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Purging of impure income: a comparative study of the existing purging methodologies

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Abstract

Purpose – The purpose of this paper is to study the concept of purging and present a comparative study of the existing purging methodologies prevailing in the market with a view to evolving a more effective method of capturing the entire impure income to be purged.

Design/methodology/approach – To illustrate the present discussion, a case study of purging based on numerical examples has been included. The argument has also been supported with empirical data related to the universe of Sharīʿah-compliant stocks listed on Indian stock exchanges.

Findings – During the study, it was found that the existing purging methodologies of calculating impure income to be purged have conceptual and practical shortcomings.

Research implications/limitations – The scope of the current research is limited to calculation of impure income which accrues on account of Sharīʿah non-compliant investments directly or indirectly. It does not try to quantify the benefit which may be imputed in the form of capital gains made in trading of the investee company shares due to higher market value of the shares as a result of the impure income earned by the investee company. The paper has focused on identifying and calculating the impure income on account of interest. Impure income earned from specific Sharīʿah non-compliant products or services has not been considered directly. The reason for this is that companies dealing in such products or services are generally excluded at the business screening stage itself. In the case of those companies which derive a relatively small proportion of their total income from such activities and pass the business screening stage, the quantum of the impure income is not generally reported separately in company accounts.

Practical implications/limitation – The result of adopting the proposed methodology will lead to complete purging of impure income (to the extent that is possible under present Company Law and stock exchange reporting regulations). Implementation of the proposed method requires a proper understanding of the working of listed companies and either a sound mathematical background or access to a software application to calculate the impure income to be purged.

Originality/value – The current paper is original and based on the authors' personal understanding and experience of providing Sharīʿah consultancy services related to Sharīʿah-compliant investments.

Keywords India, AAOIFI, Dow Jones, Indian capital market, Purging, Impure income, Sharīʿah-compliant investment, TASIS

Paper type Research paper

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Introduction

In the present business environment, it is very difficult to find fully Sharīʿah-compliant companies for investment on the stock exchange. Due to this unavoidable market scenario, Sharīʿah scholars have set a limitation on the percentage of impure income to be accrued in a company's account, below which the company (stock) is declared Sharīʿah-compliant (AAOIFI, 2015). This relaxation implies that a Sharīʿah-compliant company, despite its objective of making only pure income out of its business, may end up earning a proportion of impure income. Thus, the investor seeking a fully Sharīʿah-compliant investment needs to purge this impure income accrued in the accounts of the company in which the investment is made (AAOIFI, 2015).

The process of removing impure income from the total income realised from an investment is known as purging (or purification). It is one of the important requirements to make an investment fully Sharīʿah-compliant. Purging can be done either to remove only interest income or to remove all types of impure income arising out of Sharīʿah non-compliant investments or business sources (AAOIFI, 2015).

It is to be noted that the investor who invests in the shares of a company through the stock market or by subscribing to a mutual fund would automatically become (morally) responsible for the economic activities (and financial transactions) of the company to the extent of his exposure (investment in the capital) to the activities of the company. Hence, the investor needs to purge his share of the impure income that has accrued to the company's account to the extent of his investment in the shares of the company.

Purging is a concept which has emerged and evolved in the Islamic finance industry over the past two to two-and-a-half decades. Therefore, the methods of purging or calculation of impure income to be purged have not yet received sufficient scrutiny.

The objective of the current paper is to discuss the basic concepts of purging, present a comparative study of the existing purging methodologies prevailing in the market, highlight the issues pertaining to the existing purging methodologies and propose issues for experts and researchers to research further.

To illustrate the present discussion, a case study of purging based on a numerical example has been included in the last section of the paper. The argument has also been supported with empirical data related to the universe of Sharīʿah-compliant stocks listed on Indian stock exchanges. The reason for this is twofold:

(1) Primarily, it is to illustrate to capital market participants such as lay investors, brokers, institutions and portfolio managers, the correct method of purging and the factors to be taken into account in the process of actual application.

(2) Secondly, to debunk the claim often made that the right method of purging requires detailed calculations and access to company data that present daunting practical difficulties.

The usual dividend purification method of purging commonly adopted is definitely simple and easy to apply. Unfortunately, it does not meet the objective (as discussed in the

following paragraphs) for which purging needs to be done. It thus ends up only as a cosmetic treatment to assuage one's conscience while reducing the demand on one's wallet. In the present time, computing ability and access to the internet via mobiles, tablets, computers and specialised data providers are readily available, which means the arguments of inaccessibility of data and difficulty of calculation are no longer valid. This is especially relevant when viewed in the context of needing to prevent one's income from being tainted by *ribā* (interest), which has been denounced in the strongest terms in the Qurʾān (2: 275-279) and authentic *ḥadīth*s (see, Al-Bukhari, Volume 3, Book 34, *ḥadīth* no. 382).

Impure income

After a brief introduction to the concept of purging, it is worthwhile to understand what constitutes "impure income", as the latter is the base on which the whole purging process relies. In broad terms, impure income consists of interest income recognised (stated) as such in the company's accounts, income realised from Sharīʿah non-compliant financial investments and income accrued on account of Sharīʿah non-compliant business sources (products and subsidiaries) (AAOIFI, 2015). These components of impure income are briefly described next.

Interest income

Generally, interest income is revenue accrued on account of bank and other deposits, loans advanced and certificates of deposit held and directly reported (stated) as "interest income" in financial statements of the company. This income needs to be removed to make an investment in listed companies Sharīʿah-compliant.

