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Comparing *Sukūk* and Conventional Securities: The Challenge of Consistency

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Abstract

Sukūk and bonds are legally distinct, but not necessarily in the perception of market players. Empirical studies show differences in yields and in the impact on other financial assets. However, the findings are not conclusive: For example, industry and idiosyncratic risks, qualitative differences between types of sukūk, the role of conventional investors and actual trading practices in OTC markets are not considered. Data have a strong country bias (Malaysia), political support for sukūk (e.g. tax incentives, initial pricing) is ignored, and models are inadequate to explain observed phenomena. The consistent integration of *sukūk* data, practices and models remains a challenge.

Keywords: *sukūk*, Islamic capital market, OTC trading, Malaysia, yield series, profit and loss sharing

Introduction

There is an ongoing academic debate on differences between *sukūk* and bonds. Empirical studies often show differences in the market performance of comparable *sukūk* and bonds (e.g. in terms of yields) or in the impact of *sukūk* and bond issuances on other financial assets (e.g. on the value of equity shares in the stock markets). Once differences between *sukūk* and bonds have been observed, explanations are provided which often refer to qualitative (economic) differences between these two types of securities.[3] The combination of observations and explanations is the basis for general conclusions and recommendations. However, sometimes the explanations of the qualitative differences are based on perceptions of *sukūk* which do not sufficiently reflect the reality (practice) of the majority of those *sukūk* for which the empirical data have been presented. Two prominent examples ("case studies") shall be discussed in this paper.

1. Yield Differentials between *Sukūk* and Bonds

A group of authors made repeated efforts to present "strong empirical evidence" that *sukūk* and bonds "are not the same." (Ariff, Safari, & Mohamed, 2013, p. 624). Their analysis is based on a comparison of differences between the yield to maturity (YTM) of *sukūk* and conventional bonds issued in Malaysia for the same maturity by the same issuer. "A parametric paired sample t-test is conducted … [D]aily yield series are used, and the yield on first traded day of the month is used." (p. 625).

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[3] The legal differences, in the way that the securities are structured, are so obvious that there is no need to prove them by econometric studies. The relevant question is whether sukūk and bonds differ in their economic qualities as perceived by market players.

1.1 Datasets

The same approach was applied with two different datasets in three publications (Ariff & Safari, 2012; Ariff , Safari, & Mohamed, 2013; Safari, Ariff, & Mohamad 2014). The datasets of the 2012 and 2014 publications are identical, but the descriptive statistics of the 2012 article are more detailed. The following 7 issuers were included: (1) Government, (2) Bank Negara Malaysia [BNM], (3) Cagamas, (4) Khazanah, (5) AAA-rated financial institutions, (6) AAA-rated corporates, (7) AAA-rated corporates that issue guaranteed securities.[4]

- For all issuers except BNM, *sukūk* and bonds of the following 10 different maturities are included: 3M, 6M, 1Y, 2Y, 3Y, 5Y, 7Y, 10Y, 15Y, 20Y; the maturities for BNM are 3M, 6M, 1Y, 2Y. This gives a total of 64 pairs, and the dataset covers a period of 66 months (August 2005 to January 2011) for all issuers except BNM. The number of valid observations for BNM is only 50 for 3M, 6M and 1Y maturities and 46 for 2Y maturity.
- The dataset of the 2013 article covers only 4 issuers, namely (1) Government, (2) BNM, (3) Cagamas, (4) AAA-rated corporates, with securities of the same 10 different maturities as in the 2012 dataset (only 4 maturities for BNM). This gives a total of 34 pairs, but the 2013 dataset covers a longer period of 81 months (August 2005 to April 2012). However, 81 valid observations are only reported for Cagamas and AAA-rated corporates, while the number is 77 for the government and 61 respectively 57 for BNM (61 for 3M, 6M and 1Y, 57 for 2Y).[5]

It should be noted that "paired samples" does not mean that the history of the yields of specific pairs of *sukūk* and bonds would be traced during all or part of their respective lifetime. If that were the case, the number of valid observations could not exceed the life of that specific pair of securities measured in months. For example, a specific 3M security produces only 3 monthly observations, and 81 valid observations require 27 consecutive distinct pairs of 3M securities. Instead of specific pairs, the "paired samples" seem to comprise all securities of the same maturity of the same issuer or group of issuers during the observation period. The three publications do not discuss this point.

