



Religiosity and Charitable Giving on Investors' Trading Behaviour in the Indonesian Islamic Stock Market: Islamic vs Market Logic

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Abstract

This study examines retail investors' trading behaviour and its determinants in the Indonesian *Shari'ah* stock market by mainly focusing on the religious practice-related factors in the form of *sadaqah* or charitable giving on individual investors' trading behaviour. Contextually, the Islamic moral economy (IME) assumes a direct relationship between religiosity and *sadaqah* giving due to the *falah* (salvation) oriented individual objective function, which can be reached through doing *ihsan* (beneficence for equilibrium). The findings based on a questionnaire survey distributed to individual investors on *Shari'ah* Online Trading System (SOTS) delineate that religiosity, accounting information, neutral information, personal financial needs, and the *sadaqah* feature have significantly affected investors' trading behaviour in which the *sadaqah* feature is positively correlated, while religiosity factors are negatively correlated. Thus, despite the theoretical expectation through IME, this study evidences that Islamic logic is not the main determining factor, as market logic related factors seem to be more dominant in the behaviour of investors in the Indonesian capital market.

Keywords Financial behaviour · Investors' trading behaviour · Islamic religiosity · *Sadaqah* feature · Indonesia

Introduction

Behavioural studies in economics and finance suggest that investors' investment decisions are influenced by behavioural factors (Wärneryd, 2001), which fills an important gap when rational models offer little explanation for particular behaviour or anomalies (Glaser et al., 2004: 527). Drawing

from prospect theory, Kahneman and Tversky (1979) highlight that people are not entirely rational and do not make choices based solely on which option has more utility. For example, Rivoli (1995) maintains that investors' utility is not only maximised solely by profits, but social and moral values and ethicality can also be part of concerns influencing investors' behaviour. As an example, Islamic principles provide an ethical base in decision-making.

Given that Islamic principles relating to economic and business (*muamalat*) are derived from the cognitive system of Islam, which aims to shape the behaviour of individuals in the economic and financial realm. In the case of *Shari'ah* compliant investments, religious motive or Islamic logic is considered paramount to investor decision-making. Nonetheless, empirical studies are not conclusive on the relationship between religiosity as a perceived understanding and ethical decision as its articulated action (Vitell, 2009; Van Buren et al., 2020).

While religiosity is considered to have a linear relationship with ethical decisions (Conroy & Emerson, 2004), Oumlil and Balloun (2009) suggest a disconnection between the two. On the other hand, Kurpis et al. (2008) and Fathallah et al. (2020) generate a heterogeneous relationship depending on the context and the situation.

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However, ontologically, Islamic Moral Economy (IME) assumes a linear relationship between religiosity and *sadaqah* as a benevolent or virtuous giving within Islamic teaching in the journey of individuals in ‘becoming’ a part of the process of achieving salvation or *falah*.

In the Indonesian Capital Market setting, as part of Islamic offerings, Henan Putihrai Sekuritas (HPX) Syariah has drawn specific attention, where the *sadaqah* giving mechanism is embedded within its operation, whereby 20% of the company’s net fee-based income is distributed to social activities making them unique in comparison to the rest of the other providers. This *berkah* (blessing) programme is an interesting practice that facilitates *sadaqah* as an ethical act of a company to attract religiously motivated investors.

Sadaqah, as part of Islamic teaching and logic, stands for individual (voluntary) giving act in the form of altruism towards those in need and for other charitable causes for the sake of pursuing God’s blessing (Rasban and Abu Hasan, 2010; Kahf, 2009: 69) to reach *falah* (salvation) in this world and the hereafter. This form of giving aims to ensure social justice and equilibrium through *ihsan* (beneficence and sharing for social equilibrium) (Asutay, 2007a, 2007b), which is a key part of the articulation of religiosity.

By focusing on their innovative *sadaqah* payment facilitation programme, this study aims to examine whether an individual’s religiosity and the provision of the distinct *sadaqah* feature can significantly affect the trading behaviour of the investors while investing in *Shari’ah* stocks in HPX Syariah in the Indonesia *Shari’ah* Online Trading System (SOTS). In doing so, this study tests IME’s aspirational position that religiosity leads to ethical decision-making of investors in the form of *sadaqah* giving, where religiosity is considered a motivational source. The research also extends the analysis by conceptualising it through a discourse on market logic-based behavioural determinants of investor decisions. Accordingly, the following research questions are examined:

- (i) What factors significantly impact investors’ trading behaviour in HPX Syariah?
- (ii) Does assumed linearity between religiosity and *sadaqah* feature has a significant impact on investors’ trading behaviour?