Impure income from Sharīʿah non-compliant investments

The reporting conventions in India (and perhaps in many other countries) do not allow companies to recognise the returns (income) arising from certain interest-based investments as "interest" under the "interest income" category. For example, many money market instruments such as debt-based mutual funds and preference shares provide returns to their investors which arise either from interest or from trading of interest-based instruments. However, due to the nature of the instruments, the return yielded to the investor is referred to as "dividend" rather than as "interest" in company accounts (Income Tax Act, 1961, Chapter 1, Sec.2, 22a&b; Interes Tax Act, 1974, 7 to 7b). In addition, companies may also trade in gilts, deep discount bonds, debentures, units of debt and liquid mutual funds and even preference shares, and report the income as "capital gains". A similar practice arises in the case of insurance claims from conventional insurance, which are generally clubbed with other income and not reported separately as receipts of insurance in the financial reports of companies. As a result, we end up with a situation of receipts or income on account of Sharīʿah non-compliant investments entering the companies' books without being reported (stated) as "interest income".

Hence, such impure income components are likely to be overlooked during the process of calculation of impure income to be purged. Therefore, to purge such impure income disguised as dividend or capital gain or receipts, it is essential to first identify those interest-based investments of the firm from which such "disguised" interest or interest-derived income arises and then estimate[1] the quantum of such disguised interest income as a proportion of such interest-based investments (Khatkhatay and Nisar, 2007).

Impure income from Sharīʿah non-compliant business sources

In a few cases where the primary business of the company is Sharīʿah-compliant, some impure income accrues on account of a few minor business sources which are Sharīʿah

non-compliant (such as from non-compliant products of the parent company or of a subsidiary). In such cases, the impure income accrued on account of Sharīʿah non-compliant sources can be identified from product and investment schedules of the company and its subsidiaries and can be purged in proportion to the contribution of income from such offending products to the total income.

However, this can practically be done only in those cases where the information related to such products and services is available in the public domain. Not all companies disclose detailed information about income derived from their various products in their financial reports or filings with the regulators.

As per the Sharīʿah, all the three categories of impure income, i.e. general interest, income from interest-based investments and income from Sharīʿah non-compliant business sources, should be considered for calculating the amount to be purged. However, the extent of reporting detail may differ as well as the heads of account under which income from different sources is consolidated for reporting. This may create minor differences in the extent to which the total impure income can be correctly captured and purged. To allow for this lack of precision, the parameter (ratio) used to estimate the disguised interest income on the basis of interest-based investments can be set at a relatively liberal level.

Various purging methodologies

After a brief discussion on the concept of "impure income", this section discusses the prominent purging methodologies prevailing in the market[2].

There are two prominent purging methodologies practised globally. One is the dividend-based purging method, and the second is the purging method suggested by the Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI). In view of some shortcomings in these existing methodologies, a third method, which is a modified version of the AAOIFI purging method, has evolved and been applied by Taqwaa Advisory and Shariah Investment Solutions Private Limited (TASIS) – a premier Sharīʿah advisory services provider from India. The details of these three purging methodologies are provided next.

Dividend-based purging method

Under this method, generally followed by the S&P, MCSI and FTSE Sharīʿah Indexes, the purging of impure income is primarily linked to dividends. The purging amount is calculated by multiplying the dividend received on the shares of the company held by the investor (whether individuals, institutions or funds) by the ratio of impure income to the total income of the company (S&P Dow Jones Indices, 2017).

The formula for the amount to be purged can be expressed as:

$$(Dividend\ Paid\ per\ Share\ \times\ Number\ of\ Shares\ Held)$$

$$\times\ (Interest\ Income/Total\ Income)$$

Under this method, only the stated interest income can be purged, as this method takes into account only the stated interest income and fails to take into account the "disguised" interest income discussed above.

Moreover, under this method, the investor is liable to purge the impure income only if the company pays a dividend. In the event a company does not pay dividend in a particular year, the interest income of that year is not purged. Hence, there is no rationale for linking the purging to receipt of a dividend.

Furthermore, the recipient of the dividend may not even be the holder of the shares during the period when the interest was earned. It is common knowledge that dividends for any specific period are generally declared by companies not during that period itself but after the concerned period has closed and the accounts for that period are prepared. Hence, dividends are generally paid out three to six months after closing of the accounting year of the company. At such point in time, it is very likely that the person holding the shares may be someone who had not held the shares for even a single day of the period when the violation (of earning interest) occurred.

The AAOIFI purging method based on share-holding

The second method is that of AAOIFI. Under this method, purging is primarily based on interest earned per share by the company rather than (as in the previous method) on the dividend received per share by the investor. According to this method, the purging amount is calculated by dividing the total prohibited income by the total number of outstanding shares of the company and then multiplying the resulting figure by the number of shares owned by the investor (AAOIFI, 2015).

The formula for the amount to be purged can be expressed as:

$$(Interest\ Income/Total\ Outstanding\ Shares) \times (No.\ of\ Shares\ Held\ at\ Year\text{-}end)$$

Purging under this method is obligatory upon the investor only if the investor holds the shares of the firm at the end of the accounting period. It is not applicable to those who may have held them during the financial period but exited before the year-end (AAOIFI, 2015).

Again, under this method, only the stated interest income can be purged, as this method takes into account only the stated interest income and fails to take into account the "disguised" interest income discussed above.

Moreover, there appears to be a tenuous justification for laying the responsibility of purging the interest for the entire year only and fully on the person who is found to be holding the shares at the time of closing of the financial year. In fact, doing so constitutes an injustice to the person holding the shares at the time of closing of the financial period of the company unless he has indeed held the shares for the entire financial period.