For each sample, its average YTM is calculated on the basis of up to 81 monthly data, and the descriptive statistics also provide information on the median, mode, standard deviation and the minimum and maximum YTM.

For comparisons all samples are treated equally although they may have quite different internal structures. For example:

- The absolute sizes of the underlying populations of issuances differ substantially: There are probably hundreds of 3M *sukūk* and bonds issued during a period of 66 to 81 months, but only a few 20Y *sukūk* or bonds.
- The relative weight of *sukūk* and bonds has changed over time. For example, the proportion of government *sukūk* issuances has increased from 19% of outstanding government debt in 2007 to more than 40% recently (Chew & Karunungan, 2015).
- Long-term securities are relatively rare. It may well be that *sukūk* and bond issuances are not synchronized, meaning that there may be periods where new *sukūk* were issued but no bonds, and vice versa.

Since all these factors are not controlled for, it is implicitly assumed that they do not have an impact on YTM. Another – potentially more serious – problem is the possibility that "paired" securities (in particular *sukūk* and bonds with long tenors) are issued by different issuers. The identity of the issuers is clear for the public sector entities (= number 1 to 4 in dataset 1), but not for the private sector (number 5 to 7 in dataset 1). For private sector issuers, i.e. AAA-rated financial institutions and AAA-rated corporates (including those that issue guaranteed securities), the actual issuers can and most probably will change over time. This is irrelevant only if all AAA-rated firms are equal in all risk relevant respects. But this cannot be taken for granted, and is most probably not the case.

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[4] Cagamas as the national mortgage corporation and Khazanah as the government's investment holding are quasi-sovereign issuers; thus (1) to (4) represent the public sector and (5) to (7) the private sector.

[5] The missing 4 observations for the government may be due to a time lag in reporting so that the 2013 dataset could include only government data until December 2011. Assuming that this is the same for BNM, another 16 missing BNM observations for 3M, 6M and 1Y and 20 missing observations for 2Y need an explanation. Since the same number of observations is missing in the 2012 dataset, a plausible explanation could be that the data gap is at the beginning of the observation period, meaning that the observations for BNM *sukūk* of 3M, 6M and 1Y started only in November 2006 and for *sukūk* of 2Y only in March 2007 (for whatever reason).

For example, a pair of the sample "AAA-rated corporates" could consist of a *sukūk* issuer from the energy sector and a bond issuer from the IT manufacturing sector. Different actual identities of the issuers become the more probable and relevant as factors accounting for differences the larger the size and the longer the tenor of the issued securities. Then differences in YTM for long-term securities may plausibly be better explained by the issuer's industry and idiosyncratic risk profile rather than by differences in the structure of the security.

If, for example, the IT manufacturing sector is considered to be less predictable in the long run and relatively riskier than the energy sector, the IT manufacturer has to offer a higher YTM as compensation for the higher perceived risk of a long term security, irrespective of whether the firm issues a *sukūk* or a bond (and it should be noted that the credit rating alone, in and of itself, cannot account for such idiosyncratic differences in risk profiles).

The selection criteria for making meaningful pair-wise comparisons need to be better controlled, taking into account factors such as the obligor, the tenor, the duration (which factors in the coupon paid), the issuer's industry etc.

1.2 Findings

Leaving aside the questions of what exactly the sample data represent and how reliable they are, the empirical findings, and their respective interpretation and explanation deserve a critical appraisal. In a nutshell, the authors conclude: "The difference between the means of these two forms of securities are positive, indicating that *sukuk* securities tend to yield more than conventional bonds issued by the Government of Malaysia or Bank Negara Malaysia *ceteris paribus*. Thus, the market associates higher risks to *sukuk* structures rather than conventional structures. Godlewski, Turk-Ariss, & Weill (2011) suggested that an adverse selection can cause this phenomenon. Firms with lower profit expectations tend to issue profit-loss-sharing based *sukuk*, while firms with higher profit expectations issue interest-based conventional bonds."(Ariff, Safari, & Mohamed, 2013, p. 629).

