to finance itself with resources that have less problems due to the asymmetry of information between managers and the stock market participants. A hierarchical ranking of capital structure preferences of the pecking order theory is followed when the most desired sources are exhausted.

Both proposition trade-off theories have received extensive criticism. It is first questioned that their hypotheses depend on the certainty of the level and the variability of the operating result (Lotfaliei & Lundberg, 2019), as well as the structure of interest rates in the financial markets (Oktavina, Manalu, & Yuniarti, 2018). Second, the inability to find an optimal capital structure or a concrete maximum value of the company. Yapa Abeywardhana (2017) contended that this optimum is not easy to define, the argument over the effect of indebtedness is usually combined with discussions about other elements of the financial structure, with observations on patterns of financial structures adopted in the different industrial sectors and on factors of the financial situation, such as the age of the company, the prestige of its leaders, market conditions, and the need for flexibility.

The pecking order theory interprets decisions about the capital structure based on three ascending levels of finance, and each financing level decision is interpreted by the public differently. Basically, in the first level firms use their retained profit to finance their capital structure as it is considered the first source of financing, and on debt financing at the second level since it reflects the higher leverage of the firm. This action by the firm with asymmetric information leads to a negative public reaction as the cost of capital financing by debt increases with asymmetric information. The third level of financing the firm relies on external financing via issuing shares.

The financing decisions correspond to an order of hierarchy of preferences (pecking order). In contrast to the trade-off theory, it is argued that companies do not have an optimal debt ratio that can be deducted from a cost-benefit compensation of debt, but the fundamental thing about the company's financing policy is to decrease the external financing costs generated by problems, which is due to the asymmetric information between managers and investors. Therefore, firstly, the companies would opt for internally generated funds free of asymmetric information, secondly for debt, and, ultimately, for the issuance of shares because the stock market assimilates it as a negative signal. Although with the pecking order a satisfactory explanation of the inverse relationship between indebtedness and profitability of a company can be given, it is not useful to demonstrate the differences in the debt ratios between stock market sectors, or to explain why some mature companies with abundant cash flows prefer to maintain high dividend payments instead of cancelling the debt, or others with high technology and growth prefer to issue new capital rather than debt (Zeidan, Galil, & Shapir, 2018).

In light of the trade-off theory, the capital structure of the firm is determined based on the balance between the cost and benefit of the external finance, while taking into consideration that the firm management is able to decide to what extent they rely on debt financing. Hence, when firms expect more cash flow, it moves towards debt financing to benefit from the tax shield, which is interpreted by the stock market positively. In the perfect capital markets assumption of Miller and Modigliani (1963), the firm's market value is independent of its capital structure, as the Modigliani-Miller theorem demonstrates (Allini, Rakha, McMillan, & Caldarelli, 2018). In reality, market imperfections that have been presented as determinants of the firm's optimal capital structure can be placed in the category of taxes, bankruptcy costs, and agency costs. The

general result of these extensions is that the combination of leverage-related costs (such as bankruptcy and agency costs) and a fiscal advantage of debt produces an optimal capital structure from a level of debt financing, since the tax advantage contrasts with the probability of incurring costs.

For the market efficient theory, the stock market reaction is based on the market condition, which is reflected in the stock market information. Hence, both positive and negative can be determined based on the stock market condition. However, this reaction will disappear due to the equilibrium point based on stock market transactions.

Firms seek to issue Sukuk for many reasons, of which, gaining the benefits of high leverage is one, as the external debt provides tax savings or a "tax shield". This is a tax benefit that companies use to reduce the weighted average cost of capital through indebtedness, which is in agreement with the trade-off theory. Always the cost of issuing debt (the interest rate) is cheaper than the return expected by the shareholders of the company that issues capital and is bought by investors with a higher level of risk in pursuit of higher returns. Another reason for a company to decide to issue debt, is that the shareholder benefit can also be derived from a combination of repurchase of its own shares and dividends. For the case of Sukuk, issuing Sukuk for a firm is an alternative to obtain financing as indicated above. But it is different from using the Sukuk to pay off more debts continuously than if that money were used to boost the company's investments.

The event of the announcement for issuing Sukuk by the firm can be interpreted differently by investors, as there is asymmetry of information among them. One must take into consideration that increasing the level of firm leverage calls investors to revise their decisions towards holding the firm shares or invest in risky debt issuances (Eckbo et al., 2007; Parsons & Titman, 2007). Previous related studies (Dann & Mikkelson,

1984; Eckbo, 1986; Jen et al., 1997; Long & Sefcik, 1990; Marquardt & Wiedman, 2005) have identified significantly negative reactions from the stock market. The negative market reaction should be viewed as the cost of issuing the security. That is, management's choice of bond financing may function as a "signal" to investors that management is highly confident about the firm's future, thus allowing the issuer to avoid much of the negative information costs that attend conventional bond announcements. But if the market response to the bond is negative, on average, there is also a good deal of variation in that response, with quite a few cases of zero or even positive returns. Also, it is attributed to activities in the market's reaction to different kinds of bond issuers. Table 3.1 presents the theoretical brief of the Sukuk announcement and stock market reaction.

Table 3.1: Theoretical Brief – Sukuk announcement and stock market reaction

Sukuk Announcement → **Stock market return**
1. Trade-off theory - Modigliani and Miller (1958) The capital structure of the firm is determined based on the balance between the cost and benefit of the external finance, while taking into consideration that the firm management is able to decide to what extent it relies on debt financing
2. Pecking order theory - Myers and Majluf (1984b) Issuing external financing sends a negative signal to the investors
3. Efficient market theory – Malkiel and Fama (1970) Sufficient information is available to the stock market participants at zero cost. Hence, return on stock market either in positive or negative trends reflects all the information held by the market participants.

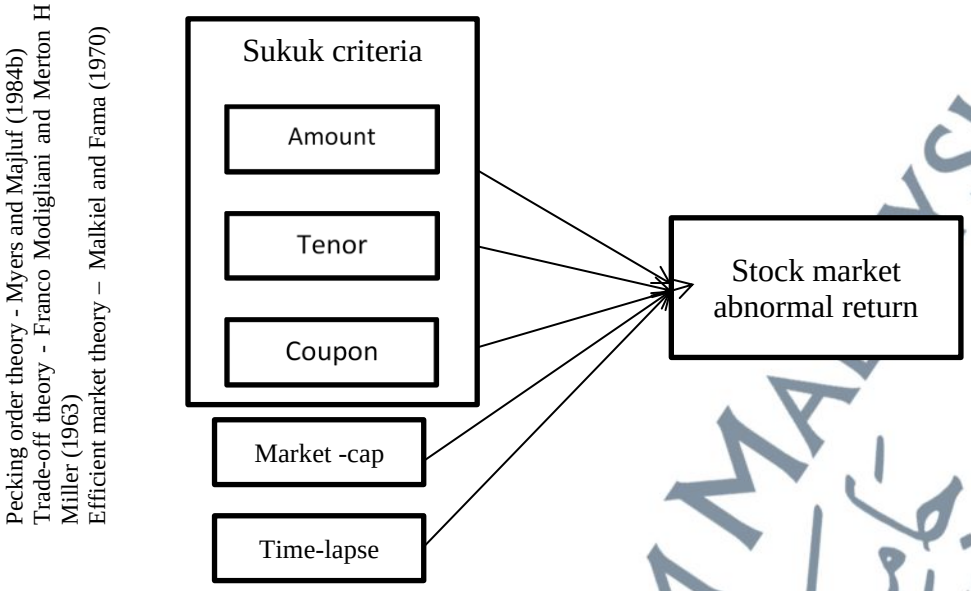

Figure 3.1: Theoretical Framework - Sukuk Announcement and Stock Market Reaction

3.2.3 Empirical Evidence on The Announcement of Conventional Bonds

From the review of previous studies concerning conventional bonds, the study by Fields and Maisis (1991) revealed significantly positive reactions at the event window (-1, 0) from the stock price of 61 issuances in the US market during the period (1970-1987). Kang and Stulz (1996) supported the findings of Fields and Maisis from the stock markets of Japan, in that they confirmed such significantly positive reactions at event window (-1,0) that covered 561 issuances from the Japanese stock market during (1985-1991).

Rahim, Goodacre, and Veld (2014) screened more than 35 event studies during the period from 1984 to 2009, which were related to the conventional bond announcements and the impact on the market value. The results of these studies can be divided into three categories: negative, positive, and non-significant influence, however, the average mean of these studies showed a negative abnormal return mean of -1.14% for convertibles and -0.02% for warrant-bonds.

Liao, Mehdian, and Rezvanian (2017) found that the stock market reaction varies from country to country to the contingent convertible bond announcements. However, among 68 bond issuance announcements from 16 countries, in general, they found that most of the announcements experienced a significant and negative reaction from the stock market, which was interpreted by the different capital market efficiency in a country to country analysis. Kim and Han (2017) linked the significant and positive reaction of the stock market return in Korea to the promised opportunities of investments, as the better valuable investment opportunities within the capital market lead to a positive return from the stock market. M'ng, Rahman, and Kit (2019) investigated the stock return reaction to the bond announcements from Malaysia, Singapore, and Thailand. The results confirmed a significant and positive cumulative average abnormal return over the period 2008-2014. The results obtained are inconsistent with Smith Jr (1986), who proposed no stock market reaction to the bond issuance announcement, which is consistent with the signalling theory of Ross (1977) that hypothesized a significant reaction from the stock market to the debt issuance announcements.

Several determinants of the stock market reaction to the conventional bonds were tested by the previous studies, such as the amount of issuance and bond rating (May, 2010), maturity of issuance and coupon (Li, Liu, & Siganos, 2016), issuer characteristics, such as debt ratio, slack of capital, market to book ratio, total assets, and profitability (Dutordoir & Van de Gucht, 2005), stock return volatility, and market return volatility (Dutordoir, Li, Liu, & Verwijmeren, 2016). It can be noted that till 2014 the meta-analysis of empirical studies by Rahim, Goodacre, and Veld (2014) that investigated the determinants of the stock market reaction to the conventional bond's

announcements ignored the time-lapse factor. To fill this gap, this study included the time-lapse determinant to check its role in determining the stock market reaction.

3.2.4 Empirical Evidence on Announcement: Implications of Islamic Bonds (Sukuk)

In the Islamic finance, identifying the market reactions to Sukuk issuance announcements is still limited as only a few studies focused on this area (Godlewski, Turk-Ariss, & Weill, 2014; Mohamed, Yahya, & Ishak, 2017; Rahim & Ahmad, 2014; Sherif & Erkol, 2017). This is due to the emerging market of the Sukuk instrument. Below are three categories of stock market reaction to the Sukuk issuance announcement from three different dimensions of investigation. First, studies focus on identifying the different stock market reactions to the type of announcements (either Sukuk or conventional bond); second, studies that investigate stock market reaction on a period basis breakdown the investigation period to three sub-periods, prior, during, and post the global financial crisis; and third, studies that investigate the impact of Sukuk announcements on a sectoral basis within the stock market.