As the aim and the research questions identify, this research does not examine the determinants of institutional or corporate giving, such as HPX Syariah. On the contrary, the aim is to identify the religiously motivated investors’ *sadaqah* giving behaviour through the facility created by HPX Syariah. Thus, institutional facilitation only plays an intermediary role, which is not the concern of this research.

Considering that this is the first empirical study examining the impact of charitable giving in Islamic capital markets, this research is both novel and innovative. This study contributes to the burgeoning research in Islamic finance, in particular by essentialising the social and behavioural aspects in the making of Islamic finance. After all, such substantive aspects of Islamic economics are neglected in Islamic finance research. This research will, therefore, contribute to the current literature by focusing on the factors influencing individual investors’ stock trading behaviour in *Shari’ah* online trading platforms. Since the *sadaqah* feature has recently been introduced by HPX as an innovation embedded in their trading platform, its success will pave the way for the expansion of practice whereby social welfare can be positively impacted.

The rest of the paper is organised as follows: the following section presents the context of the research by discussing the development of the *Shari’ah* stock market in Indonesia and its particularities, as well as HPX Syariah’s profile and performances. Section “[Religiosity and Ihsani Actualisation within Islamic Moral Economy: Theoretical Framework](#)” presents the theoretical framework in the form of IME, which, as a gift economy, suggests a direct relationship between religiosity and ‘giving’. Section “[Conceptualisation of Investors’ Trading Behaviour: Constituting Variables and Hypothesis Development](#)” develops the conceptual framework and presents the relevant variables for hypothesis development to operationalise the research. Section “[Research Methodology](#)” presents the research methodology, while Section “[Analysis and Findings](#)” reports the findings. Lastly, Section “[Discussion and Conclusion](#)” provides a summary and conclusion of the study.

The Development of the *Shari’ah* Stock Market and SOTS in Indonesia

The Indonesia Stock Exchange (IDX) launched the first Islamic Index called Jakarta Islamic Index (JII) in 2000 to enable investors to invest in the stock market in a *Shari’ah*-compliant manner. As shown in Table 1, in 2018, the number of *Shari’ah* stocks was 373, equivalent to 64.64% of the stocks listed in IDX of 577, which reached 532 or 58.72% of the stocks listed in IDX in October 2022. Meanwhile, the capital market capitalization included in the Indonesian *Shari’ah* Stock Index (ISSI) was Rp 3,481.04 trillion (\$ 259.78 billion), equivalent to 51.95% of the total market capitalization of all stocks of Rp 6,701.10 trillion (\$ 500.08 billion) in 2018, which increased to Rp 4,409.19 trillion (\$ 281.39 billion) or 46.82% of the total market capitalization of all stocks of Rp 9,416.77 trillion (\$ 600.98 Million) in 2022.

Table 1 The Growth of Indonesia's *Shari'ah* Stocks in 2018

Year	<i>Shari'ah</i> Stocks	Total Stocks Listed	Market Capitalisation (IDR Trillion)		Number of <i>Shari'ah</i> Stocks' Investors	
			Total Stocks Listed	<i>Shari'ah</i> Stocks	Numbers	Change
2011	237	440	3,537	1,968		
2012	300	459	4,217	2,616	531	
2013	312	483	4,219	2,558	803	51%
2014	316	506	5,228	2,947	2,705	237%
2015	318	521	4,873	2,601	4,908	81%
2016	331	537	5,722	3,249	12,283	150%
2017	365	566	7,052	3,705	23,207	89%
2018	373	577	6,701	3,481	44,536	92%
Oct-2022	532	906	9,417	4,409	114,116	156%

Data Source: OJK and IDX

Interestingly, the emergence of an online trading system motivated the issuance of a *fatwa* (*Shari'ah* injunction) in 2011, enabling the development of the online Islamic securities trading platform known as SOTS. This was followed by the launch of the Indonesia *Shari'ah* Stock Index (ISSI), including all the *Shari'ah* stocks listed in IDX. This *fatwa* will expand the number of *Shari'ah* stock trading participants in the IDX.