Several aspects of this conclusion can be challenged:

- The authors link their observation to arguments from a study on stock market reactions after the announcement of *sukūk* or bond issuances by corporates.[6] This is insofar an inadequate reference as their own observations are not related to corporates and their respective profit expectations: their observation refers predominantly to securities issued by the Government of Malaysia and Bank Negara Malaysia.
- The public sector *sukūk* in Malaysia are often structured on the basis of *bayʿ al-inah* or *murābahah*, sometimes on an *ijārah* basis, but rarely on a *mudārabah* or a *mushārakah* basis. In other words, public sector entities do not issue profit-loss-sharing based *sukūk* which implies a considerable sample bias.
- A closer look at the differences of the mean YTM of securities issued by firms only, i.e. AAA-rated (non-financial) corporates reveals exactly the opposite relationship: The *sukūk* yields are lower than the bond yields for all maturities up to 7 years. The relation is the reverse only for the longest maturities of 10Y, 15Y and 20Y. This may be due to the industry effect as explained above, or due to the varying investor base for short-term vs. long-term securities, but a clear answer is not possible without further detailed information on the composition of the long-term pairs.
- The study focuses exclusively on securities within the Malaysian context, rendering a conclusion problematic for an increasingly globalized *sukūk* market.

If profit expectations and risk profiles are no convincing explanations for the consistently higher YTM of public sector *sukūk*, then alternative explanations have to be found. There may be peculiarities in the secondary markets, but the authors do not see much relevance there. They underline that there are some fundamental differences between *sukūk* and bonds that "lie mainly in the very underlying nature or purpose of funding as well as the way sukuk [and?] bonds are structured. However, both sukuk and conventional bond securities are traded in secondary markets with the same trading mechanism, so the differences could not be coming from the trading differences. Sukuk securities are priced in the market, presumably by experts in the market, as is also the case of conventional bills and bonds." (Ariff & Safari, 2012, pp. 101-102).

[6] This will be discussed in the next chapter of this paper.

1.3 Trading Practices

However, it is important to note that trading practices and the reality of the market could very well explain a portion of the differences in YTM and thereby some of the conclusions discussed in the papers mentioned above. Therefore we will give an overview of some basic market dynamics from a practitioner's viewpoint in order to lay the groundwork for further discussions.

A caveat in view of market practices is that potential investors "pad" their expressed interest in a bond or *sukūk* issuance in order to secure their target allocation; therefore the expressed (and oftentimes exaggerated) demand for a given issuance in the form of the order book's size does not always reflect the real, actual demand. The real, actual demand for a bond or *sukūk* issuance, which is the ultimate arbiter of the YTM at the time of issuance, *ceteris paribus*, is determined by the strength of the "buy-side" demand (also described as "real-money" in the vernacular of the markets) for a given bond or *sukūk* issuance.

A market maker is a trader who typically sits on a trading desk housed on the trading floor within one of the global investment banks in London. A market making desk falls under the "sell-side" in the finance world where there is a divide between the "buy-side" or end-user investors, and the "sell-side." The "sell-side" primarily plays an intermediary "sales" role. In the debt capital markets, the "sell-side" traditionally focuses on new bond or *sukūk* deal originations, syndications, trading (in a "market making" capacity), sales (selling securities) and research.

Most trading desks are specialized and organized by geographic coverage (i.e. North America, Europe, Asia, the Middle East, or broader geographic categorizations such as EM [Emerging Markets] etc.), product type (i.e. bonds, mortgage-backed securities, covered bonds, derivatives, etc.), credit quality (i.e. investment-grade, high-yield, crossover credits, etc.), and sector (i.e. financials, corporates, sovereigns, etc.).

There is typically further specialization within each desk under the above broader categories. For example, within the EM area one trader on the trading desk that includes Indonesia will focus on DM (developed market) currency denominated instruments such as US$ denominated Indonesian sovereign bonds while another trader may specialize in local currency denominated instruments such as Rupiah denominated Indonesian sovereign bonds.