The interest income is generally earned throughout the year. It should thus be the proportionate responsibility of all those who held the shares during the year, to the extent of the duration for which they held the shares for the respective periods. It should not be the exclusive liability of the one who is found holding the shares at year's end.

As per available information, the FTSE Russell Indexes have adopted the AAOIFI purging methodology for their Islamic Indexes (FTSE Russell, 2016). Russell too considers only the stated interest income and not the "disguised" interest income.

The Modified AAOIFI method

In addition to the above mentioned two methods, TASIS has developed and applied another method which could be considered a modification of the AAOIFI method to make it more just and comprehensive.

This method requires the purging of impure income earned per share of a company held by an investor pro-rated over the period for which the shares were held in his portfolio by that investor.

Hence, according to this method, purging of impure income is imperative for the investor who had ownership of the shares when the impure income was earned by the company. He needs to donate the pro-rata amount of interest income earned per share by the company for

the relevant holding period, irrespective of whether the company or the investor made profits, and whether the company declared dividends or not.

The formula for the amount to be purged can be expressed as:

$$(Total\ Impure\ Income/Total\ Outstanding\ Shares) \times (No.\ of\ Shares\ Held)$$

$$\times (No.\ of\ Days\ [or\ Months]\ the\ shares\ were\ held/Total\ No.\ of\ Days\ [or\ Months]$$

$$in\ the\ entire\ Accounting\ Period)$$

where:

$$Total\ Impure\ Income = Interest\ Income + k\%\ of\ Interest\text{-}based\ Investments$$

where, "k" is the applicable ratio for estimating the "disguised" impure income from the interest-based investments.

In case the investor needs to purge a portfolio of various shares he held, the above method needs to be applied for all stocks in his portfolio, taking into account the relevant holding periods for the various stocks.

Case study of purging with numerical examples: the case for an individual investor

For clarity of understanding the method of determining the quantum of impure income for which the investor is responsible, a numerical example is explained below taking into consideration the three different methods of purging income and considering different scenarios. To avoid any confusion, the most general cases are considered.

Tables I and II below provide further details on the financial position of company PQR Co. Ltd. and the investment by the investor in the company, respectively.

Particulars	Unit	31.03.2012	31.03.2013	31.03.2014
Outstanding shares	Million	100	100	100
Interest-based investments	US$ million	10,000	12,000	15,000
Total income	US$ million	500,000	550,000	600,000
Interest income (stated)	US$ million	2,000	1,800	2,500
Income from interest-based investments[a] (*Disguised impure income*)	US$ million	800	960	1,200
Dividend@10%	US$ million	3,600	Nil	Nil
The financial year for PQR Co. is April to March				

Note: [a]Impure income (disguised income) is assumed at 8% of interest-based investments as per TASIS Sharīʿah norms

Table I.
Financial details of PQR Co. Ltd. for the period of three years, i.e. 2011-2012, 2012-2013 and 2013-2014

Date	Transaction details	No. of shares (million)
1 April 2011	Purchases/Opening balance	10
30 June 2012	Sale	4
1 April 2013	Purchases	2.5
30 June 2014	Closing balance	8.5

Table II.
Details of investment by investor in PQR Co. Ltd

The purging amounts applicable to the investor using the three different methods discussed above are as follows.

Purging calculation under the dividend method
Under the dividend method, the purging calculations for the three years are as described below. The purging amount can be calculated using the appropriate formula given above:

$$(Dividend\ paid\ per\ Share) \times (No.\ of\ Shares\ Held) \times (Interest\ Income/Total\ Income)$$

Purging amount for the period 2011-2012 = [3,600)/100] × 10 × [2,000/500,000] = US$1.44m.

As the company did not pay any dividend during 2012-2013 and 2013-2014, the purging amount for those periods is nil. Table III summarises the purging amount for the three years as per the dividend method.

Purging calculation under the AAOIFI method
Under the AAOIFI method, the purging calculations for the three years are as described below. The purging amount can be calculated using the formula given below:

$$(Interest\ Income/Total\ Outstanding\ Shares) \times (No.\ of\ Shares\ Held\ at\ Year\text{-}end)$$

Purging amount for the period 2011-2012 = (2,000/100) × (10) = US$200m.

Purging amount for the period 2012-2013 = (1,800/100) × (6) = US$108m (as the shareholding at the year-end was 10 − 4 = 6).

Purging amount for the period 2013-2014 = (2,500/100) × (8.5) = US$212.5m (as the shareholding at the year-end 2013-2014 was 6 + 2.5 = 8.5).

Table IV summarises the purging amount for the three years as per the AAOIFI method.

Purging calculation under the Modified AAOIFI method
Under the Modified AAOIFI method, the investor needs to purge the impure income for the period he held the shares, irrespective of whether he still held the shares at the end of the financial year or not and whether a dividend was paid or not. The formula for the purging amount is:

Financial year	Purging amount (US$ million)
2011-2012	1.44
2012-2013	0
2013-2014	0
Total	1.44

Table III.
Purging amount for the three years as per dividend method

Financial year	Purging amount (US$ million)
2011-2012	200
2012-2013	108
2013-2014	212.5
Total	520.5

Table IV.
Purging amount for the three years as per AAOIFI method

$$(Total\ Impure\ Income/Total\ Outstanding\ Shares) \times (No.\ of\ Shares\ Held)$$
$$\times\ (No.\ of\ Days\ or\ Months\ the\ Shares\ Were\ Held/Total\ No.\ of\ Days\ or\ Months$$
$$in\ the\ Entire\ Accounting\ Period)$$

where, k = 8 per cent (assumed)

$$Total\ Impure\ Income\ =\ Interest\ Income\ +\ 8\%\ of\ Interest\text{-}based\ Investments$$

Purging amount for the period 2011-2012 = (2,000 + 800)/100 × (10 × 365)/365 = US$280m (as 10 million shares were held for 365 days).