3.2.4.1 Comparison between Stock Market Reaction to Sukuk and Conventional Bonds

In line with the comparison between Sukuk and conventional bonds, the study conducted by Ashhari, Chun, and Nassir (2009) is one of the early studies that focused on the comparison of the impact of Sukuk and conventional issuance announcements on stock market reaction. Ashhari, Chun, and Nassir (2009) tested the effect of both types of debt instruments (i.e., Islamic and conventional). It was found that the Sukuk and the conventional bond announcements showed different reactions on the Malaysian

stock market. They found significantly positive abnormal returns one day before the issuance of Sukuk, and non-significant positive returns during and one day after the announcement window, while the Sukuk issuance announcement showed a significantly positive abnormal return in the window (0, +7). This can be interpreted as being due to the stability of the Islamic debt instrument during the global financial crisis, unlike the conventional bonds that were affected by the US stock markets, as most were tied to international issuances. For the conventional bond sample, there was a non-significant and positive reaction from the stock return to the conventional bond in the overall period (-1, +1). Seven days after the issuance of the conventional bonds, a significantly positive response from the stock return was found (Ashhari, 2009). The results reported by Ashhari, Chun, and Nassir (2009) are for the issuance announcement observations from 2001 to 2006, which did not take into account that the Sukuk was still in the growth phase at that time. Also, the low trading of Sukuk within the Malaysian' stock market at that period. In brief, the empirical results of Ashhari, Chun, and Nassir (2009) from the Malaysian stock market are logical, considering that the testing period from 2001-2006 is the initial period of Sukuk. The Malaysian stock market participants were attracted to debt securities that comply with the Shari'ah principles. This result is consistent with the signalling theory of Ross (1977) that hypothesized a significant reaction from the stock market to the debt issuance announcements. Ross (1977) considered that this reaction from the stock market was due to changes within the stock market due to political, financial, and regulation changes. Therefore, a positive reaction from the stock market was directed more emotionally instead of assessing the relative risk and return.

Although the study by Ibrahim and Minai (2009) covered the same testing period as Ashhari, Chun, and Nassir from 2001-2006, the results regarding the conventional

bond announcement reaction were contradictory. A non-significant influence was found from the conventional bond announcement in the overall examined period at window (-60, +60). Meanwhile, the Sukuk announcement revealed significant and positive abnormal returns for the event windows (-3,0) and (-3,+3) (Ibrahim & Minai, 2009). Ibrahim and Minai highlighted the influence of the announcement-associated factors, which included the size of the issuer, the amount of issuance, the level of free cash flows of the issuer, the Tobin's q of the issuer, the level of leverage, the Shari'ah compliant status, and the securities commission approval status (dummy variable measured by 1 if the SC approval has been given to the Islamic bond issuance and 0 otherwise). The issuer's investment opportunity (measured by the firm size) factor was found to have a positive influence on the stock market by the Sukuk issuance announcement, while firm size, issue size, and the approval from the securities commission showed a negative influence on the stock market by the Sukuk issuance announcement. The positive relationship between wealth effect and investment opportunity suggests that smaller size firms with greater investment opportunities should issue Islamic bonds since, relative to larger firms; they can benefit more from the information content and the signalling role of Islamic bond issuance announcements.

Godlewski et al. (2013) investigated stock market reaction towards Sukuk and conventional bond announcements in Malaysia over the period 2002-2009. The sample included 77 Sukuk issuance announcements and 93 conventional bond issuance announcements. The results showed a negative stock market reaction to Sukuk announcements, which is attributed to the Sukuk issuance by lower-quality debtor companies, which gives a negative signal to the stock market.

Elian and Young Taft (2014) applied the AAR and CAAR tests to the Gulf Cooperation Council (GCC) over the period (2004-2012). Significantly positive

reactions were recorded for the event [-12, +14], and insignificantly negative and positive reactions to the whole event window, which shows a late reflection from the market to the Sukuk offering announcement. Such later reactions are attributable to the information absorbed by the market. Based on the available market information related to the announcement transaction, market participants (such as investors, fund managers, and firm managers) work on revising and judging the announcement transaction (Elian & Young Taft, 2014b). Hence, market reactions may lead to a positive or negative reflection.

3.2.4.2 Prior, During, and Post Global Financial Crisis

Islamic finance scholars have paid much attention to demonstrating the suitability of Islamic finance compared to conventional financing during the global financial crisis. In this context, several previous studies tested the stock market reaction towards Sukuk announcements within three-time horizons – prior, during and post global financial crisis.

Recent studies (Alam et al., 2013; Ahmad, 2014) have focused research investigation on the impact of the Sukuk issuance announcement on the stock market reaction before, during, and post the global financial crisis in 2008. Alam, Hassan, & Haque (2013) examined a sample of 166 Sukuk and bond issuances from the stock markets in seven countries: Malaysia, Indonesia, Singapore, Pakistan, UAE, Bahrain and Qatar. The seven stock markets possess Sukuk issuances that are estimated as being equivalent to 89% of the total world Sukuk issuances. Alam, Hassan, & Haque clarified the different influences of Sukuk issuance announcements before, during, and after the global financial crisis in 2008, as well as the impact of bond issuance announcements during the same period. Insignificant positive reactions were found for the Sukuk and

bond announcements for the overall period (2004-2012), while significantly negative reactions were identified for Sukuk during the crisis period (2008-2009), and significantly positive reactions after the crisis period (2010-2012). Meanwhile, the bond issuance announcements showed significantly negative reactions before the crisis period (2004-2008), and insignificant negative reactions after the crisis period (2010-2012). The findings reported by Alam, Hassan, & Haque were attributed to the characteristics of the Sukuk issuers, which showed a lower profitability ratio and leveraged. This weaker financial position of the issuer causes a negative signal from investors towards Sukuk announcements.

Ahmad and Rusgianto (2013b) focused on examining the stock market reaction to the Sukuk issuance announcement post the 2009-2010 financial crisis. Their results were sampled from the Malaysian market, specifically, from 29 company issuances. Ahmad and Rusgianto (2013b) found a non-significant positive reaction from the Malaysian stock market post the financial crisis. Regardless of the conflicting results reported by Alam, Hassan, & Haque (2013) that showed significantly positive reactions to the Sukuk issuance announcement after the financial crisis, the study of Ahmad and Rusgianto (2013b) was limited to Sukuk issuances over the period 2009-2010, which differed from the study of Alam, Hassan, & Haque (2013) that used a wider sample that included Sukuk issuances over the period (2009-2012). This shows an improvement from the stock market reaction post the period 2009-2010, as the issuances over the period 2011-2012 were affected by the global economic improvement post the global crisis.

Mohamed et al. (2017) investigated the stock market reaction to 115 Sukuk announcements in Malaysia. Three sample time frames were tested, prior, during, and post the global financial crisis from 2002 to 2013. The findings showed a significant

and negative stock market reaction on the day before the issuance, as well as on the day of Sukuk issuance, while there was a significant and positive reaction from the stock market 30 days after the day of issuance. This result indicates that it takes a long time for the investors to assess their decision towards the announcement event, as well as clarifies the role of the time factor in designing market participants' decisions.

Khartabiel, Abu-Alkheil, Ahmad, and Khan (2019) employed event study methodology to test the stock market reaction to the announcements of Sukuk and conventional bonds in 12 stock markets. Using a sample of 237 Sukuk announcements and 231 announcements of conventional bonds over the period 2005-2017, the findings confirmed an insignificant stock market reaction before the global financial crisis 2005-2007 for both instruments – Sukuk and conventional bonds. During the period, there was a negative reaction from the stock market for both instruments, and for the post-crisis, a significant and positive stock reaction from the stock market was found for Sukuk announcements and an insignificant stock market reaction for the conventional bonds. The significant and positive reaction post-crisis to the announcements of Sukuk is attributed to the market participants' new look, awareness, and increased demand for Sukuk.

In brief, based on previous studies that evaluated the stock market reaction to the Sukuk issuance announcement before, during, and post the financial crisis, it is concluded that:

1. There was an insignificant reaction from both the Sukuk and conventional bonds during the financial crisis. Modirzadehbami and Mansourfar (2011), and Godlewski et al. (2013), found that investors had the same interpretation of both types, taking into account that the issuance of any type of debt securities during the crisis period is an indicator of bankruptcy of the issuer.

2. Figure 3.1 shows that the results for the overall period, including the crisis period, revealed a significant and negative reaction from the stock market to Sukuk issuance announcement including the study of Godlewski et al. (2013), which is attributed to the event study methodology that relies on the average approach in calculating the average reaction. Hence, the CAAR result for the overall period amended it by the significantly negative reaction during the crisis period, which interprets a sharp adverse selection from the investors in the crisis period to the Sukuk issuances.
3. Regardless of the compliance of Sukuk to Shari'ah, investors consider Sukuk as being one of the firm's financing tools, which reflects the weak financial position of the firm during the crisis period, as investors apply the global slowdown economy to the local stock market. Thus, investors react negatively to the Sukuk issuance to avoid the relevant credit risk of issuances during this period.

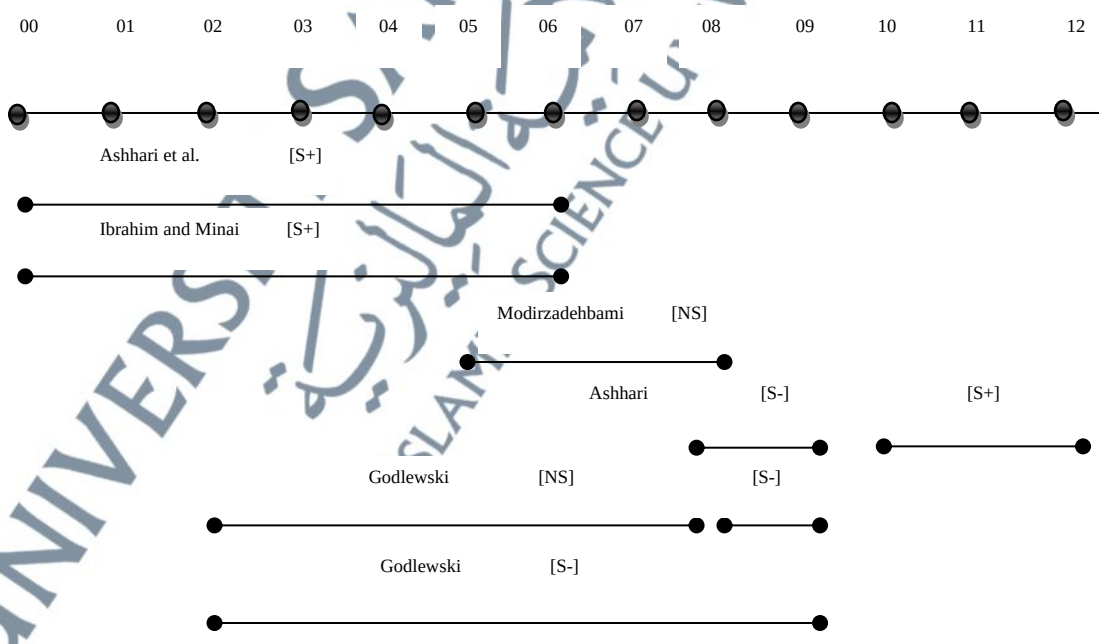

Figure 3.2: Some Results of Previous Studies Concerning Stock Market Reaction to Sukuk Announcements, 2000-2012

3.2.4.3 Sectoral and Overall Investigation of Sukuk Announcement

This section reviews studies that investigate the impact of Sukuk announcements on the stock market reaction in sectoral types. Modirzadehbami and Mansourfar (2011) investigated the impact of the Sukuk issuance announcement on stock market reaction, which covered the time period from 2005 to 2008. Modirzadehbami and Mansourfar examined the abnormal return hypothesis from the Sukuk issuance announcement. Their empirical results revealed that there was a significantly negative response one day before the announcement day. Meanwhile, insignificant negative reactions were found for the event window (0,+1) (Modirzadehbami & Mansourfar, 2011).