The physical proximity of the traders to each other in terms of their seating arrangements on the open-architecture trading floor allows them to exchange real-time "color" and news. The market making trading desk for a given *sukūk* is often also tasked with trading the conventional bonds of the same geography (e.g. the trading desk that trades Indonesian sovereign US$ denominated *sukūk* is also responsible for trading Indonesian sovereign US$ denominated conventional bonds). For example, the market making traders of Turkey's March 2018 maturity *sukūk* likely also trade other "front-end of the curve" (i.e. bonds with a maturity less than 5 years) Turkish sovereign conventional bonds.

While the exact organization and distribution of responsibilities varies from one investment bank to the next, with slight variations or organizational differences (often due to intra-bank policies), the general pattern is more or less established.

The buying and selling (demand and supply) of *sukūk* and bonds by "buy-side" investors, whether conventional or Islamic, is ultimately what determines the prices (and by extension, the YTM) of these securities. After the price is set by the market at the time of issuance (the outcome of the supply and demand for a given issuance), the yield is simply backed out of the equation by an automated calculation.

Most *sukūk* trade and are quoted on a "price-basis" (which is the same trading convention for the high yield conventional bond markets) while conventional bonds are only traded on a "price-basis" if they are deemed relatively risky (i.e. high-yield or EM bonds, etc.).

Conventional bonds that are relatively high in credit quality terms (i.e. rated from A- to AAA by the rating agencies, and sometimes even as low as BBB-) are traded on a "spread-basis" (i.e. the "price" is quoted as a spread over a government benchmark bond curve). However, even if a *sukūk* is deemed to be relatively high in credit quality terms (i.e. rated AAA by the same credit rating agencies), it is often still traded and quoted on a "price-basis" in the markets. The rare exception to this is the recently issued Government of Malaysia 10 year US$ denominated *sukūk* (MALAYS 3.043% maturing in 2025).

1.4 Yield Determinants

The "over-the-counter" fixed income (bonds and *sukūk*) markets are very much wedded to tradition and whatever peculiar tradition they are accustomed to. Oftentimes, these trading norms and conventions may factor in to affect the price and yield of a security, in addition to the idiosyncratic risk profile of that given financial security. But the most important factor determining the price, and by extension the YTM, is the level of demand vis-à-vis the supply whether in the primary markets at the time of issuance, or in the secondary markets after the initial issuance. The mix of investors, split between "real-money" or "buy-side" investors and "sell-side" investors also plays a role. Different constellations may be observed in the markets for *sukūk* vis-à-vis conventional bonds.If it is not trading and if the public sector uses *sukūk* funding for the same purposes as bond funding, then only differences of *sukūk* and bond structures remain to explain yield differences.

The existence of legal differences is obvious, but if the public sector applies primarily debt-creating structures and is very reluctant regarding the transfer of true ownership to the *sukūk* holders, it is very questionable that the legal difference implies a difference in the economic substance. By 2010, 90% of Malaysian *sukūk* were based on debt-creating contracts and only 10% on equity-like structures (*mudārabah* or *mushārakah*).[7] Furthermore: "Fifty-three per cent of the sukuk issues are by private sector, 41 per cent by government and quasi-government agencies and the rest by the country's central bank, the Bank Negara, and other financial institutions. Of the 53 per cent corporate issues, 48 per cent resemble conventional bonds, 2 per cent have a corporate guarantee and only 3 per cent are asset-backed securities, so 97 per cent are asset-based."(Ayob, 2012, p. 167).

If structures and trading on the secondary markets are ruled out, an alternative explanation for observable differences could refer to politics: The government of Malaysia and the central bank are strong supporters of Islamic finance with ambitious plans for the growth of the Islamic finance industry. The government has supported the expansion of the *sukūk* market, for example by offering tax benefits for *sukūk*, but it can also support it by employing an advantageous pricing methodology for new issuances which renders *sukūk* attractive not only to Islamic but also to conventional investors by pricing *sukūk* at a higher yield relative to a comparable conventional bond.