Purging amount for the period 2012-2013:

- For 4 million shares held for 91 days = (1,800 + 960)/100 × (4 × 91)/365 = US$27.52m (as 4 million shares were held for 91 days).
- For 6 million shares held for 365 days = (1,800 + 960)/100 × (6 × 365)/365 = US$165.6m (as 6 million shares were held for 273 days).

Purging amount for the period 2012-2013 = 27.52 + 165.6 = US$193.1m.

Purging amount for the period 2013-2014 = (2,500 + 1,200)/100 x (8.5 × 365)/365 = US$314.5m (as 8.5 million shares were held for 365 days) (Table V).

In the above case study, the investor owns at different points over the three years, between 6 million and 10 million shares of the company's total outstanding 100 million shares, i.e. between 6 to 10 per cent of the company's total shares.

From the purging amounts calculated according to the three methods (summarised in Table VI above), the following conclusions can be drawn.

Dividend method. Under this method, in the first year (2011-2012), the investor is required to purge an amount of US$1.44m, i.e. about 0.5 per cent of the actual interest amount (US$280m as per the Modified AAOIFI method) that the investor is liable to purge. In the second and third years (2012-2013 and 2013-2014), as the company did not pay a dividend, purging is not applicable. Therefore, though in those two years, the company earned US$1,800m and US$2,500m as interest, the investor is not required to purge any amount. Hence, effectively he retains the impure income of US$193.1m and US$314.5m (as per the Modified AAOIFI method), which he is actually liable to purge.

Financial year	Purging amount (US$ million)	
2011-2012	280.0	Table V.
2012-2013	193.1	Purging amount for
2013-2014	314.5	the three years as per
Total	787.6	the Modified AAOIFI method

Financial year	Dividend method	Purging amount (US$ million) AAOIFI method	Modified AAOIFI method	
2011-2012	1.44	200.0	280.0	Table VI.
2012-2013	0	108.0	193.1	Purging amount for
2013-2014	0	212.5	314.5	three years as per the
Total	1.44	520.5	787.6	different methods

This anomaly is due to the fact that purging in this method is linked to the dividend payment and also because it does not consider the disguised impure income derived on account of interest-based investments. Hence, a large amount of impure income is retained in the company and with the investor.

AAOIFI method. Under the AAOIFI method, in the first year (2011-2012), the investor is required to purge an interest amount of US$200m, i.e. around 71 per cent of the actual interest amount (US$280m as per the Modified AAOIFI method) that the investor is liable to purge on account of the 10 million shares, irrespective of whether the company declares a dividend or not. However, in the second year (2012-2013) and the third year (2013-2014), the shareholding pattern of the investor at the end of the financial years is reduced to 6 million and 8.5 million shares, respectively; therefore, the investor is liable to purge the corresponding proportionate amounts, which are US$108m, i.e. around 56 per cent of the actual amount to be purged (US$193.1m as per the Modified AAOIFI method for 2012-2013) and US$212.5m, i.e. around 67.5 per cent of the actual amount to be purged (US$314.5m as per the Modified AAOIFI method for 2013-2014).

In the second year, though the investor held 4 million shares until 30 June 2012, according to the AAOIFI method, he did not incur any liability to purge the corresponding interest amount in relation to these 4 million shares because they were not held till the end of the financial period. Obviously, this liability amounting to about US$18m was transferred onto some other investor who was holding those shares at the end of that financial year, i.e. as on 31 March 2013.

In addition, the variation in the amount to be purged is due to the fact that under the AAOIFI method, the disguised impure income is not considered while calculating the total impure income. Hence, the latter impure income continues to remain in the business. Thus, the AAOIFI method has the potential to misallocate the purging liability among investors, depending on whether the one holding the shares at year's end has also held them throughout the year.

Modified AAOIFI method. Unlike the above two methods, under the Modified AAOIFI method, the disguised impure income derived from the interest-based investment is also included as part of total impure income along with the interest income. Due to this effect, in the first year (2011-2012), the investor is required to purge the entire impure income amount of US$280m received by the company on the 10 million shares of the investor. The additional US$80m is on account of the estimate of the disguised interest income provided under the Modified AAOIFI method but not considered under the AAOIFI method.

In the second year (2012-2013), the 4 million shares are held with the investor up to 30 June 2012 (91 days) and 6 million shares are held for the entire year (365 days). Therefore, he is liable to purge the total impure income, which is US$193.1m (US$27.5m on account of 4 million shares held for 91 days and US$165.6m on account of 6 million shares held for the full year). In the third year (2013-2014), the investor needs to purge impure income of US$314.5m, including US$102.0m on account of disguised interest income during the year.

Comparison. With the given example, in terms of total purging liability for three years, the investor is responsible for only US$1.44m under the dividend method, which is far less than the US$520.5m under the AAOIFI method and US$787.6m under the Modified AAOIFI method. If the Modified AAOIFI method of purging is considered the more correct and equitable one, then the investor is paying around 66 per cent under the AAOIFI method and just a pittance (less than 1 per cent) under the dividend method of what he actually is liable to pay (as per the Modified AAOIFI method).