Ahmad and Rahim (2014) conducted a study that aimed to examine the impact of the sectoral Sukuk issuance announcements on the stock market reaction of three stock market sectors. To achieve this, the construction, service and industrial product sectors were selected to be tested. At the same time, the abnormal stock return was divided into three time periods. The first period represented the period prior to the global financial crisis (2004-2006), and the second period was during the global financial crisis (2007-2008). The post-financial global crisis was identified for the period (2009-2011). Ahmed and Rahim (2015) found a significantly positive impact of the Sukuk issuance announcements on the stock market reaction in a few window events [-3,+5], [-3,+7], [-4,+10],[-7,+3], [-7,+7], [-10,+4], [-15,+15], [-30,+30], [-20,+10], [-20+40], [-40,+20].

The time factor played a major part in determining the stock market reaction, as the longer the duration from the announcement date, the reaction of the stock market was more significant. In this context, Rahim and Ahmad (2015) found a significant and positive reaction from the stock market in Malaysia for a sample of 45 announcements selected over the period 2009-2011. From 13 event windows over the time frame (-

90,+60), six event windows (-5,+2), (-15,+5), (-5,+30), (-30,+60), (-60,+30), (-90,+15) revealed a significant and positive stock market reaction, which confirmed the longer time duration from the announcement date, as the investor takes time to evaluate the gained information about the issuer and make a decision.

Such results, however, were limited to the construction and services sectors during and before the global financial crisis. Moreover, significantly positive reactions of the market were found in some other sectors [-10, +10] including the construction sector, while the service sector started to show positive reactions as found in [-3, +5]. This may be attributed to absorbing the negative news by the stock market during that time, as investors took 10 days after the announcement date to explore investment opportunities viable for the service sector. Table 3.2 presents the summary of relevant studies.

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Table 3.2: Summary of Some Relevant Previous Studies

Authors/Year	Sample characteristics/methodology*	Findings
Ashhari (2009)	Islamic and conventional bond announcements in Malaysia during 2001-2006. The event study methodology was used.	Sukuk = a significant and positive average abnormal return at day -1 and Cumulative Average Abnormal Return for windows (-1, +1), (0, +1), (0, +7) Conventional bond = non-significant average abnormal return, while a significant Cumulative Average Abnormal Return for window (0, +7)
Modirzadehbami and Mansourfar (2011)	45 Islamic Sukuk announcements from Malaysia during 2005-2008. The event study methodology was used.	A significant and negative average abnormal return occurs one day before the announcement date
Alam et al. (2013)	79 Sukuk and 87 conventional bond announcements during the period 2004-2012 in six stock markets: Malaysia, Indonesia, Singapore, Pakistan, UAE, Bahrain, and Qatar. The event study methodology was used.	Overall period 2004-2012 Non-significant Cumulative average abnormal return for both Sukuk and Conventional bonds Period 2004-2006 Non-significant Cumulative average abnormal return for both Sukuk and Conventional bonds Period 2007-2009 Sukuk = significant and negative for windows [0,0], [-1,1], [-3,3] Conventional bonds = significant and negative for windows [0,0], [-1,1], [-3,3] Period 2010-2012 Sukuk = significant and positive for windows [0,0], [-1,1], [-3,3] Conventional bonds = significant and negative for windows [0,0], [-1,1], [-3,3]
Ahmad and Rahim (2014)	This study was characterized by other studies by examining the Islamic bond announcements effect on firm value by the financial sector. Three sectors were selected – construction, services, and industrial products. The total sectoral Sukuk issuances were 208, which were segregated into three periods: before, during, and after the global financial crisis. The event study methodology was used.	20 windows were assigned by the study for each sector. The overall period has varied reactions. The results emphasized the confidence of investors in the Islamic financing tools during the global financial crisis, as well as the trend of investors to avoiding the conventional financing instruments during the crisis.

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Table 3.2, continued

Authors/Year	Sample characteristics/methodology*	Findings
Elian and Young Taft (2014)	15 corporate Sukuk announcements from GCC over the period 2004-2012. The event study methodology was used.	A significant positive reaction was recorded for the event [-12, +14], in addition to an insignificant negative and positive over the whole event window, which shows a late reflection from the market to the Sukuk offering announcement. The explanation behind the late reaction is attributable to the information absorption from the market. Based on the available market information related to the announcement transaction, market components work to revise and judge the announcement transaction. Hence, the market reaction may lead to a positive or negative reflection.
S. A. Rahim and Ahmad (2015)	45 announcements over the period 2009-2011 in Malaysia. The event study methodology was used.	From 13 event windows over the time frame (-90, +60), six event windows (-5, +2), (-15, +5), (-5, +30), (-30, +60), (-60, +30), (-90, +15) revealed a significant and positive stock market reaction. This confirmed the long-time duration from the announcement date, as the investor takes time to evaluate the gained information about the issuer and make a decision.
Mohamed et al. (2017)	115 Sukuk announcements in Malaysia, three sample time frames were: prior, during, and post the global financial crisis from 2002 to 2013. The event study methodology was used.	The finding showed a significant and negative stock market reaction on the day before the issuance, also on the day of Sukuk issuance, while there is a significant and positive reaction from the stock market 30 days after the day of issuance.
Godlewski et al. (2013)	170 announcements, 77 Sukuk announcements, and 93 conventional bonds. The event study methodology was used.	Significant and negative reactions were found for Sukuk and bond announcements for the event windows (-2, +2), (-1, +2).

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Table 3.2, continued

Authors/Year	Sample characteristics/methodology*	Findings
Mohamed et al. (2017)	Investigated the stock market reaction to 115 Sukuk announcements in Malaysia. Three sample time frames were tested: prior, during, and post the global financial crisis from 2002 to 2013. The event study methodology was used.	The findings showed a significant and negative stock market reaction on the day before the issuance, also on the day of Sukuk issuance, while there was a significant and positive reaction from the stock market 30 days after the day of issuance.
Khartabiel et al. (2019)	This study employed the event study methodology to test the stock market reaction to the announcements of Sukuk and conventional bonds in 12 stock markets, for a sample of 237 Sukuk announcements and 231 announcements of conventional bonds over the period 2005-2017. The event study methodology was used.	The findings confirmed an insignificant stock market reaction before the global financial crisis 2005-2007 for both instruments – Sukuk and conventional bonds. During the period showed a negative reaction from the stock market for both instruments – Sukuk and conventional bonds – and for the post-crisis, a significant and positive stock reaction from the stock market was found for Sukuk announcements. An insignificant stock market reaction was found for the conventional bond
Khartabiel et al. (2019)	This study employed the event study methodology to test the stock market reaction to the announcements of Sukuk and conventional bonds in 12 stock markets, for a sample of 237 Sukuk announcements and 231 announcements of conventional bonds over the period 2005-2017. The event study methodology was used.	The findings confirmed an insignificant stock market reaction before the global financial crisis 2005-2007 for both instruments – Sukuk and conventional bonds. During the period showed a negative reaction from the stock market for both instruments – Sukuk and conventional bonds – and for the post-crisis, a significant and positive stock reaction from the stock market was found for Sukuk announcements. An insignificant stock market reaction was found for the conventional bond

*All studies followed the event study methodology, which was specifically used to assess the responding impact around an event on the stock market return indicators.

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3.3 Sukuk Yield Spreads and Stock Market Volatility

3.3.1 Introduction

The Sukuk instrument is one of the capital market components, its yield works as an indicator to the stock market players, and it is also affected by the economic conditions (Saad & Mohamad, 2017). Sukuk yield spreads give an interpretation on the short- and long-term horizons to the investors; yield spreads in the short term are explained by the capital market interest, while, in the long term, the yield spreads determine the future growth (Maio & Santa-Clara, 2017). Investors have considered the shape of the yield curve as a sign of future growth, and, usually, it is steepest after recessions.

The yield spread depends on several factors; for example, it could flatten due to falling long-term yields and/or rising short-term yields. Investors can benefit from a complete understanding of both the performance level and the slope of the yield spread. Historically, the yield spread has been an effective indicator of the business cycle in real time (Chinn & Kucko, 2015). However, by incorporating the changing level of interest rates in an analysis of the yield spread, important knowledge is obtained beyond what the slope of the yield spread can tell investors. The yield spread is one of the key metrics that bond investors can use to gauge how expensive or cheap a particular bond is. Linking Sukuk yield spreads to the stock market volatility has received little attention within the literature (Saad, Haniff, & Ali, 2018). This is due to the lack of symmetric data of the yield spread of Sukuk, where more focus in the previous studies was given to investigating the Sukuk yield spread determinants.

This section is an extension of the previous section of the study, which focused on the stock market reaction to the Sukuk announcements. This section follows up Sukuk yield spread as the next phase of the announcement and issuing. In this phase,

Sukuk issuers who have more than one issuance care about the stock price volatility that may result from more Sukuk issuances. This section discusses the related theoretical background to the yield spreads, as well as some empirical evidence that discusses the linkage between Sukuk yield spreads and stock market volatility.

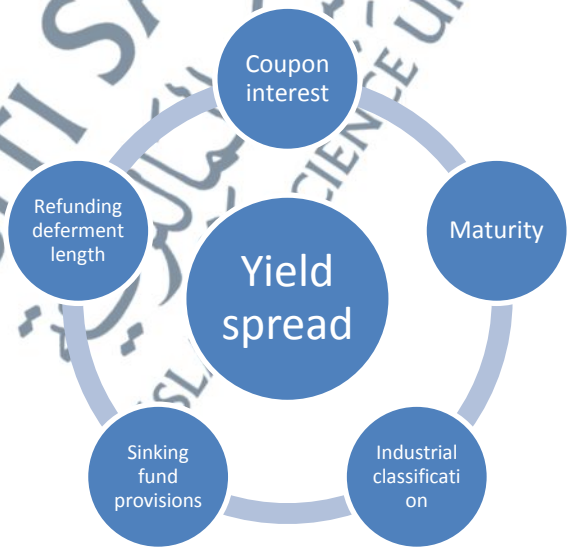
3.3.2 Theoretical Background of Sukuk Yield Spreads and Stock Market Volatility

Fung and Rudd (1986) came up with three different explanations behind the different prices of the new and existing bonds. The first explanation is that this is attributed to the different features of the contract between the existing and new bonds, while the second explanation points to the higher level of liquidity of the new issuance. The third explanation is related to the difference in the cost of issuance as a result of a new financial and economic situation. The explanations of the differences between the new and existing bonds by Fung and Rudd have been argued by many previous scholars and researchers (Bhagat et al., 1985; Kessel, 1971; Kidwell et al., 1984; Sorensen, 1979). Their argument is closer to the third explanation that new issues may be priced to yield a differential from the equilibrium value to reflect the transaction costs in delivering the issue to the marketplace.