The datasets do not provide information on the initial pricing of *sukūk* and bonds. However, it is remarkable that for all maturities, almost all minimum, mean and maximum YTM of government and BNM *sukūk* (40 of 42) were at least equal to but mostly above the YTM of the corresponding conventional bonds. A supportive pricing approach in the primary market and a widespread hold-to-maturity attitude with small trading volumes in the secondary markets (i.e. illiquidity premium) would be consistent with the observed YTM differences.

2. *Sukūk* Issuance as Risk Signal in the Stock Markets

Another group of authors (Godlewski, Turk-Ariss, & Weill, 2011, 2013, 2014) has addressed the same question – are *sukūk* and bonds different – from a different angle. They try to identify differences indirectly by observing the reaction of some variables such as stock prices on comparable "events" in the bond or *sukūk* markets. Different reactions on bond and *sukūk* market events would support the hypothesis that bonds and *sukūk* are different (or that *sukūk* are – at least in some respect – an asset class with distinct features). They found that stock markets react neutrally to the announcement of a conventional bond issue, but negatively to the announcement of a *sukūk* issue.

Their initial conclusions (2011, 2013) are very questionable insofar as the authors assume that *sukūk* are generally equity-like securities with profit-and-loss sharing arrangements for the remuneration of the *sukūk* holders and the managing firm (typically the issuer). They explain the observed stock market reactions with an adverse selection problem inherent in PLS arrangements.

[7] The exact figures are: 31% *al bai bithaman ajil* (BBA), 21% *murābah*ah, 13% *ijārah*, 13% *istiṣnāʿ*, 9% *mushārakah*, 1% *mudārabah*, 12% combinations of contracts (Ayob, 2012, p. 169).

Neither the general characterisation of *sukūk* as equity-like securities nor the adverse selection explanation are convincing: The majority of *sukūk* are built on sales or leasing structures (*murābahah*, *ijārah*) which are not equity-like but debt-based with fixed payment obligations. This mistake has been corrected in their latest paper (2014) which produced more differentiated results. However, observed negative stock market reactions are again (mistakenly) explained by the adverse selection model (discussed below). "[W]e uncover that *Ijara sukuk* favors a positive stock market reaction. We attribute this result to both the lower *shari'a* compliance risk of *Ijara* compared to other structures and to the adverse selection mechanism uncovered by Godlewski, Turk-Ariss, and Weill (2013) that hampers the issuance of profit-and-loss sharing *sukuk*." (p. 13).

2.1 Dataset

The conclusions are drawn from a sample of 131 *sukūk* issues from 2006 to 2013 which met the authors' data quality requirements (which were relatively restrictive due to the applied event study methodology).[8] This sample has some noteworthy peculiarities, keeping in mind that the authors drew rather general conclusions for only two broad classes of *sukūk*, namely *ijārah* and non-*ijārah sukūk*.

The sample comprised 44% *ijārah sukūk* and 56% non-*ijārah sukūk*. The non-*ijārah sukūk* are made up of 13% debt-based *murābahah sukūk,* 5% *mudārabah sukūk* and 37% *mushārakah sukūk*. It is not clear how other types of *sukūk*, in particular BBA *sukūk* in Malaysia have been classified. For 111 of 131 *sukūk* (85%) the "issuer country" was Malaysia. Only 5 *sukūk* can be clearly identified as issues of GCC origin. 95 out of 131 *sukūk* (= 73%) were issued in 2012 and 2013. Similar to the first case-study discussed in this paper, this study focuses on securities within the Malaysian context, rendering a general conclusion problematic for an increasingly globalized *sukūk* market.

In summary one can say that the sample is dominated by the issues of the last two years in the corporate *sukūk* market in Malaysia. However, the structure of the *sukūk* types of the sample deviates notably from the structure of rated corporate *sukūk* issues in 2012 and 2013 in Malaysia as the following table shows.[9] The differences give rise to the question of the representativeness of the sample.