It is to be noted that a part of the additional purging liability of the investor in the second year in the above illustration on the basis of the Modified AAOIFI method is due to the

specifics of the illustration. In case the details such as the period of holding of the shares were to be different, the purging liability in the illustration could even have been greater in the case of the AAOIFI method than the Modified AAOIFI method. Say, for instance, if in any year, the investor were to have bought shares towards the end of the year, under the AAOIFI method, he would have had to shoulder the liability for purging on account of those shares for the entire year. On the other hand, under the Modified AAOIFI method, his liability would have been limited to the purging on account of only the few days for which he had held the shares by the time the year ended.

Empirical study of applying dividend-based purging to Indian Sharīʿah-compliant stocks

An objective approach to assessing the impact of the different methods of purging on the extent of purging required would be to apply each of them separately to the latest updated (as on 31 January 2017) universe of Sharīʿah-compliant stocks, as determined on the basis of the screening criteria followed by TASIS, the leading Indian Sharīʿah investment advisor.

According to the latest Sharīʿah list referred above, there were 1,077 Sharīʿah-compliant companies listed on the main Indian stock exchanges. Of these, only 337 companies had declared a dividend, and of these, 13 companies had not reported any interest income. Thus, only 324 companies which had declared a dividend were liable for purging. On the other hand, the number of companies which had reported interest income was 848. An additional 11 companies had reported interest-based investments, though they had no interest income. Thus, compared to the companies required to purge under the Modified AAOIFI method, only about 38.2 per cent of the companies were liable for purging under the dividend method.

The total interest income for the entire universe of Sharīʿah-compliant companies was Indian Rupee (INR) 151.83 trillion; the purging amount on the basis of the dividend method was only INR 3,088.7 million, or an insignificant 2 per cent of the purging amount on the basis of the Modified AAOIFI method. The above figures clearly indicate the ineffectiveness of the dividend method in eliminating interest income earned by the Sharīʿah-compliant companies from their earnings for Sharīʿah-conscious investors.

Case study of purging with numerical examples: purging of mutual fund

In the case of a financial instrument such as a unit of a Sharīʿah-compliant mutual fund or pension fund, the overall interest purification ratio for the portfolio of the fund needs to be calculated on the basis of the portfolio of stocks held under the respective instruments and communicated by the mutual fund to individual holders or subscribers of the fund/scheme as a ratio (i.e. the purging amount per unit of the security held per day). Calculation of the purging amount for a financial instrument like units of a mutual fund/venture fund/ insurance fund is more tedious compared to that for a specific share or a portfolio of shares held by an individual investor.

For clarity of understanding, the method of determining the impure income quantum for a mutual fund for which the investor is responsible, according to the Modified AAOIFI method evolved and applied by TASIS, is explained in the following paragraphs (TASIS, 2017). To avoid any confusion, the most general cases are considered.

Prior to moving on to the purging calculation directly, it is worthwhile to know the various details related to the fund and the investors that are required for the purging calculation:

- *Purging date*: This is the date on which the purging for the fund and investor is being done. In our present example, this period is September 2016.
- *Purging period*: This is the financial period for which the purging for the fund and for the investor is being done. In our present example, this period is April 2014 to March 2015.
- *Fund profile*: Fund profile includes date of inception of the fund, the scrips/ stocks included, details of transactions and holdings (during the year), fund investment value (average for the year), number of outstanding units (average for the year) and net asset value (average for the year). This information can be collected from the periodic reports regarding the portfolio of the fund.
- *Financial details of investee companies*: Financial details of scrips include total impure income and outstanding shares of the respective companies for the financial period 2014-2015 (applicable for this example).
- *Investor's investment details*: Investor's investment details include details of his transactions in units of the fund. This information can be collected from the report of holdings of units issued to investors by fund managers.

It is to be noted that, in case of funds, purging is done for the fund first. This involves determining the purging amount applicable due to investment by the fund in different scrips held by the fund in its portfolio. For this, one has to obtain from the accounts of each company, the total impure income earned by the company and the number of its total outstanding shares. From these figures, the interest earned by the company (in terms of rupees per share per day) is calculated. Applying this ratio to the number of share-days of investment by the fund in the scrip, the amount to be purged by the fund on account of its investment in the company can be calculated.

Then based on the total purging amount calculated on account of all the scrips in the portfolio of the fund and the average number of units outstanding during the year, the purging ratio for the fund (in terms of purging amount per unit per day) is calculated. This is the purging ratio for the fund. From the investment history (transaction details) of the investor with regard to the particular fund, one can calculate the total unit-days of his investment in the fund. Applying the purging ratio of the fund to the unit-days of investment in the fund, one can arrive at the purging amount for the particular investor on account of his investment in that fund.

Let us assume that the Sharīʿah-compliant fund is launched on April 01, 2014. The fund comprises five shares (A to E). The average number of units of the fund outstanding during the period 2014-2015 is 100,000 and the average value of the fund is US$10m. The average net asset value of the fund is US$100. The impure income for A, B, C, D and E is US$100,000, 90,000, 150,000, 70,000 and 80,000, respectively. The shares outstanding for each of the scrips are 100,000. Tables VII and VIII provide details of the Sharīʿah-compliant fund and the financial details of each stock included in the Sharīʿah-compliant fund for the financial period 2014-2015.

The process of calculating the purging amount for a fund is as follows:

- *Share-days for all the scrips/stocks in the fund*: For this purpose, the monthly shareholding pattern of the fund for all the shares during the year needs to be collected. The details of transactions in the portfolios of mutual funds are disclosed in the public domain. The exact holdings of the fund cannot be known. Mutual funds do, however, publish the details of their share portfolios on a monthly basis. From the opening and closing stock of each scrip in the portfolio for every

month, one can calculate the average holding of each scrip in the portfolio during each month of the year. Multiplying the average holding of shares of each scrip by the number of days in that month and cumulating the same over the year gives the total share-days of investment in that scrip by the fund. Please refer to Table IX in which the total number of share-days for scrip "A" is calculated and shown as 8,205,000. The total number of share-days for each scrip will be calculated in the same way. As per Table X below, the share-days for scrips B, C, D and E are 7,217,500, 9,525,000, 6,997,500 and 7,312,500, respectively.