By September 2018, during which this study was conducted, 13 IDX securities companies had developed the SOTS platform. As depicted in Table 1, the number of *Shari'ah* investors increased from 531 in 2012 to 44,536 in 2018. The proportion of *Shari'ah* stock investors to the total investors in IDX experienced a significant increase from 0.7% in 2014 to 5.2% in 2018, with 851,622 total investors. The recent data for 2022 shows that 17 IDX securities companies developed the SOTS platform. As depicted in Table 1, the number of *Shari'ah* investors increased from 531 in 2012 to 114,116 in 2022.

Among SOTS platform providers, Henan Putihrai Sekuritas, with HPX Syariah as its brand name, officially launched the *berkah* (blessings) programme in November 2016. The uniqueness of this programme is that their

cooperation with the National Zakat Agency (BAZNAS) aims to facilitate *sadaqah* collection and then be distributed to the beneficiaries (*mustahiq*) through the Zakat Community Development Programme (ZCD), where *zakat* refers to mandatory almsgiving for Muslims with wealth beyond a certain threshold. This pioneering programme allows investors to 'indirectly' participate in charitable giving activities while transacting on *Shari'ah* stocks. The basis for the donation is 20% of the company's net fee-based income generated from each investor's transaction fee.

Table 2 presents the average monthly transaction in the SOST industry, which evidences the substantial increase in the number of investors and the transactional value. Due to the rise in the number of investors, the average transactional value for 2017 is lower than in 2015 despite the threefold increase in total monetary value.

As shown in Figure 1, the number of HPX Syariah investors has increased by more than 300% since its inception, reaching 536 investors at the end of 2017. It also depicts that there has been a rise in the value of trading volume generated, implying an increase in *sadaqah* contribution.

Table 2 Average monthly transaction in SOTS industry

	2015	2016	2017
Number of investors	4908	12,283	23,207
Transactions			
Value (IDR)	406,368,752,140	919,541,153,701	1,053,339,757,174
Frequency	60,037	150,674	33,107
Transactions per month per investor			
Value (IDR)	6,899,768.27	6,238,576.04	3,782,406.73
Average (IDR)	5,640,250.35		

Source: IDX

Religiosity and *Ihsani* Actualisation within Islamic Moral Economy: Theoretical Framework

Within the IME paradigm, Islamic ontology (and hence, Islamic logic) is expected to shape the behaviour of individuals in everydayness, including business transactions and supporting the needy, in an embedded sense leading to Islamic religiosity. This also underlines the definition of religiosity, which implies a commitment to the divine message and the extent by which an individual acts according to those rules in every sphere of life in an intrinsic or embedded manner (Allport & Ross, 1967; Arli & Lasmono, 2015; McDaniel & Burnett, 1990). Within Islamic ontology, *sadaqah* giving represents an aspect of religiosity.

welfare of all the stakeholders (Asutay & Yilmaz, 2018, 2021; Chapra, 2000; Mergaliyev et al., 2021).

As outlined in the theoretical framework presented in Figure 2, Islamic ontology is constituted through the ‘principles of Islam’ and the ‘articles of faith’ culminating into *tawhid*, which implies ‘complementarity’ and ‘unitarity’ (Al-Faruqi, 1992; Asutay, 2007a, 2019a, 2019b; Naqvi, 1981). Accordingly, the interests of all the stakeholders must be recognised in any action because all the stakeholders complement each other to achieve unitarity. *Tawhid* is articulated in *mizan* (order and balance) in the creation and the relationship between the creations, and all the activities must sustain this balance or equilibrium (Asutay, 2019a, 2019b).