Ederington (1974) provided three hypotheses to explain the yield spread on new issues of the bond. First, there is a non-perfect substitute between the new and outstanding bond issues that have the same industrial classification and quality rating. This hypothesis is known as the Heterogeneity Hypothesis. Secondly, secondary bond market yields tend to lag behind new issue offering yields, thus resulting in a prolonged, although non-permanent, yield spread. Although the reasons for this hypothesized lag have not been explained, it is clear that those expounding this lag occur because there

is no free substitution between new and outstanding issues in the bond holders' portfolio. Thirdly, the uncertainty hypothesis supposes that the yield spread results from the uncertainty of the new bond issues.

Historically, the new bond issuance has been argued from a different perspective of determinants to the seasoned issuance, in that these determinants vary from one stock market to another, while the determinants of new Sukuk issuances have received less attention. The main purpose of the pioneer studies is to focus on factors that affect the new bond issue price. Conard (1969) highlighted the role of the coupon interest as a determinant between the new bond issue and the seasoned bond, thus anticipating that a higher rate of coupon interest of the new bond issue is reflected as a higher risk of a refunding call. Conard also highlighted other affected determinants that induce the yield spread between the new and seasoned bond issuance (refer to Fig 3.3). He pointed to four determinants as an explanation of the noted yield spread: maturity, industrial classification, sinking fund provisions, and the refunding deferment length. The determinants of new Sukuk issuances will be discussed in a later section.



Source: Conrad (1969)

Figure 3.3: Yield Spread Between New and Seasoned Bond Determinants

The yield spread between two bonds is explained as a temporary event that will soon disappear. Conard (1969) expected a period of two to three months as a temporary situation for the yield spread between the new and seasoned bond. This period has been interpreted as correction maintenance for the new bond yield, where the yield spread decreases to reach the seasoned bond benchmark (Conard & Frankena, 1969). Sorensen (1982) agreed with Conard's specified determinants by adding more factors. In other words, while Conard's determinants have been included in the microeconomic determinants, three new determinants have also been identified under the macroeconomic determinants, which are the interest rate cycle, the economic growth, and the tax rate changes. Cai, Helwege, and Warga (2007) argued that asymmetric information, as modelled by Rock (1986), as well as liquidity, have an impact on the yield spread. The researchers supported previous studies that attributed the under-pricing of the new issue to the lack of available information. Recently, this has expanded to include other determinants, such as debt rating, firm reputation, and the general risk (Barrios, Iversen, Lewandowska, & Setzer, 2009).

3.3.3 Theoretical Framework of Sukuk Yield Spreads and Stock Market Volatility

3.3.3.1 Under-Priced Hypotheses

Fung and Rudd (1986) came up with three different explanations behind the different prices of the new and existing bonds. The first explanation is that this is attributed to the different features of the contract between the existing and new bonds, while the second explanation points to the higher level of liquidity of the new issuance. The third explanation is related to the difference in the cost of issuance as a result of a new financial and economic situation. Here, the explanations of the differences between

the new and existing bonds by Fung and Rudd have been argued by many previous scholars and researchers (Bhagat et al., 1985; Kessel, 1971; Kidwell et al., 1984; Sorensen, 1979). Their argument is closer to the third explanation that new issues may be priced to yield a differential from the equilibrium value to reflect the transaction costs in delivering the issue to the marketplace.

3.3.3.2 Yield Spread Theory

Ederington (1974) provided three hypotheses to explain the yield spread on new issues of the bond. First, there is a non-perfect substitute between the new and outstanding bond issues that have the same industrial classification and quality rating. This hypothesis is known as the Heterogeneity Hypothesis. Secondly, the secondary bond market yields tend to lag behind new issue offering yields, thus resulting in a prolonged, although non-permanent, yield spread. However, although the reasons for this hypothesized lag have not been clearly stated, it is clear that those expounding that this lag occurs is because there is no free substitution between new and outstanding issues in the bond holders' portfolio. Thirdly, the uncertainty hypothesis supposes that the yield spread results from the uncertainty of the new bond issue.

Historically, the new bond issuance has been argued from a different perspective of determinants to the seasoned issuance, in which these determinants vary from one stock market to another, while the determinants of new Sukuk issuances have received less attention. The main purpose of the pioneer studies is to focus on factors that affect the new bond issue price. Conard and Frankena (1969) highlighted the role of the coupon interest as a determinant between the new bond issue and the seasoned bond, thus anticipating that a higher rate of coupon interest of the new bond issue is reflected as a higher risk of a refunding call. Conard and Frankena (1969) also highlighted other

affected determinants that induce the yield spread between the new and seasoned bond issuance. Conard and Frankena (1969) pointed out four determinants as an explanation for the noted yield spread: maturity, industrial classification, sinking fund provisions, and the refunding deferment length. The determinants of new Sukuk issuances will be discussed in a later section.

The yield spread between two bonds is explained as a temporary event soon to disappear. Conard (1969) expected a period of two to three months as a temporary situation for the yield spread between of the new and seasoned bond. This period has been interpreted as correction maintenance for the new bond yield, where the yield spread decreases to reach the seasoned bond benchmark (Conard & Frankena, 1969). Sorensen (1982) agreed with Conard's specified determinants by adding more factors. In other words, while Conard's determinants have been enclosed in the microeconomic determinants, three new determinants have also been identified under the macroeconomic determinants: the interest rate cycle, the economic growth, and the tax rate changes. Cai, Helwege, and Warga (2007) argued that asymmetric information, as modelled by Rock (1986), as well as liquidity, have an impact on the yield spread. The researchers supported previous studies that attributed the under-pricing of the new issue to the lack of available information. Recently, other determinants have expanded to include determinants, such as debt rating, firm reputation, and the general risk (Barrios et al., 2009).

Early studies, such as Ederington (1974), Lindvall (1977), Weinstein (1978), and Sorenson (1982), considered the question of why the yield to maturity (YTM) on a new bond offering is usually higher than the YTM on an existing corporate bond. They investigated this when the YTMs converged. In other words, if the YTMs converge quickly, then the differentials are ascribed to under-pricing, and if not, then new issues

are deemed to undergo a seasoning process. In most articles, as concluded by Sorenson (1982), the seasoning process observed in previous articles is mostly an under-pricing phenomenon. Fung and Rudd (1986) argued that once one uses better quality bond price data, both seasoning and under-pricing disappear. Wasserfallen and Wydler (1988) offered empirical evidence of under-pricing in the Swiss bond market.

3.3.3.3 Discussion Outcome

Issuing new debt is considered as a new channel of cash flow for the firms. External financing sources support the business' ability to fund their operations, besides financing new business expansion. Some previous researchers (Lindvall, 1977; Sorensen, 1982; Wasserfallen & Wydler, 1988) reported that new bond issuances displayed higher yields than the matched benchmarks, which rely on the bases of maturity, call-ability, and that the credit rating that makes the corporate bond is under-priced. However, the situation of under-priced credit rating is temporary; it refers to the issuing price being below the fair value of the bond. Fung and Rudd (1986) concluded their study by stating that investors will seek to extract the related information to the bond price data, which will lead to price equilibrium. In this context, according to other researchers (Conard, 1966; Conard & Frankena, 1969; Frankena, 1971; Jen & Wert, 1966), bond price equilibrium resulted in a non-perfect substitute between the new and the existing bond in terms of pricing (Ederington, 1974).

The issue about the corporate Sukuk yield spreads is still widely debated and contentious. Certain empirical evidence showed different results regarding Sukuk yield spreads, which resulted from the difference in return of two Sukuk issuances that had similar maturities and different credit quality. The empirical evidence focused on the price determinants of Sukuk issuances; as pricing Sukuk issuance leads to the yield

spread, the results are divided into three situations; under-priced, a fair price, or overpriced. Khurana and Raman (2003) highlighted the role of the information obtained from investors in increasing the earnings-related fundamental score; this information is related to their risk tolerance level and expected return. The credit quality of the new bond issuance forms an essential factor in determining the expected future return.

Investors always seek more additional information missed by expert analysts. The fundamentals comprise the main source of extracting additional information that enables them to assess the credit quality of debt. In the case of new bond issuance, the fundamentals are less effective than those that are available for the seasoned bond, as seasoned issuance obtains much experience within the market. Moreover, seasoned debt was found to experience much volatility that reflects the expected credit risk level (Khurana & Raman, 2003). Expecting the future return of the new issuance bond is a function from the current performance of the firm. According to Ou and Penman (1989), accounting information plays a vital role in determining the future cash flow of the firm. Fundamental information affects how investors perceive the long-term performance of the firm, which confirms the investment base in assessing the credit risk of the bond in return.

Table 3.3: Theoretical Brief - Sukuk yield spread and stock market volatility

Sukuk Yield spread	→	**Stock market volatility**
1. Under-priced hypotheses - Fung and Rudd (1986) The yield spread is attributed to the different features of the contract between the existing and new bonds and is also related to the difference in the cost of issuance as a result of a new financial and economic situation.		
2. Yield spread Hypotheses - Ederington (1974) The yield spread is attributed to a non-perfect substitute between the new and outstanding bond issues that have the same industrial classification and quality rating. This yield spread results from the uncertainty of the new bond issues.		

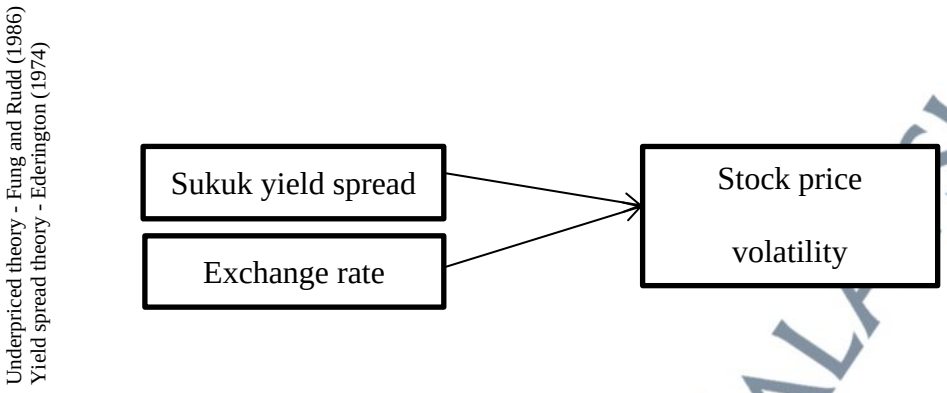


Figure 3.4: Theoretical Framework – Sukuk Yield Spread and Stock Market Volatility

3.3.4 Empirical Evidence on Bond Yield Spreads

A variety of studies have concerned the yield spreads of new bond issuance to seasoned issuance. For the period, from 1980 to 2000, investigations have proceeded gradually. Previous studies, such as Loderer, Sheehan, and Kadlec (1991), and Datta, Iskandar-Datta, & Patel (1997) were aimed at finding a good base to interpret the conditioned yield spread of the new bond issue. Many yields spread determinants have been tested to identify the reasons behind the yield spread between the new bond issue and the seasoned bond. Previous studies (Lindvall, 1977; Weinstein, 1978) found a higher benchmark from the new corporate bond issue compared to the seasoned bond.