- *Purging ratio*: The purging (impure income) ratio for each of the scrips is calculated separately by dividing the total impure income for that scrip by the number of its shares outstanding, and the resulting figure is again divided by 365. Please refer to Tables VIII and XI.

- *Purging amount for the fund*: For this purpose, first the total purging amount for each scrip is calculated by multiplying the total share-days for the scrip with its respective purging ratio. Purging amount of all the scrips is added together

Particulars	Unit	Value
Date of inception	Date	01.04.2014
Number of scrips in the fund	Number	05
Average number of outstanding units	Number	100,000
Average value of fund	US$	10,000,000
Average NAV	US$	100

Table VII.
Details of XYZ
Sharīʿah-compliant
fund

Scrips/Stocks in fund	Impure income (US$)	Outstanding shares	Impure income/share
A	100,000	100,000	1.0
B	90,000	100,000	0.9
C	150,000	100,000	1.5
D	70,000	100,000	0.7
E	80,000	100,000	0.8

Table VIII.
Financial details of
stocks included in
XYZ Sharīʿah-
compliant fund for
the period 2014-2015

Months	Opening	Closing	Holding during the month	Average holding period days	Share-days for the month
Apr-14	0	25,000	12,500	30	375,000
May-14	25,000	25,000	25,000	31	775,000
Jun-14	25,000	10,000	17,500	30	525,000
Jul-14	10,000	15,000	12,500	31	387,500
Aug-14	15,000	35,000	25,000	31	775,000
Sep-14	35,000	20,000	27,500	30	825,000
Oct-14	20,000	15,000	17,500	31	542,500
Nov-14	15,000	20,000	17,500	30	525,000
Dec-14	20,000	35,000	27,500	31	852,500
Jan-15	35,000	35,000	35,000	31	1,085,000
Feb-15	35,000	25,000	30,000	28	840,000
Mar-15	25,000	20,000	22,500	31	697,500
Total share-days					8,205,000

Table IX.
Share-holding
pattern of a scrip in
XYZ Sharīʿah-
compliant fund

to ascertain the total purging amount for the fund. As mentioned in Table XI below, the purging amount for scrips A, B, C, D and E is assumed as US$22,479, 17,797, 39,144, 13,420 and 16,027, respectively. The total purging amount for the fund thus comes to US$108,867.

- *Purging amount per unit*: For this purpose, the total purging amount of the fund is divided by the average number of its units, which is calculated in US$ in the current example. Please refer to Table XII below.
- *Purging amount per unit per day*: For this purpose, the purging amount per unit is divided by 365. For the current example, the purging amount per unit per day is US$0.0030. Please refer to Table XII below.

Purging for an investor investing in the mutual fund
After deriving the purging amount for the fund, let us move on to determine the purging amount for an investor (Table XIII).

The process of calculating the purging amount for an investor is as follows:

- *Unit-days for the investor*: For this purpose, the unit transaction details are collected from the investor. The number of units purchased or sold is multiplied by the period for which they were held (no. of days) to get the unit-days. Unit-days for the total period are added to get the total unit-days. As presented in Table XIV below, the number of units purchased/sold on 1 April, 1 July,

Scrips/Stocks	Total share-days
A	8,205,000
B	7,217,500
C	9,525,000
D	6,997,500
E	7,312,500

Table X.
Share-days for all the scrips included in XYZ Sharīʿah-compliant fund

Scrips/Stocks	Total share-days	Purging ratio (US$)	Purging amount (Total share-days × purging ratio)
A	8,205,000	0.0027	22,479
B	7,217,500	0.0025	17,797
C	9,525,000	0.0041	39,144
D	6,997,500	0.0019	13,420
E	7,312,500	0.0022	16.027
Total interest income to be purged for the fund			108,867

Table XI.
Purging amount for all the scrips included in XYZ Sharīʿah-compliant fund

Particulars	Purging calculation	Purging amount
Purging amount per unit per year	108,867/100,000 = 1.09	1.09 (US$/Unit)
Purging amount per unit per day	1.09/365 = 0.0030	0.0030 (US$ Unit/Day)

Table XII.
Calculation of purging amount for the fund

1 October, 1 January and 31 March is, respectively, 100, 90, −75, 80 and 90. It
means 100 units were held for 365 days, 90 units were held for 274 days, 75
units were not held for 182 days, 80 units were held for 90 days and 90 units
were held for 0 days. Accordingly, the unit-days invested by the investor were
36,500, 24,660, −13,650, 7,200 and 0, i.e. a total of 54,710 unit-days.

- *Purging amount for the investor*: For this purpose, the total unit-days for the
  investor are multiplied by the purging amount per unit per day. As per Table XIII
  below, total unit-days for the investor are 54,710 and the purging amount per unit
  per day is 0.0030. Hence, the purging amount for the investor comes to US$163.1.

$$Purging\, Amount\, for\, Investor\ =\ (Total\, Unit\, Days\, of\, Investor$$
$$\times Purging\, Amount\, per\, Unit\, per\, Day)$$
$$=\ 54,710\ \times\ 0.0030 = 163.1$$

Major purging-related issues
Apart from the conceptual issues discussed above relating to purging, there are certain
practical issues pertaining to the abovementioned methodologies, some of which have also
been highlighted in the literature (Hashim and Habib, 2016), which we shall address in the
current section of the paper. However, the purging methodology discussed in the following
paragraph takes into account the impacts of both the conceptual as well as the practical
issues involved in purging.