By endogenizing the interest of all the stakeholders, *tawhid* is expressed through *adalah* (justice), which necessitates that since all the resources are created by Allah, human

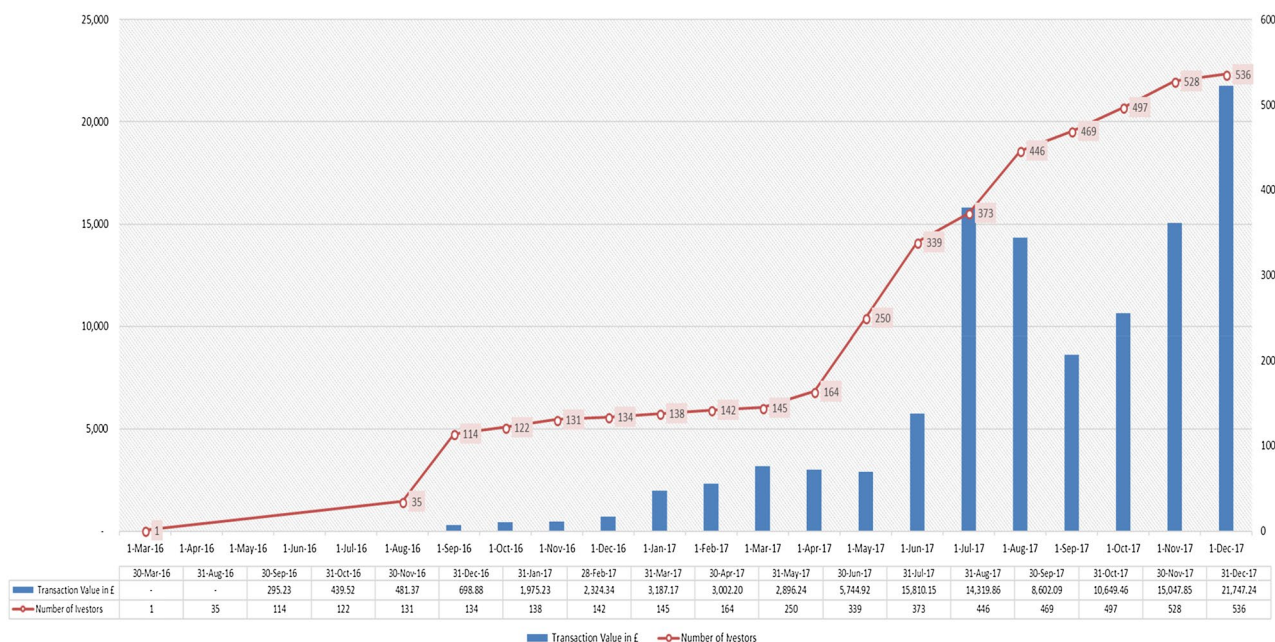


Fig. 1 Development of HPX Syariah transaction: value and investors. Source: Henan Putihrai Sekuritas (modified version)

Figure 2 illustrates the cognitive sources and intrinsic expression of such religiosity or *khilkiyya* (affirmed behaviour) (see: Sencal, 2017), leading to *tab'ay* (obedient) human beings. “To be a Muslim is a necessity but not a sufficient condition to be a Tab'ay” (Arif, 1989: 91). As shown in Figure 2, to be qualified as a *tab'ay*, one needs to operationalise Islamic principles in every aspect of their life to reach *falah* (salvation) in this world and hereafter through contributing to the betterment of the lives of others including sharing one's wealth (Asutay, 2007a, b, 2019a, b). Within the IME, as expressed through *maqasid al-Shari'ah*, any action has to be within the confinement of the well-being and social

beings must have equal access (Ahmad, 1979; Asutay, 2013, 2019a, 2019b; Naqvi, 1981, 1994). Therefore, *zakat* (almsgiving), as a mandatory giving institution ordained by the *Qur'an* and part of Islamic principles, functions as a compensation mechanism for those who are excluded from resources due to privatisation (and hence exclusion) (Asutay, 2019b).

Any departure from the *mizan* world is, therefore, considered disequilibrium, such as poverty, human rights violation, environmental crisis and corruption, including business fraud. To overcome the disruption, *ihsan* functions to establish equilibrium (Asutay, 2007b; Jan & Asutay, 2019), implying that those who are better off should contribute to