Datta, Sudip, Mai Iskandar-Datta, and Ajay Patel (1997) documented that straight bond new issues are not statistically under-priced. Thus, their results support the IPO model for predicting a non-under-price with a lower level of asymmetric information among the investors. Datta, Sudip, Mai Iskandar-Datta, and Ajay Patel found a negative initial return for the investment grade bond, and 1.86% adjusted return in the benchmark for the speculative-grade bonds. The Datta, Sudip, Mai Iskandar-Datta, and Ajay Patel (1997) result is consistent with the results of an earlier study by Loderer, Sheehan, and Kadlec (1991) who focused on the IPO equity (Datta, Iskandar-Datta, & Patel, 1997).

Furthermore, the findings of Loderer et al. (1991) indicated that the quality rating of the new bond issue works to mitigate the associated uncertainty related risk. They also attributed the result of overpricing of the investment-grade bond IPOs to the higher attractiveness of this type of debt, in that financial institutions will be interested in high ratings for their investments instead of investing in low-quality issues.

Other empirical studies (Cai, Helwege, & Warga, 2007; Goldstein & Hotchkiss, 2007) found a positive initial benchmark-adjusted return in the bond issue. For instance, Goldstein, Hotchkiss, and Sirri (2007) relied on the dealer behaviour for reasoning the under-pricing of the new corporate bond. It was revealed that the dealers have a non-significant position even if the offer price is below the intrinsic price. In contrast, other empirical studies (Bradshaw, Richardson, & Sloan, 2006; Clarke, Dunbar, & Kahle, 2001; Cohen & Lys, 2006; Spiess & Affleck-Graves, 1999) offered evidence of overpricing for the new corporate bond issue. Their results confirmed that a new corporate bond issue would not always be under-priced.

Kozhanov and Ogden (2012) examined the price of the new corporate bond issue relative to the TRACE benchmark and book-building model benchmark. Their findings documented a negative yield spread between the new investment-grade bond and the seasoned yield benchmark. The researchers also attributed the lower yield from the new bond issue to the issuing liquidity, thus suggesting that new bond issues have higher liquidity than seasoned bonds.

Goh and Yang (2017) investigated the determinants of yield spread of seasoned and new offerings; this investigation covered 2,637 issuances over the period 2005-2012 from the USA capital market. The findings of Goh and Yang (2017) confirmed systematic under-pricing from seasoned issues and that this under-pricing recovered partially, but not completely. This result is interpreted by the liquidity shock, which is

a part of under-pricing, besides the downward sloping demand curve for seasoned bonds. This result is consistent with the asymmetry information model of Rock (1986), where under-pricing is necessary to compensate uninformed investors.

3.3.5 Bond and Stock Market Volatility

The literature on stock-bond correlation has traditionally focused on developed markets (Andersson, Krylova, & Vähämaa, 2008; Campbell & Ammer, 1993; Cappiello, Engle, & Sheppard, 2006; Ilmanen, 2003). The most prominent issue within this stream of literature is related to examining various factors driving the stock-bond correlations. Given the mixed evidence in the literature on the role of macroeconomic factors in driving stock-bond correlations, the debate on this issue remains open (Baele, Bekaert, & Inghelbrecht, 2010; Boyer, Kumagai, & Yuan, 2006; Christopher, Kim, & Wu, 2012; Panchenko & Wu, 2009). In particular, one segment of the literature documents the importance of the macroeconomic fundamentals, specifically inflation, business cycle environment, and the monetary policy stance in explaining stock-bond correlations (Ilmanen, 2003; L. Li, 2002; Yang, Zhou, & Wang, 2009). Yang et al. (2009) provide convincing evidence of time-varying stock-bond correlations over macroeconomic conditions (the business cycle, the inflation environment, and monetary policy stance) by using data for the US and the UK covering the past 150 years. Ilmanen (2003) identifies inflation as a key driver of stock-bond correlation. High inflation periods lead to changes in common discount rates that dominate the cash-flow expectations and lead to a positive correlation between the two asset classes. Further findings demonstrate that stocks tend to outperform bonds during the business cycle expansions, while bonds outperform stocks during the business cycle contraction

periods. Finally, easing the monetary policy has a positive effect on both stocks and bonds exhibiting the positive relation with the correlation of these two asset classes.

In contrast, Baele et al. (2010) argued that macroeconomic factors only play a minor role in explaining stock-bond correlations in the US market. Andersson et al. (2008) used data from the US, the UK, and German markets and found that inflation expectation is an important determinant of stock-bond correlation, while economic growth expectation is not a relevant factor. Specifically, their result shows that stock and bond prices move in the same direction when the inflation expectations are high.

The more recent study by Aslanidis and Christiansen (2014) provides new insights into the role of macroeconomic fundamentals in explaining stock-bond correlations. They found that macroeconomic factors only have little explanatory power when the stock-bond correlation is largely positive, but that when the stock-bond correlation is large negative, then macroeconomic fundamentals are the most useful explanatory variables. The rationale behind this finding is that macroeconomic factors are important for bonds in all periods, while for stocks, they are only important in very volatile periods.

One additional segment of the related literature provides evidence that stock market uncertainty plays an important role in explaining stock-bond correlations (Aslanidis & Christiansen, 2014; Connolly, Stivers, & Sun, 2005; S. Kim & In, 2005). The aforementioned studies used implied volatility from the equity index options as a proxy for stock market uncertainty and suggest that implied volatility changes have an impact on market participants' risk aversion, thereby affecting the stock-bond correlation. Considerable attention in those studies has been given to the "flight-to-safety" phenomenon, in which the correlation between stocks and bonds becomes significantly negative during periods of high market uncertainty (Andersson et al., 2008;

D. G. Baur & Lucey, 2009; Connolly et al., 2005). In particular, the financial equity market crashes make investors more risk averse, as they shift the funds from stock to bond markets.

Among the literature on stock-bond correlation, studies examining emerging markets are relatively scarce. In particular, Panchenko and Wu (2009) use the sample of 18 emerging markets to investigate whether the stock-bond co-movement is affected by emerging stock market integration. In addition, Boyer et al. (2006) examined correlations between stock and bonds in emerging markets within the context of the financial crisis contagion. More recently, Christopher et al. (2012) addressed the issue of the effects of sovereign credit ratings on time varying stock-bond correlations in emerging countries worldwide.

3.3.6 Empirical Evidence from The Sukuk Market

A few studies have attempted to identify the linkage between the Sukuk yield spread and stock price volatility. For example, Rahman and Rahim (2003) study is considered as being the first study that strived to identify the factors that influence the Sukuk spread in the Malaysian market (Rahman, Omar, & Kassim, 2013). This study employed a simple linear regression to measure the relationship between the interest rate volatility and the Sukuk yield spread. The results revealed a negative relationship, as measured using the Kuala Lumpur interbank offer rate (KLIBOR). Furthermore, a negative relationship was found between the Sukuk yield spread and the assets. The asset factor was measured by the returns of the Kuala Lumpur Composite Index (KLCI). Rahman also conducted another study in 2008 by establishing a relationship between the interest rate volatility and the Sukuk spreads. The data covered the weekly yield

spreads of Sukuk from 2003 to 2006. However, a negative relationship still appears between the Sukuk yield spread to maturity and the interest rate changes.

The study by Naifar and Mseddi (2013) is considered as being one of the only studies in the field of the Sukuk yield spread. Their study examined two determinants that may affect the Sukuk yield spread. The determinants were divided into financial and economic variables. The financial variables represent the stock market conditions (stock market index return and stock return volatility), while the economic variables are the consumer price index and slope of the yield curve (Naifar & Mseddi, 2013). It was revealed that the consumer price index and stock return volatility did not have a significant impact on the Sukuk yield spread, while a significant impact was found from the slope of the yield curve and the stock market index return on the Sukuk yield spread.

Other studies concerned the linkage between Sukuk yield spread and stock markets volatility, such as Naifar (2016) and Aloui, Hammoudeh, and ben Hamida (2015). Naifar (2016) investigated the link between Sukuk yield spread and Saudi stock market volatility; this investigation covered the period from November 2010 to October 2014. Naifar (2016) found a symmetric dependence between Sukuk yield spread and stock market volatility, which confirms the co-movement between the yield spread of Sukuk and stock market volatility in the Saudi stock market. Aloui, Hammoudeh, and ben Hamida (2015) investigated the volatility spill-overs between three global Sukuk indexes: Dubai GCC Global Sukuk index (GSKI), the Dubai GCC corporate Sukuk index (GSKC), the Dubai GCC financial services Sukuk index (GSKF), and GCC Shari'ah stock index. Their study found a significant and negative interactive linkage between the Sukuk yield spread and Shari'ah stock volatility. The variation in co-movement between Sukuk yield spreads and stock price volatility was noted over time and was interpreted as being mutual macroeconomic factors that have a different impact

on both Sukuk and stocks. Hence, it is of benefit for fund managers to take into consideration this result when weighting their portfolio. Due to the strong dependence across the short-term co-movement between Sukuk and stocks, it would be sensible to check whether such variations are driven by common global macroeconomic factors, and, consequently, whether the variations are permanent.

Dreassi, Miani, Paltrinieri, and Sclip (2016) investigated the linkage between 68 Sukuk issuances on three stock markets – Nasdaq Dubai, Bursa Malaysia, and London Stock Exchange – and the stock market volatility of five emerging MSCI stock markets. The results showed a linkage between Sukuk and the stock markets in the USA and Europe during the high market volatility, while at the regional stock market; the linkage is stronger during periods of turmoil. This result indicates that, given their lower volatility compared to equity, investors could obtain diversification benefits including Sukuk in a well-diversified equity portfolio.

Table 3.4 provides a summary of the previous studies focusing on the linkage between Sukuk yield spread and stock volatility. Based on the review of the related literature, these studies lack the mutual macroeconomic factors that explained the co-movement between Sukuk yield spread and stock volatility. This co-movement is affected by several known factors, but other hidden driven factors still need to be investigated, such as oil price and exchange rate.