Rated Corporate *Sukūk* Issues (Number of Issues)

Type of corporate *sukūk*	In sample	Malaysia 2012	Malaysia 2013
Ijārah	44%	19%	18%
Murābahah (incl. BBA)	13%	58%	56%
Mudārabah	5%	4%	4%
Mushārakah	37%	15%	17%

Figures for Malaysia from RAM Rating, *Sukūk* Focus, February 2013 and March 2014. The figures for Malaysia do not include *sukūk* based on *istisna, bayʿ al'dayn* and other financing contracts (approx. 4% in 2012 and 6% in 2013).

Furthermore, the sample reportedly comprises *sukūk* issues of extremely varying and different sizes, ranging from a meagre 5 million US$ to a stunning 125,000 million US$.[10] The last figure can only be a gross error: 125,000 million US$ exceeds by far the total volume of all global corporate *sukūk* issues of 2012 by approximately 36,000 million US$.[11]

[8] The total number of corporate *sukūk* issuances during that period was in the order of 3,000. International Islamic Financial Market (2013, p. 15) quotes 2,743 as the number of global corporate *sukūk* issuances from 2001 to January 2013.

[9] Figures for Malaysia from RAM *Sukūk* Focus, February 2013 and March 2014.

[10] Godlewski, Turk, & Weill, 2014, Descriptive Statistics, p. 17, "Amount".

[11] The authors seemingly did not check the plausibility of their figures. Instead, they calculated an average amount issued of 1,270 million US$ and a large standard deviation (p. 9). It can be easily seen from a publication with *sukūk* "league tables" (such as International Islamic Financial Market, 2013) that hardly any corporate *sukūk* ever exceeded the 1,000 million US$ mark which makes an average of 1,270 million US$ totally implausible.

In view of this grave error, it is justified to cast doubt on all the numerical results of the study which are somehow related to the size of *sukūk* issues. But assuming that the mistake is just an outlier,[12] the general tendencies may still hold.[13] The authors examine whether the announcement of the issuance of a *sukūk* by a listed company causes reactions in the stock market, measured as abnormal returns of the company under study.

They estimate abnormal returns by a modified market model as the difference between the returns on a company's stock to the returns of a market index. The abnormal returns are considered "to be proxies for shareholder value." (Godlewski, Turk, & Weill, 2014, p. 8). The abnormal returns are cumulated over a period of 5 days (2 days before the day of issue, the day of issue, and 2 days after the day of issue = period [-2, 2]) and 3 days (= period [-1, 1]).

2.2 Adverse Selection?

The authors find no cumulative abnormal return (CAR) for *ijārah sukūk*, but negative CAR for *mudārabah* and *mushārakah sukūk*. This phenomenon is explained by an adverse selection mechanism: "It seems that stock market investors react negatively to the issuance of profit-and-loss sharing *sukuk* in comparison to debt-based *sukuk*, albeit the spirit of Islamic finance is to encourage equity and not debt-like investments. We explain our finding using the adverse selection mechanism according to which borrowers in better financial condition have fewer incentives to opt for the sharing of expected profits." (Godlewski, Turk, & Weill, 2014, p. 11).

"When entrepreneurs expect high return, they prefer interest-based financing that maximizes their profit in the likely event of success. In contrast, borrowers with the lowest return expectations may have an incentive to issue profit-and-loss sukuk structures (Musharaka and Mudaraba). Following the adverse selection argument, if entrepreneurs expect a low profit, they prefer issuing profit-and-loss sharing financing schemes to minimize loss in the likely event of failure. As a result, in a variation of the Lemons problem, stock market participants will expect the worst borrowers to choose to issue profit-and-loss sharing sukūk and will interpret such issuance as a negative signal on the financial position of the issuing firm." (Godlewski, Turk-Ariss, & Weill, 2013, p. 757).

There are several reasons why the explanation of CAR by an adverse selection mechanism is not convincing.