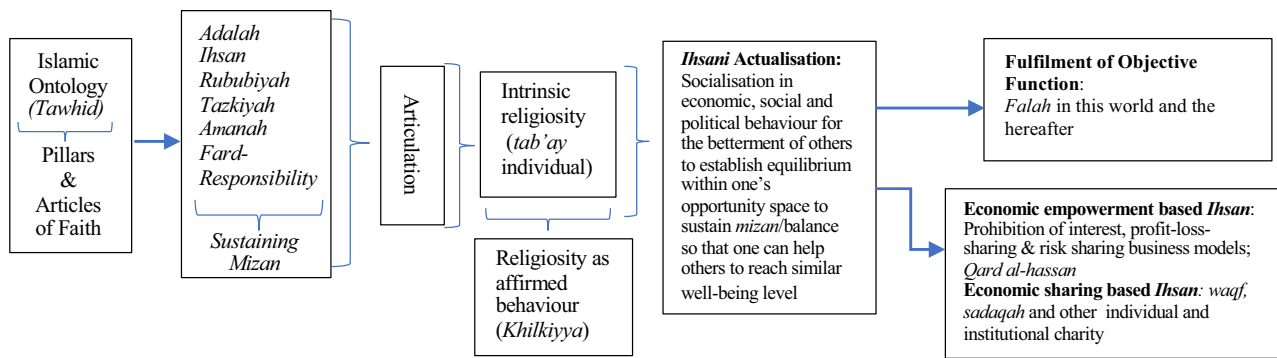


Fig. 2 Theoretical framework: religiosity and *Sadaqah* giving behaviour. Source: Asutay (2019a, b)

the lives of less fortunate ones to reach similar levels through sharing ethics or gift economy (Zaman, 2019).

Consequently, the Islamic cognitive system through *tazkiyah* (i.e., purification) suggests that the growth of individuals and businesses must be in harmony with other individuals and stakeholders (Ahmad, 1979; Asutay, 2007a, 2019a; Naqvi, 1981). This is because the *rububiyah* principle conditions that Allah created everyone and everything with a development path to reach their perfection so that *mizan* can be sustained (Ahmad, 1979; Naqvi, 1994; Asutay, 2007a, 2007b, 2018). Thus, *ihsani* governance aims to achieve the *mizan* or equilibrium in society by recognising the growing need of all the stakeholders (Asutay, 2019b; Jan & Asutay, 2019; Malik, 2016) and seeks to accomplish this with mandatory resource allocation such as *zakat*, and voluntary giving or *infaq* (virtuous giving) such as *waqf* (pious foundations) and *sadaqah* among others (Kahf, 2009). As depicted in Figure 2, Islamic intrinsic religiosity or *khilkiyya* is the articulation of acting according to such principles, namely the constitution of the *tab'ay* (obedient) individual.

The individual objective function is, thus, constituted with *falah* in this world and the hereafter (Khan, 1984). The degree of *falah* is subject to the extent to which one can give up among what they have for the emancipation of others, namely conducting *ihsan* (Asutay, 2019a, 2019b). The *ihsani* actualisation is expected to occur in every aspect of life within one's opportunity space. As illustrated in Figure 2, *ihsani* actualisation takes place through economic empowerment of the less well-off through structural solutions and sharing. As for the former, *riba* or interest prohibition, as well as related financing structures, can be given, including profit-and-loss and risk-sharing-based financing structures alongside *zakat*. Regarding the latter, *ihsani* actualisation takes place as 'giving away' from one's wealth, such as *waqf*, *sadaqah*, and other charitable giving alongside, as the Qur'anic verse suggests, rather than giving loan, offering it as a charity for seeking *falah*. Hence, *sadaqah*, as the subject of this paper, is considered part of voluntary giving 'for the sake of Allah' so that *falah* can be achieved through *ihsan*.

As explained in Figure 2, the theoretical framework, thus, implies a linear relationship between religiosity or *khilkiyya* in the form of *tab'ay* individual and *sadaqah* giving behaviour. In other words, *saqadah* is a consequence of the *ihsani* actualisation as required by intrinsic religiosity in Islam, even under the contemporary market logic. In this study, the analysis is based on this direct relationship facilitated through an institutional emergence, namely HPX Syariah in Indonesia.

Conceptualisation of Investors' Trading Behaviour: Constituting Variables and Hypothesis Development

Investors' investment decisions have drawn considerable academic attention. For example, the 'theory of reasoned action' (TRA) argues that social factors contribute to individual investors' excessive trading behaviour (Shanmugham & Ramya, 2012). Other studies have focused explicitly on various groups of factors such as accounting information (Das, 2012), self/firm-image coincidence (Al-Tamimi, 2006), neutral information (Nagy & Obenberger, 1994), advocate recommendation (Jagongo & Mutswenje, 2014), and personal financial needs (Ahmad, 2017). Similarly, risk-taking preferences are believed to significantly influence an individual's financial behaviour, which could affect the economic outcome (León & Pfeifer, 2013). It is also argued that people's economic preferences might be formed by religious beliefs and altruistic values, which implies that religiosity is one of the determinant factors (McCleary & Barro, 2006).