Incidentally, there is also discussion in the literature on the issue of capital gains. The
view of the authors of this paper is that as far as Sharīʿah-compliant portfolios are
concerned, it is a non-issue and can be ignored. We turn in the next section to the real issues
identified below.

In the process of advising on the purging amount for investors and funds over the past
decade, we have identified a few major technical issues which complicate the process of
determining purging amounts for portfolios and need to be addressed. They deserve the

Date	Units transaction (purchase/sale)	No. of days holding	Unit-days
1 April 2014	100	365	36,500
1 July 2014	90	274	24,660
1 October 2014	(75)	182	(13,650)
1 January 2015	80	90	7,200
31 March 2015	90	0	0
Total			54,710

Table XIII.
Unit-holding pattern
of investor in XYZ
Sharīʿah-compliant
fund as on 31 March
2015

Particulars	Units	Value
Avg. NAV	US$	100
Total Unit-Days of Investor	Nos	54,710
Avg. Investment of Investor per day	US$	14,990
Purging Amount for Investor	US$	163.1
Purging Ratio per US$	%	1.089

Table XIV.
Purging ratio
calculation for
investor for the
period 2014-2015

attention of Sharīʿah scholars and, more so, that of practitioners who are involved in the actual process of determining purging amounts. The issues are as follows:

- bonus;
- rights/warrants;
- splits; and
- change in financial year.

It is evident that determination of the amount of interest to be purged – whether for an individual portfolio or a mutual fund investment – requires calculating, separately for each scrip in the portfolio, the ratio of interest to be purged in terms of rupees of interest earned during the year per share per day. This implies the need to determine the divisor, i.e. the number of outstanding shares. The problem arises when the quantity of issued shares of a company changes during the course of the year. As a result, from a financial perspective, the weight or importance of a share which existed prior to the change (increase in issued shares) undergoes a transformation in terms of its entitlement to proportional ownership of the company.

The number of issued shares increases as a result of bonuses. In the process of calculation of interest income per share, all the figures used are those relating to the year-end.

The transactions which took place prior to the bonus date must be brought on par with the transactions that occurred after the bonus date. To do so, the figures for the number of shares transacted between the start of the financial year and the bonus date must be suitably amended. This process can be termed as normalisation.

While accommodating the change and giving the right effect to it in the computing process, one needs to be aware of the nature of the change. We consider below each type of change that can potentially occur.

Bonus
In case of a bonus, the company issues additional shares to all the existing shareholders in a specified ratio by capitalising some of its reserves. As a result, there is an increase in the number of issued shares. Let us say a company issues A number of new shares for every B number of existing shares held. As a result, subsequent to the bonus, the number of issued shares of the company will be $A + B$. As the existing shares were fewer in number earlier and subsequent to the issue are part of a larger total number, their proportionate *weight* or importance has reduced subsequent to the issue. Let us illustrate this point with an example pertinent to our current discussion.

Assume that PQR Co. Ltd., whose year begins on 1st April, had 100 issued shares. On 1st July, it issues an additional 50 bonus shares, i.e. in the ratio 1:2 (1 additional for every 2 held). The company is earning US$30 as impure income every month. Hence, every shareholder of the company was responsible for US$0.3 of impure income every month before the issue of bonus. After the bonus issue, there are now 150 issued shares, which share the responsibility for the impure income earning of US$30 per month from 1st July onwards. So, from 1st July onwards, all 150 shares are each responsible for US$0.2 of impure income per month. Obviously, the purging required for the same number of days of holding on account of a share held during the prior period will not be the same as that for a share held for the same number of days in the latter period.

As the portfolio may be actively buying and selling the shares of PQR Co. Ltd., one may not be able to keep track separately of the number of issued shares of the company each time shares of the company are bought or sold by the investor at different times. Instead, the possible way is to *normalise* the number of shares bought or sold earlier, so that

computation for both types of shares can be carried out in an undifferentiated manner on the basis of the number of issued shares at the end of the year.

Normalisation of shares can be done by increasing the number of shares bought or sold prior to the bonus date in the ratio $(A + B)/B$, (no. post-bonus/no. pre-bonus). This effect is given in all transactions from the start of the financial year in which the bonus is declared and extending up to the bonus date. By doing this, the extra effort of keeping track of the two types of shares separately is avoided. This is illustrated below by calculating the purging liability for a few transactions in the shares done pre- as well as post-bonus.

Let us assume that the transactions took place as depicted in Table XV.

The company is earning US$30 impure income per month. Hence, during the financial year 1 April to 31 March, it has earned US$360.

Tables XVI and XVII illustrate the calculation of the purging amount based on the direct method and normalisation method:

(1) direct method;

(2) normalisation method;

(3) Total interest earned = $30 \times 12 = 360$;

(4) Total issued shares at year-end = 150;

(5) Purging amount per share = 360/150 = 2.4; and

(6) Purging amount per share per month = 2.4/12 = 0.2.