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Table 3.4: Summary of Some Relevant Previous Studies

Authors/Year	Sample characteristics	Findings
Rahman et al. (2013)	Daily data of 1675 observations of Sukuk spread were used over the period Aug 2005-Dec 2011 from the Malaysian market. The GARCH (1,1) method was used to identify the influencing factors on Sukuk spreads and the impact of the global financial crisis 2008 and stock market volatility on the spreads of the Malaysian corporate Sukuk.	The interest rate and the slope of the yield curve variables have a negative correlation with the long and short term of Sukuk. During the financial crisis, stock market volatility had a significant impact on the lower grade of Sukuk spreads, which proved the preference of investors to hold Sukuk instruments during the crisis.
Batten et al. (2006)	The sample is daily data of 749 observations of sovereign bonds from China, Korea, Malaysia, Philippines, and Thailand, and the US treasury benchmark bonds. The GARCH (3,3) model was employed to estimate the changes in regression between the major Asia bond spreads and the US treasury benchmark bonds.	There was a negative relationship between the major Asia bond spreads and the interest rate volatility of the US treasury benchmark bonds. In addition, there was also a significant positive relationship to the slope of the yield curve. Meanwhile, the macroeconomic variables – the assets and exchange rate – were only significant on the Philippine bond spreads and a negative impact from the local stock market index.
Ahmad et al. (2009)	The sample of this study is 149 sovereign bonds and 238 corporate bonds from the Malaysian market. The co-integration method was adopted to examine the integration among government bond spreads, corporate bond spreads, Kuala Lumpur Composite Index (KLCI), Industrial Production Index (IPI), Consumer Price Index (CPI), and interest rates (IR) over the period 2001-2008.	The Consumer Price Index (CPI) and interest rates (IR) were found to be the major drivers of the government bond spreads, while there was no influence from the Kuala Lumpur Composite Index (KLCI) and Industrial Production Index (IPI). For corporate bond spreads, there was a significant association among IPI, CPI, and IR, while the KLCI had a significant impact on the short term of corporate bond spreads.
Naifar and Mseddi (2013)	The sample was 11 corporate Sukuk issuances from the United Arab Emirates (UAE), which covered the period from Oct 2009 to Jul 2011. The GARCH (1,1) method was used to identify the reaction of the Sukuk yield spreads to the stock index return, stock price return, inflation, and yield curve slope.	There was a significant relationship between the slope of the yield curve and the stock index return, as well as a significant and positive related impact from the stock index return and yield curve slope on the Sukuk yield spreads.
C. J. Yap and G. Gannon (2007)	A sample of 33 Malaysian Yankee bonds was used by the study for the period May 2002 to March 2003. The GARCH (1,1) method was used to investigate the macroeconomic drivers of the Malaysian Yankee bond spreads and the interest rate changes of the US bond benchmarks against the Malaysian Yankee bond spreads.	This study found that changes in the credit spread of Malaysian bonds are only receptive to certain macroeconomic factors. Also, changes in credit spreads are negatively correlated with the interest factor. However, this study could not find convincing evidence to support the argument of a negative relationship with the asset factor.
Dreassi et al. (2016)	The linkage between 68 Sukuk issuances on three stock markets – Nasdaq Dubai, Bursa Malaysia, and London Stock Exchange – and stock market volatility of 5 emerging MSCI stock markets was investigated.	The results showed a linkage between Sukuk and the stock markets in the USA and Europe during the high market volatility, while, in the regional stock market, the linkage was stronger during turmoil periods.

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3.4 Corporate Sukuk Liquidity

3.4.1 Introduction

The liquidity of a corporate Sukuk can be understood as its ability to carry out large-scale and low-cost asset transactions without a significant impact on its price. Clearly, the significant determining factors for this are the volume, time, and cost associated with trade. The relationship between the liquidity of a Sukuk and its yield differential has rightly been a subject of much research. A large amount of empirical evidence suggests that there is some common relationship or elements, as well as evidence that there are premiums related to liquidity risk.

Studies that have been addressing this include Said, Suhaimi, Rahim, and Haris (2018), and Hanafi et al. (2018). In particular, regarding the influence of liquidity in the corporate Sukuk market, it should be noted that both market-driven liquidity and the individual liquidity of corporate bonds have a significant impact on bond yield differentials, and, therefore, on real returns.

When considering how such liquidity/liquidity risk affects the price of a corporate Sukuk, studies to date have tended to focus on total liquidity levels or common factors that affect liquidity. However, the liquidity of a Sukuk may behave idiosyncratically in accordance with the specific situation of its issuer in the broader context of security behaviours within the corporate Sukuk market. Most corporate Sukuk market investments to date are made by a relatively small percentage of investment institutions, while the general population of the remaining investors knows very little about how the market works. As noted by Hanafi et al. (2018), this results in a series of Sukuk in the market that exhibit greater liquidity simply because investors do not know them or do not have access to them.

Shareholders have concerns about a firm's market value in respect of two aspects: the expected profit after tax, and the related market risk (Amihud & Mendelson, 2012). The firm's earnings determinants have been agreed upon among many previous researchers (Hung, Jiang, Liu, & Tu, 2018; Saona & Muro, 2018; Widuri & Sutanto, 2019). These determinants are categorized based on many factors, such as capital size, management strategy, leverage, managerial policies, technical factors, operational efficiency, and other factors that are related to the firm's economic and political environment. The determinants of the related market risk have been argued in previous literature. According to (Bagh, Nazir, Khan, Khan, & Razzaq, 2016), a firm's liquidity is regarded as one of the variables controlled by the management. It affects the firm's operation as reflected in the firm's performance. Furthermore, liquidity forms one of the essential pillars of firm performance (Bernstein, 2010). In this context, providing more liquidity to the firm requires a suitable source of financing that meets shareholders' expectations and leads to improved firm returns as well as a reduced level of risk. Although issuing new debt is considered to be one of the firm instruments for increasing the level of liquidity ratio, the main questions behind management decisions about extending the firm leverage that should be addressed are: What is the influence of Sukuk liquidity on the stock market liquidity? What is the influence of Sukuk liquidity on the stock price? Do Higher Sukuk grades have a higher impact on stock market liquidity compared to low Sukuk grades? Islamic bonds (Sukuk) have been regarded as one of the financing instruments during the last decade. They have proven their stability as an external finance source (Aloui, Hammoudeh, & ben Hamida, 2015).

This section of the study focuses on the impact of the Sukuk issuance liquidity on the stock market liquidity and price. It consists of three sub-sections: the theoretical background, previous empirical studies related to the relationship between the Sukuk

issuance liquidity and firm value, and, finally, the research hypotheses that need to be tested in this study.

3.4.2 Theoretical Background of Sukuk Liquidity and Stock Market Liquidity

The significance of asset liquidity has been addressed by many scholars. According to Yakov Amihud and Haim Mendelson (1986) higher spread asset yields higher expected stock returns, which drives investors that hold a longer holding period to choose assets that have a higher spread. This provides more incentive to a firm to increase its liquidity. Liquidity is one of the firm functions used by management for increasing the firm yield, and reducing the opportunity cost of capital (Amihud & Mendelson, 2012). Thus, an investor who holds higher spread assets will hold the assets for a longer period for higher expected returns. This, in turn, motivates the firm to improve its liquidity. Amihud and Mendelson (2012) considered firm liquidity as a concave return, taking into account the lower influence of liquidity for the short-term investment, which is limited to a lower spread of assets. In addition, Yakov Amihud (2002) explained the excess of stock returns as a compensation for the lack of market illiquidity, or as a compensation from the firm for the risk premium. Amihud (2002) assumed that without a relation between the market liquidity and the firm cash flow, the lack of market liquidity would lead to an increase in the expected return of the stocks, which, in turn, would increase the level of firm credit risk and lower the firm value.

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Source: Amihud (2012)

Figure 3.5: Relationship Between the Excess Monthly Stock Return and Illiquidity Cost

Increasing the firm value through liquidity is a function that has dual edges. The investor side represents a scale between the stock expected return and the premium risk. Here, liquidity is a variable in the credit risk equation that must be managed to avoid increasing the opportunity cost of capital. Trading securities with less liquidity by investors increases the associated cost of trading these securities and neglects the direct costs of transaction trading, such as transaction tax and fees. The price impact will be higher in line with the inflexibility of controlling the transaction negotiation from the investor's side. The result of this can be the weak position of sellers, as well as the level of buyer information and immediate condition of the transaction from the seller. The ask-bid spread will be higher in this case, thus representing a sacrificed cost from the seller, which is interpreted according to the level of information provided to both parties. Hence, the higher the liquidity cost is, the higher the expected return will be. Hence, the higher liquidity cost is redesigned by the investor's decision to set the

transaction trading according to the level of security liquidity, and to the level of asymmetric information.

The concept of liquidity has two dimensions: the investor and the firm. The liquidity from the firm perspective refers to the firm's ability to face its obligations immediately. Meanwhile, the investor perspective considers the liquidity of security as a measure of the market price effect. This perspective is consistent with what had been reported by a few previous researchers (Gravelle, 1998). In addition, other researchers (Borio, 2000; Nunn Jr, Hill, Schneeweis, & Analysis, 1986; O'hara, 1997) have defined liquidity according to three indicators: the bid-ask spread, daily turnover transactions, and the offered size of security.

Several models have been proposed for the purpose of clarifying the association between bond and stock market liquidity. In this regard, He and Xiong (2012) addressed the bond liquidity premium resulting from the bond liquidity depreciation, which causes a side effect on the bond credit risk. Deterioration of the bond liquidity leads to increasing the cost of liquidity from the impact price resulting from the asymmetry of information between the information held by the buyer, and that gained by the seller. The lower rollover of bonds in the financial market is often the result of the stock market liquidity level (He & Xiong, 2012). Hence, short-term debt will be affected more and there will be higher sensitivity from the stock market liquidity in the market. The current bond liquidity goes down as much as the new bond issuances are gained and lost by the firm. Consequently, shareholders must take decisions that prevent mixing the current bond liquidity from the new bond issuance. To avoid the rollover losses from issuing new bonds, He and Xiong (2012) suggested that shareholders must bear the current bond losses until the due bond is paid in full.

3.4.3 Theoretical Framework of Sukuk Liquidity and Stock Market Liquidity

3.4.3.1 Liquidity and Asset Prices Theory

The liquidity and asset prices theory suggested by Amihud and Mendelson (1986) considered as the initial work that conceptualizes the relationship between liquidity and asset price (Friewald et al., 2012). As argued by the theory, investors have different horizons of trading on assets; each horizon has a different expected return, taking into consideration the paid premium that resulted from the transaction costs. The interpretation of this phenomenon is that lower liquid assets have less trade-off and high transaction costs, which lead to higher expected returns, while more liquid assets are costly due to the higher related transaction costs.

Amihud and Mendelson (2012) considered firm liquidity as a concave return, taking into account the lower influence of liquidity for the short-term investment which is limited to a lower spread of assets. In addition, Amihud (2002) explained the excess of stock return as compensation for the lack of market illiquidity or as compensation from the firm for the risk premium (Yakov Amihud, 2002). Amihud (2002) assumed that without a relationship between the market liquidity and the firm cash flow, the lack of market liquidity leads to an increase in the expected return of stocks, which, in turn, will increase the level of firm credit risk and will lower the firm value (Yakov Amihud, 2002).