To develop the necessary variables for the survey to assemble primary data for this study, the literature review on the behavioural and investment decision literature aims to explore the determinants of individual investors' trading behaviour, including giving behaviour.

Variables and Hypotheses

Religious Belief and Stock Market Trading Behaviour

The impact of religious belief on economic and financial behaviour has been widely studied, acknowledging that individual social values and norms influence their economic and financial choices.

Within the behavioural economics and finance strand, individual choices are bounded by the social construction of economic activities instead of pure rational choice assumption. Thus, religiosity is an endogenous factor shaping the economy (Asutay, 2007a, 2007b, 2012), along with peoples' economic attitudes (Guiso et al., 2003). Previous studies in finance (Canepa & Ibnrubbian, 2014; Pan et al., 2015) also suggest that stock market volatility, investors' speculative behaviour and trading frequency have indirectly been driven by religious inclination. The indirect relationship is due to the individual's risk aversion level, where a negative correlation between religiosity and risk attitude is considered (Miller & Hoffmann, 1995). This means that the higher the level of individuals' religiosity, the lower the risk exposure degree (Hilary & Hui, 2009). This position was also supported by Seyyed et al. (2005) and Białkowski et al. (2012), where the reduction of market volatilities is material during high religiosity periods such as *Ramadhan* in a single country case on the stock market between 1985 and 2000 and 14 different Muslim countries. These results align with Tobin's (1958) view of the presence and interaction between religiosity and risk aversion in an investor's portfolio selection behaviour.

Several methods and techniques are proposed for assessing an individual's level of religiosity. Generally, it is measured by the degree of a belief in the afterlife (such as heaven and hell) (McCleary & Barro, 2006). However, particularly for Muslims, previous studies have tended to be based on the five pillars of Islam as the most popular methods for investigating through a religiosity index (El-Menouar, 2014). Hence, this theoretical background leads to the first hypothesis:

H1 *A statistically significant relationship exists between religiosity and individual investors' stock trading behaviour.*

Firm's Social Activities and its Impact on Investors' Behaviour

Indeed, institutionalist researchers have also raised interest in understanding how religion impacts logic in business, including investment (Van Buren III, 2020: 800; Gumusay et al., 2020; Fethallah et al., 2020). The primary position on the behaviour of the market actors is that they pursue self-interest and focus on maximising profit (Almandoz,

2012:1382). Nevertheless, institutionalists recognise the importance of belief and meaning in constructing shared logic that drives an actor's behaviour (Friedland & Alford, 1991: 249; Thornton and Occasio, 1999). In particular, Thornton et al. (2012) highlight that norms articulated from the divine is translated into codified rules, promoting social purpose and preventing harm.

One of the essential acts of social worship as part of Islamic religious ritual and worship that exemplifies not only the God-man relationship but also the human-to-human relationship is charitable giving (*infaq*) which is generally classified into two main categories: obligatory giving, namely *zakat*, which is part of the five pillars of Islam, and secondly voluntary giving termed as *sadaqah*.

Several studies have reported that charitable giving is an inevitable culture and part of humanity as a highly social being. For example, a field experiment in Morocco contends that charitable giving plays a crucial role in bringing about a 'social value system' between the giver and the receiver (Lambarraa & Riener, 2015). Although research in Islamic charitable giving (e.g. *sadaqah*) is not widely studied in the financial literature (Singer, 2008), recent studies on behavioural economics have figured out that economic preferences are responsive towards CSR programmes. In particular, Wang and Coffey (1992) found that stock ownership was positively associated with corporate charitable activities. Nevertheless, a potential conflict that could arise between religious logic and market capitalism cannot be ignored (Friedland & Alford, 1991).