Rights and warrants

Rights/warrants are issued by a company when it wants to offer an opportunity to some, or all, of its existing shareholders to increase their holdings for a consideration (which is

Date	No. of shares purchased	No. of shares sold
1 April	2	
1 May	2	
1 June		2
1 August	4	
1 December		2

Table XV.
Purchase and sale of shares between April and December of the financial year

Month	Purging calculation *[monthly impure income × no. of shares × holding period]*	Purging amount
April	*For 2 Shares held for 3 Months (a)*: 0.3×2 shares $\times$ interest of 3 months = 1.8	7.2
	For 3 Shares held for 9 Months (b): 0.2×3 shares $\times$ 9 months = 5.4	
	Total (a + b) = 1.8 + 5.4 = 7.2	
May	*For 2 Shares held for 2 Months (a)*: 0.3×2 shares $\times$ interest of 2 months = 1.2	6.6
	For 3 Shares held for 9 Months (a): 0.2×3 shares $\times$ 9 months = 5.4	
	Total (a + b) = 1.2 + 5.4 = 6.6	
June	*For 2 Shares Not held for 1 Month (a)*: 0.3×-2 shares x interest of 1 month = −0.6	−6.0
	For 3 Shares Not held for 9 Months (a): 0.2×-3 shares $\times$ 9 months = −5.4	
	Total (a + b) = −0.6 + −5.4 = −6.0	
August	*For 4 Shares held for 8 Months (a)*: 0.2×4 shares $\times$ 8 months = 6.4	6.4
December	*For 2 Shares not held for 4 Months (a)*: 0.2×-2 shares $\times$ 4 months = −1.6	−1.6
Total purging amount		12.6

Table XVI.
Purging calculation based on direct method

generally at a discounted price compared to the ruling market price of the share). While we are not concerned in purging calculations with the pricing aspect, as such offers are generally taken up and lead to an increase in the issued number of shares, they have an implication for calculation of the purging amount.

Though financially the implications of bonus and rights for shareholders are different, as far as purging calculations are concerned, the treatment in the calculations is the same as with a bonus, i.e. normalise all transactions relating to the scrip from the start of the related financial year till the date of the rights issue using the rights ratio in a similar manner as described above in the case of the bonus issue.

Split
Split refers to the situation where a share/s of a certain face value is/are split into shares of a different face value. The result is again an increase in the number of issued shares, though in this case there is no increase in the value of the share capital. Again, normalisation needs to be done here by considering the relative figures. Generally, splits are expressed in terms of the face values pre- and post-split. In this case, the ratio used is the face value pre-split/face value post-split.

Change in financial year
Generally, a change in financial year of a company leads to the company closing its books either earlier or later than a full calendar year. Though not a frequent occurrence, it does happen at times. In this case, calculation of the purging ratio (purging amount per share per day) requires the purging amount to be divided by the number of days in the truncated or extended period rather than by 365, as is normally done.

Conclusions
After a detailed discussion and comparative analysis of the three existing purging methodologies, the following conclusions can be drawn:

- Under the dividend method, purging is restricted to the case where the company distributes a dividend. If the company does not declare a dividend, or even if it declares a dividend, but the investor had already sold his shares earlier, he is not required to purge any amount though the interest was earned when he held the shares. Hence, complete purging of impure income is not possible by using this method – in fact, only a very minor part of the interest gets purged.

- Under the AAOIFI method, purging liability becomes the responsibility of the investor only if he continues to hold the shares till the end of the accounting period; otherwise, the entire liability of purging must be borne by someone else

Months	Normalisation of shares [No. of share × (A + B)/B]	Share months	Purging amount
April	$2 \times (2 + 1)/2 = 3$	$3 \times 12 = 36$	$36 \times 0.2 = 7.2$
May	$2 \times (2 + 1)/2 = 3$	$3 \times 11 = 33$	$33 \times 0.2 = 6.6$
June	$-2 \times (2 + 1)/2 = -3$	$-3 \times 10 = -30$	$30 \times 0.2 = -6.0$
August	4	$4 \times 8 = 32$	$32 \times 0.2 = 6.4$
December	−2	$-2 \times 4 = -8$	$8 \times 0.2 = -1.6$
Total		63	12.6

Table XVII.
Purging calculation based on the normalisation method

who was holding the shares at the end of the accounting period and may have
perhaps held them only for a fraction of the entire period over which the interest
was received. Hence, mostly complete purging of impure income by the person
who is actually responsible for it is not possible by using this method either.

- On the other hand, the Modified AAOIFI method applies irrespective of whether
the company declares a dividend or not and whether he was holding the shares
when the company closed its accounting period or otherwise. The criterion is only
how much interest was earned by the company on account of his shares and during
the period he held the shares. That is the exact amount he is required to purge.

Taking an overall view of the existing methods of purging, it is clear that there is a
commitment, in principle, to purge the impure income under all the methods. Though there
are certain shortcomings in the calculation methodologies adopted under the dividend and
AAOIFI methods, it is hoped (particularly in the case of the dividend method – as the
effective quantum of purging under this method is negligible) that these shortcomings are
not due to any wilful flouting of Sharīʿah requirements. Instead, they stem from an
inadequate comprehension of the practical application of Sharīʿah guidelines and
complexities of financial calculations.

The AAOIFI modified method of purification is logical and equitable. In fact, under this
method, the shortcomings of the other two methods are successfully addressed, making the
full purging of the impure income possible.

To our understanding, the Modified AAOIFI method is deemed a more correct, just and
comprehensive method of purging. It is hoped that researchers and practitioners may
consider this method for further study and experimental implementation.

Notes

1. AAOIFI Sharīʿah Standard No. 21, 3/4/4 (2015) recognises the need for an institution to exercise
additional effort and caution to identify such impure income, as it may not be directly reported in
the accounting statements of companies. Considering this provision, TASIS has decided to
recognise 8% of investment in preference shares and mutual funds as "impure income on account
of Sharīʿah-non-compliant investments" and includes the same in total impure income.

2. A brief Research Note by Barkatulla and Wasiullah (2016).

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