According to Anderson (2017), there is a link between bond liquidity and stock return through financing cost, as the higher the cost of funding, the lower the stock return. Hence, enhancing the bond liquidity leads to improve the stock return, as those investors holding illiquid bonds will ask for premium compensation, while the same condition goes for Sukuk holders. Thus, reducing the cost of capital can be done by improving the Sukuk liquidity.

3.4.3.2 Latent Liquidity Model

Providing an optimal measure for bonds liquidity is still in debate, especially those traded irregularly or not traded in the secondary market, such as Sukuk. To overcome this issue, Mahanti et al. (2008) provided a new and sample measurement of liquidity for bonds that do not trade regularly. On the other hand, the availability of intraday data led to the emergence of new proposals, such as the "latent liquidity" measure of Mahanti et al. (2008) in which the liquidity level is described for any bond i, at any time t, as the aggregate level of the weighted average of the turnover of individual funds held by bond i. The most useful feature of this measure is that it is based entirely on the aggregate holdings of investors and does not require data on individual transactions, thereby facilitating the analysis in cases when these specific conditions are presented, in addition to being able to provide a measure of liquidity under conditions of low trade or negotiation. Likewise, Bao, Pan, and Wang (2011), using a database of intraday transaction levels "TRACE", obtained significant results that relate high levels of illiquidity of a corporate bond with their age and maturity, while low levels of illiquidity directly related it with the rating and issue size of the same.

Hence, due to the daily trading data limitation of Sukuk, the liquidity measure of Mahanti et al. (2008), called latent liquidity, will be used to measure Sukuk liquidity. The latent liquidity measurement focuses on the aggregate trading volume on a monthly basis, which is opposite to the measurement of Amihud and Mendelson (1986) that relies on a daily basis trading. The latent liquidity as defined by Mahanti et al. (2008) is the aggregate-weighted average level of turnover of the individual bond holding in the market. Therefore, applying this measurement for the Sukuk liquidity in this study

will be defined as the level to which the turnover of individual Sukuk is a fraction of the total Sukuk market.

Table 3.5: Theoretical Brief - Sukuk liquidity and stock market liquidity

Sukuk Liquidity → Stock market liquidity
1. Liquidity and asset prices theory of Yakov Amihud and Haim Mendelson (1986) An asset is liquid if it can be bought or sold at the current market price quickly and at a low cost. Illiquidity is thus related to the cost of executing a transaction in the capital markets
2. Latent liquidity model - Mahanti et al. (2008) The liquidity level is described for any bond i, at any time t, as the aggregate level of the weighted average of the turnover of individual funds held by bond i

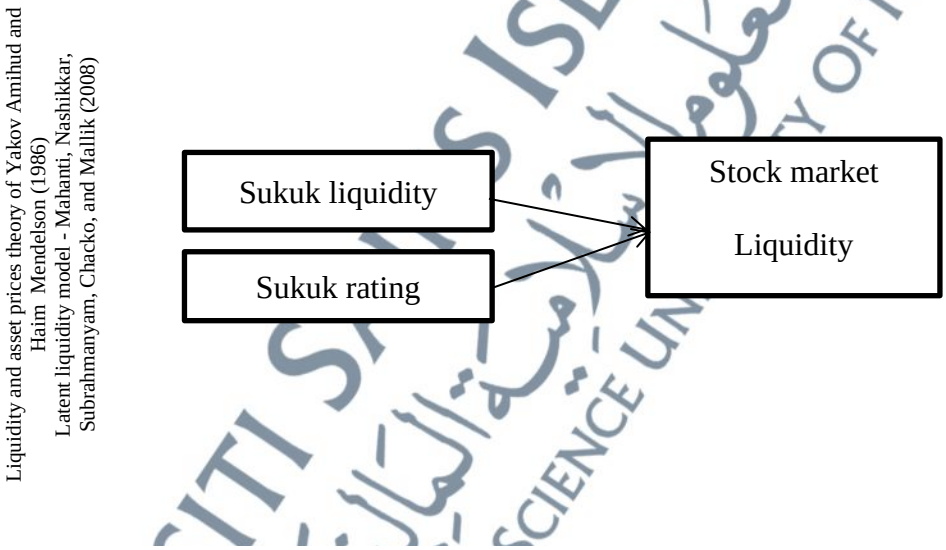

Figure 3.6: Theoretical Framework – Sukuk Liquidity and Stock Market Liquidity

3.4.4 Empirical Evidence

Examining the predicting drivers of shareholders wealth is connected to many factors. Bond market drivers represent one of the surrounding factors that have a link through many connections, such as market development, market risk outlook, and market liquidity. Furthermore, the financial market is considered to be a circle that

contains many interactive drivers between the bond and equity market. The interactive relationship between the bond and stock market liquidity will be discussed in this section from four dimensions: the different measures of bond liquidity, the bond yield spread determinants, the bond liquidity and yield spreads, and, finally, the Sukuk liquidity and yield spreads.

Investigating the impact of financial market dynamics on the stock return has attracted the attention of many scholars, researchers, and practitioners. The concept of liquidity is one of the finance fundamentals that have received much attention, and extensive research has been conducted to examine its impact on the firm value.

Measuring the bond liquidity has been argued by many scholars, which resulted from the lack of short-term data (i.e., daily or monthly transaction data basis). Thus, nominating the optimal liquidity measures from Fleming (2003) must be considered from three aspects. First, the liquidity measure must be able to identify the transaction cost; whereas it has been agreed that the bond liquidity is determined by the level of transaction urgency. Secondly, it should be consistent with the market participants' viewpoints of the liquidity concept. Thirdly, the appropriate liquidity proxy should provide accountability values that can be calculated easily and on a real-time basis. Fleming (2003) identified two measures of liquidity that can meet the three conditions.

The bid-ask spread of bond provides a good measure for liquidity, and has been used by many subsequent researchers (Amihud & Mendelson, 2012; Tarun Chordia, Asani Sarkar, & Avanidhar Subrahmanyam, 2005b; Choudhry, 2010; Helwege, Huang, & Wang, 2014). The price impact was identified as a good measure for liquidity by M. J. Fleming (2003), and has been preferred by other researchers (Yakov Amihud, 2002; Kempf & Uhrig-Homburg, 2000) and used in more recent studies (Bekaert, Harvey, & Lundblad, 2007; Black, Stock, & Yadav, 2016b; Goyenko & Ukhov, 2009; Green,

2004). Fleming (2003) applied the two measures of liquidity: the bid-ask spread and the price impact to the US treasury market. Examination of the various liquidity measures identified the bid-ask spread as a useful measure of liquidity. Besides, the bid-ask spread is highly associated with the price impact. By applying the bid-ask spread measure on the US treasury market for the period 30 December 1996 to 31 March 2000, this was found to increase sharply with the equity market declines in October 1997, with the financial market turmoil in the fall of 1998, and with the market disruptions around the Treasury's quarterly refunding announcement in February 2000.

Apart from this, linking the bond liquidity and stock market liquidity is constrained by the lack of daily data for bond trading. In this context, a few studies linked bond liquidity and stock market liquidity; for example, Anderson (2017) investigated the causal relationship between bond liquidity and stock return, in which the yield spread of the bond was used as a measurement of bond liquidity. Anderson (2017) used the Imputed Round-Trip Cost (IRC) for measuring the bond liquidity, which estimates the transaction cost of trading by the difference between the ask and bid price over the maximum price of the imputed round-trip trades. His study revealed a significant relationship between bond liquidity and stock return, where improving the bond liquidity leads to improving the profitability, which can be gained by lowering the related transaction cost of higher bond liquidity, as well as higher expected cash flow.

3.4.5 Liquidity Fluctuation

Liquidity dynamics within the capital market from either component, debt or equity, have been examined by many previous studies, such as (Będowska-Sójka, 2016; Bookstaber & Paddrik, 2015; Kondor & Vayanos, 2019). Moreover, focusing on the liquidity shifts during the monetary events could be affected by many drivers. These

events result from monetary policy changes, such as establishing new standards for the stock market, or adopting a new policy. Chordia, Sarkar, & Subrahmanyam (2005) carried out a study examining the economic factors that affect the level of liquidity in the case of economic policies changes. Chordia, Sarkar, & Subrahmanyam (2005) clarified the link between the macro liquidity for the whole market, and the micro liquidity of a specific market, thus involving the government policies by controlling the market liquidity through shifting the monetary policies. The level of the government treasury bills revealed a significant prediction of the bond market liquidity. Chordia, Sarkar, & Subrahmanyam (2005) observed the liquidity dynamics under several monetary situations from 1991 to 1998. Their results indicated that the market liquidity, for either bonds or stocks, increased or decreased according to the entire market liquidity. However, this relies on the market condition, e.g., recession or prosperity. In the recession market condition, most of the market assets lose part of their liquidity due to the higher credit risk of the market. Meanwhile, the prosperity market condition helps to increase the market liquidity.

In addition, with the expansion policy by the government towards the financial market to boost investment, the market liquidity increased on average. The bond and stock market liquidity also fluctuated seasonally; both the stock and bond market liquidities were found to be higher at the beginning of the week compared to Friday, and also higher in the summer/early fall months of July through September compared with the rest of the year. Liquidity in both markets is sharply lower in crisis periods. Liquidity shows an increasing trend over the entire sample for bonds and before the change in the tick size for stocks (Chordia et al., 2005b). Black, Stock, and Yadav (2016a) determined three dimensions of bond liquidity: the transaction costs, trading

depth, and transaction flexibility. These determinants were expressed as related transaction factors while ignoring external factors, such as macro and micro factors.

3.4.6 Bond Yield Spreads Determinants

Explaining the bond yield spreads systematically is based on two main factors: credit risk and liquidity. These are the two most important factors in explaining the bond yield spreads (Dick-Nielsen et al., 2012; Helwege et al., 2014). Several previous studies (Ang & Longstaff, 2013; Collin-Dufresne, Goldstein, & Martin, 2001; Huang & Huang, 2012) relied on credit risk in explaining the corporate bond yield spreads. For instance, Rossi (2014) confirmed the higher impact of the credit risk on the yield spreads of bonds. The result obtained was from the data covering from 2003 to 2008 in the US market. In contrast, other studies pointed to the higher impact of the economic determinants on corporate bond liquidity (Friewald, Jankowitsch, & Subrahmanyam, 2012). Based on the data in the US market for the period from 2004 to 2008, Friewald, Jankowitsch and Subrahmanyam (2012) revealed that approximately 14% of the influence on the bond yield spread during the crisis of 2008 was attributed to the illiquidity factor. From the economic perspective, factors, such as currency volatility, repo rate, stock market index, and inflation rate, associate negatively with the volume of bonds traded, while the foreign capital investment associates positively with the volume of bonds traded (Kapingura & Ikhide, 2015).