- The adverse selection argument implies that *mudārabah* or *mushārakah sukūk* are only issued by weak firms while the strong firms prefer debt-based structures. However, it is not difficult to identify large numbers of "strong" firms that issued equity-based *sukūk*. For example, the Sukūk Reports 2010, 2011, 2013, and 2014 of the International Islamic Financial Market are full of names of leading companies which issued *mudārabah* and (more often) *mushārakah sukūk*. So the implied assumption that only weak companies issue *sukūk* is obviously wrong.
- If the adverse selection argument were taken seriously and to its extreme, a market for *mudārabah* and *mushārakah sukūk* should not exist at all: *sukūk* holders who learn that they lose money (or earn less than expected) from equity-type *sukūk*, will demand prohibitively higher risk premiums. This will scare entrepreneurs with good projects away from the *sukūk* markets. This would increase the percentage of bad projects financed by equity-type *sukūk*, and investors will suffer further losses. Investors who have strong indications that the adverse selection mechanism does exist can anticipate these processes and avoid "learning by losing" by not investing in this market. Therefore the portrayed "lemons market" (Akerlof, 1970) will either not take off at all or collapse again very quickly. But in reality neither has happened.
- If the adverse selection mechanism would be effective, then the party that should worry about it are not the shareholders of the issuing company, but the *sukūk* holders. One could even argue that the adverse selection effect should work to the benefit of the shareholders of weak firms: If the financing turns out to be a bad deal for the *sukūk* subscribers, then the management of the *sukūk* issuing company had been able to strike a deal at terms which did not reflect the true underlying risk. The financing was cheaper than it should have been if properly risk adjusted, and (following the logic of the adverse selection mechanism) cheaper than a fixed cost financing by, for example, an *ijārah sukūk*. Hence, the CAR should be positive instead of negative.

[12] An indication for the assumption of a single outlier is the rather plausible median of 175 million US$.
[13] The event study methodology is rather tolerant in this respect.

If the adverse selection mechanism is rejected but a negative CAR can be observed, it may be worthwhile to take a detailed look at each *sukūk* issuance with a negative CAR individually to see whether their commonalities are sufficient for general conclusions. The number of relevant cases should not be too large. However, the data published by the authors do not allow for such a detailed analysis here.

3. Conclusion

In conclusion, both aforementioned studies tried to provide empirical evidence that *sukūk* and bonds are not the same in economic terms. This evidence has not been provided. *Sukūk* and bonds do differ in their legal structures and, of course, in their Sharī'ah compliance. This implies a fundamental economic difference for Islamic investors for whom bonds do not have an economic value at all (because they are prohibited) and only *sukūk* are valuable papers. Thus, the question of whether *sukūk* and bonds are economically different is meaningful only with regard to market players who do have a choice and can invest in both types of securities. The studies reviewed here do not differentiate between these two distinct groups of market players.

The outline of trading practices has shown, on the one hand, that conventional investment banks are, indeed, active in the *sukūk* market which is mainly an OTC market. The outline, on the other hand, did not give strong indications that conventional players handle *sukūk* and bonds significantly differently on an operational level. A comparison of YTM may detect some statistical differences between *sukūk* and bonds, but there are many possible explanations. For example, both Islamic and conventional investors will participate in the initial offering of a new *sukūk*. An inelastic demand of Islamic investors may effect a higher issuing price (and respectively lower YTM) compared to a bond issue.

When Islamic investors tend to hold *sukūk* to maturity (for various reasons), the trading volumes and liquidity in the secondary market would be less than in the bond market, again with an impact on pricing and YTM, in the form of an illiquidity premium, etc. It is important to note that observable price or yield movements result from the overlapping market behavior of two groups of investors whose trading options and motives are different. Therefore, aggregate figures cannot prove (or disprove) that *sukūk* are, in economic terms, the same as bonds for only one of the two groups of the market participants, namely for the conventional players who can substitute *sukūk* by bonds and vice versa. More disaggregated data are needed, but they are not provided by the studies under review.

One economic difference between *sukūk* and bonds is obvious: There is a distinct group of market players active in the primary and secondary *sukūk* markets that does not operate in the conventional bond markets, namely Islamic financial institutions. However, the quantitative significance of this difference for the market processes and results is far from obvious. The relative size of the demand and supply of the different groups of actors will probably be a decisive factor, but it is difficult to measure because *sukūk* are mostly traded OTC, and official statistics rarely capture details of OTC transactions. Hence, it remains a challenge to integrate the models, data and practice of *sukūk* in a consistent way.

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