Investigating the association between bond liquidity and bond yield spread has been argued by scholars and practitioners extensively. Tracing this issue in previous studies (Chen, Lesmond, & Wei, 2007; Helwege et al., 2014; Lesmond, Chen, & Wei, 2005), it is apparent that the higher the liquidity of bonds, the lower the yield spread will be as shown in Figure 3.8. Consequently, controlling the liquidity level of bonds

contributes significantly to the spread of bond yields. Hence, improving bond liquidity reduces the yield spread of bonds. This also implies that investors holding lower bond liquidity will have to trade less in the market because they will try to avoid the expected losses resulting from the price impact and the wide gap between the bid and ask prices. Accordingly, investors will seek ways to hold their lower liquidity bonds until maturity, and the optimal options for them to trade with short-term bonds, where the credit quality plays a significant role in spreading yields in terms of short bond rather than the liquidity determinant (Covitz & Downing, 2007). Along with the impact of illiquidity on bond yield spreads, Abudy and Raviv (2016) highlighted how the bond's maturity and credit quality are controlled variables that influence the illiquidity risk. The recent global financial crises have highlighted the significance of clarifying the influence of illiquidity risk on bond valuation in the market.

Source: Chen, Lesmond, and Wei (2007)

Figure 3.8: Bond Liquidity and Yield Spreads Relationship

3.4.7 Sukuk Liquidity and Yield Spreads

A limited number of studies (Naifar & Mseddi, 2013; M. Rahman & Omar, 2012) focused on the Sukuk spread determinants, as debt spread was recommended as a measure for the debt liquidity by several studies, such as (Będowska-Sójka, 2016; Bookstaber & Paddrik, 2015; Kondor & Vayanos, 2019). Simple linear regression analysis was employed by Rahman (2003) and Rahman (2008) to identify the factors

that influence bond spreads and corporate Sukuk spreads in the Malaysian bond market. Based on weekly data for the period October 1999 to November 2002, the negative relationship found between the spreads and interest rate factor, as measured by the Kuala Lumpur interbank offer rate (KLIBOR) by Rahman (2003), is consistent with that reported in the latest studies, such as (Croci Angelini, Farina, & Valentini, 2016; Kiley, 2015). In addition, Rahman (2003) found a significantly negative relationship between the spreads and assets as represented by the returns of the Kuala Lumpur Composite Index (KLCI).

However, Rahman (2008), who studied the weekly spreads of individual Sukuk from November 2003 to June 2006, failed to find a significant relationship between the Sukuk spread and interest rate factor, which conflicts with what had been found in earlier studies, especially for the two-factor theoretical framework of Longstaff and Schwartz (1995). Rahman (2008) argued that in meeting the mandate of Islamic fund portfolios, institutional and pension fund managers tend to disregard the movement of interest rate in purchasing Sukuk, thus causing the Sukuk spreads to chart independently to the interest rate factor. The limited number of Sukuk in the secondary market has been widely recognized by portfolio managers as a plausible explanation for such moves. Nevertheless, other variables, such as the equity market return, lag of the spreads, and slope, are significant in explaining the variations in the Sukuk risk premium, which is in line with what was indicated in other studies (Batten, Fetherston, & Hoontrakul, 2006; Hattori, Koyama, & Yonetani, 2001; Manzoni, 2002).

Another study that examined the spreads from the Sukuk issued in the GCC is the study conducted by Naifar and Mseddi (2013). With the spreads calculated based on a self-constructed Sukuk index yield from 11 Sukuk originating in the United Arab Emirates (UAE) from October 2009 to July 2011, Naifar and Mseddi (2013) showed

that the slope of the yield curve and the changes in the stock market are the main influencing factors causing such variations in Sukuk spreads. Apart from that, they showed that the rate of inflation and the volatility of the stock market are not significant changes in Sukuk spreads. From this study, Naifar and Mseddi (2013) pointed out that the significance of the slope of the interest rates is consistent with that reported in previous studies, such as (Chen et al., 2007; Helwege et al., 2014; Lesmond et al., 2005). However, Sukuk spreads appear to react positively to the changes in the stock market, thus indicating that an increase in the stock market is followed by an increase in Sukuk spreads.

Nevertheless, the exclusion of the general interest rate factor as one of the influencing variables in the analysis is questionable and is not consistent with the initial two-factor framework of Longstaff and Schwartz (1995). It is important to highlight that the above studies on Sukuk are based on the spreads of individual Sukuk samples, which may not represent the Sukuk market as a whole. As such, it is essential to re-examine this factor based on a much larger and reliable sample of Sukuk spreads.

There have been various options for liquidity management since the advance of Sukuk. In the context of Malaysia, the market dealing with liquidity as the magnitude of secondary trading is minimal due to the fact that the demand exceeds the supply. Moreover, Islamic institutions that get Sukuk generally hold Sukuk to maturity, and hesitate to sell (Ahmed, Islam, & Alabdullah, 2014). A relatively small number of participants may lead to a low level of liquidity, a lack of the market depth, and a lack of the critical mass of issuances. Besides that, not all types of Sukuk are allowed to be traded on the secondary market; this is due to the constraint of Shari'ah law. If Sukuk are not issued against assets or services, but for the purpose of utilizing the proceeds to acquire some assets, such as Salam. Then, Sukuk does not become tradable until the

stage at which those assets or services are purchased, such as Istisna (in the case of the funds being converted into assets and before the sale to the orderer), murabahah (after purchasing the murabahah commodity and before selling it to the buyer), Mudarabah, musharakah, and wakalah (after the commencement of the activity for which the funds raised) (ISRA, 2014). This is because the Sukuk up to that point represent liquid proceeds, i.e., cash money and money cannot be sold against money unless the Shari'ah rules are observed. Table 3.6 presents the summary of relevant studies.

Table 3.6: Summary of Some Relevant Previous Studies

Authors/Year	Sample characteristics/methodology	Findings
Chordia et al. (2005)	Based on a daily basis, a total of 3385 observations for bonds and stocks from the US market over the period June 1991- December 1998. Bid and ask price of bond used as a measure of bond liquidity, while the stock market liquidity measurement is the daily trading of each stock transaction. The linear interdependencies of the time series have been captured by the Vector autoregression (VAR) model, while the Granger test was used to determine the mutual influences forecasting between the bond and stock liquidity.	The study finds accompaniment between market returns and decreased spreads, where the bond and stock market liquidity and volatility have a significantly positive correlation. For the causality test, there was no causality association between bond and stock spreads within the same market or in others. A notable exception was for bond spreads that caused a return in the bond and stock market. Hence, liquidity changes in the bond market do not lead to liquidity changes in the stock market.

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Table 3.6, continued

Authors/Year	Sample characteristics/methodology	Findings
Mahanti et al. (2008)	The study data were retrieved from 11 market sectors with a total of 5,025 US corporate bonds over the period January 1994 to June 2006. This study provides a new measure of liquidity for corporate bonds that have limit trade transactions in the secondary market. The new measure relies on measuring the bond liquidity based on the aggregate trading volume on a monthly basis instead of daily basis.	Four drivers of corporate bond liquidity have been tested: issue size, maturity, coupon rate, and issuance age. For the issue size, for issuance less than $600 million, the issuance size has a high impact on bond liquidity, where higher issuance size leads to higher latent liquidity; there is a lower impact of issuance size on bond liquidity for issuance higher than $600 million. Noting that, issuances from issuers with a larger capital have a higher level of liquidity. For the issuance age, there is a strong negative impact on liquidity. For the credit rating, issuance that has a higher credit rating seems to be less liquid, where a higher credit rate bond is preferred for investors they follow the approach of buy-and-hold, while lower credit rating bonds are preferred for investors of buy-and-sell. Whereas higher coupon rate leads to better liquidity. Meanwhile higher maturity bonds lead to less trading volume.
Said et al. (2013)	The sample of this study is 72 monthly trading observations of corporate Sukuk over the period from 2007-2012 from the Malaysian market. The latent measurement of bond was used to identify the Sukuk liquidity drivers.	Five drivers of liquidity were tested: issuance amount, coupon rate, issuance age, credit rating, and maturity. Four drivers: issuance amount, coupon rate, issuance age, and maturity showed a significant impact on the Sukuk liquidity. Meanwhile the credit rating has a non-significant impact on the latent liquidity of Sukuk. The insignificance of the credit rating factor in the Sukuk market is interpreted by the investment purpose of Sukuk issuance rather than speculative ones.
Lin, Wang, and Wu (2011)	This study tested the trading transactions of 11,729 corporate bonds from the US market during the period from January 1994 to March 2009. Two measures of liquidity were adopted: Pastor-Stambaugh and Amihud bond liquidity measure.	The result shows that the liquidity risk is priced in the corporate bond market, a significantly positive impact from the liquidity risk on the expected return of corporate bond. By including credit default, stock liquidity, and stock betas, the liquidity risk is still considered to be an important determinant of the expected return of corporate bonds.

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3.5 Concluding Remarks

This chapter discussed the literature concerning the theoretical and research perspectives of Sukuk issues in three different sections. The first section discusses the stock reaction to the Sukuk announcement. The second section represented the theoretical and empirical understanding of the stock price volatility of the new Sukuk yield spreads. The third section concerned the determinants of Sukuk liquidity.

The field of firm financing has attracted the attention of many scholars and theorists during the last century. The huge expansion in firm operations called for the need to interpret the new market requirements and conditions. In this regard, the agency cost highlighted the internal cost issues that occur as a conflict between firm managers' decisions and shareholders' expectations. The cost of structuring the firm capital will result from management decisions about the firm capital structure sources. Furthermore, firm managers must be aware of determining the appropriate external financing that has optimal cost compared to the market. The Pecking Order Theory predicts the market reaction based on firm management information and that holding asymmetry information leads to average negative reactions from the market.

Three conditions of yield spreads of new Sukuk issuances and benchmarks have been discussed in this second section of the chapter. The case of under-priced bonds emerges when the yields on new corporate bonds are higher than benchmarks. The overpriced results from fewer benchmark yields match the bases of credit rating, maturity, and call-ability. The fair value occurs when the new Sukuk yield and benchmark are the same. The Bond Under-pricing Theory hypothesizes that issuers will offer incentives to investors in order to cover the entire issuance. Practising pre-selling activities by issuers aims to induce investors to build their decisions on the yield spreads instead of the interest rate. Taking into account that the under-pricing condition is a

temporary situation will eventually be balanced according to the market demand and supply law. Hence, investors can get profit from following the under-pricing of new bond issuance in the short-term.

The Liquidity and Asset Price Theory assumes that without a relation between the market liquidity and the firm cash flow, the lack of market illiquidity leads to an increase in the expected return of stocks, which, in return, will increase the level of firm credit risk and lower the firm value. This theory also relies on the bid and asks yield spread to measure the asset liquidity, which represents a premium paid from the buyer side and amount concession from the seller side. In this regard, previous liquidity theories focus on the liquidity as an instrument that has a significant impact on the asset price. For example, the Liquidity Preference Theory divides investors' preferences for liquidity into two categories. First, investors tend to prefer high liquid assets that will be sacrificed by accepting a lower interest rate or otherwise, they will go for long-term assets. Several previous studies have provided evidence of the significant influence of bond liquidity on bond yield spread. In addition, investors will seek to hold their lower liquidity bonds until maturity, and the optimal options for them to trade with a short-term bond, where the credit quality plays a significant role on yield spread in terms of short bond rather than the liquidity determinant.

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