On the one hand, a firm's religious giving act considered CSR might provoke the attention and concern of investor behaviour, influencing it in a contingent manner (Wang et al., 2011). Conversely, a conflict may arise between religious logic and market capitalism, as argued and evidenced in the study of Islamic banking (see: Asutay, 2007b, 2012; Hayat & Malik, 2014; Boone and Ozcan, 2016). As such, it is important to capture the condition since there has been no detailed prior investigation on the impact of CSR, particularly for Islamic trading platform providers. In particular, the case would suggest whether there is incompatibility or complementary (Gumusay, 2018). This helps to construct the second hypothesis:

H2 *A statistically significant relationship exists between the sadaqah feature in online trading and individual investors' stock trading behaviour partially affected by its religiosity.*

Trading Behaviour of Stock Market Investors

A considerable amount of literature on the behavioural aspects of individual investors' trading in the stock market exists as case studies, such as Americas' Fortune 500 firms (Nagy & Obenberger, 1994), Athens stock exchange

(Merikas et al., 2004), experienced investors in Canada (Wood & Zaichkowsky, 2004), UAE financial markets (Al-Tamimi, 2006), Malaysian investors (Chong & Lai, 2011), Indian individual equity investors (Sultana & Pardhasaradhi, 2012), Guwahati stock market (Das, 2012), Pakistan financial markets (Ahmad, 2017), Bangladesh stock market (Khan et al., 2015), and Nairobi stock exchange (Jagongo & Mutswenje, 2014).

Although there are some differences across different stock markets, the findings from these studies demonstrate that, in the main, there are six determining factors as being potentially significant in influencing individual investors' trading behaviour: risk aversion, accounting information, self/firm image coincidence, neutral information, advocate recommendation, and personal financial needs. The following section discusses these different categories of factors that affect individual investors' trading behaviour in the stock market.

Risk Aversion

Portfolio theory contends that investors have their own expectations of risk and return; thus, their portfolio selection and trading behaviour are based on risk-return preferences (Markowitz, 1952). In the finance field, it is assumed that investors are sufficiently risk-averse such that, given two investments with the same return and different levels of risk, they would choose the less risky investment. For example, a person with a high-risk aversion prefers to invest their capital into a low and stable interest rate instrument (e.g., bank deposit) rather than into a stock that may have a higher expected return but also involves a risk of losing value. Empirical results (Pindyck, 1988) demonstrate that individual investors have a unique degree of risk aversion, and hence they differ in trading motivations and behaviour.

Risk-averse investors tend to hold diverse assets to minimise the impact of market volatility (Barber & Odean, 2011). Hence, as stocks may not perform well at the same time, a diversified portfolio would generate a better investment outcome. In addition, risk-intolerant investors are those who do not do trading actively, but they keep monitoring their investment portfolio and are relatively influenced by the information from financial advisors (Wood & Zaichkowsky, 2004). Accordingly, the third hypothesis is developed:

H3 *A statistically significant relationship exists between risk aversion and individual investors' stock trading behaviour.*

Accounting Information

Although individual investors are probably the least informed users among a company's financial statement users, accounting information has attracted considerable attention in making their investment decision. As one form

of a company's management accountability, financial reporting may cover reports such as financial statements, expected earnings, prospectuses, annual reports, and a firm's valuation techniques. Some studies across the countries have also found that accounting information is important for investors' investment decision-making. For example, in the Saudi Arabian context, Al-Razeen and Karbhari (2004) investigated that the income statement and its balance sheet are the two most common references for investors. In addition, the annual report, which represents a more comprehensive version of firms' financial statements, is considered the essential factor for investors' investment decisions in the UAE (Alzarouni et al., 2011). Based on the presented literature, the fourth hypothesis is developed as follows:

H4 *H₄: A statistically significant relationship exists between accounting information and individual investors' stock trading behaviour.*

Self/Firm Image Coincidence

The self/firm image coincidence factors have been examined by Nagy and Obenberger (1994), including firms and their shareholder's reputation in the industry, the perceived ethical stance of a firm, and investors' feelings about firms' products and services. For example, Al-Tamimi (2006) explored the UAE equity market and among the result was self/firm image coincidence considered as the second most influential factor of individual investor behaviour, which includes elements like the gut feeling about the economy, investors' mentality of getting rich quickly and reputation of the firms in solving problems in the community.

The investors' demand for firms' social contribution to the community is also reported by Epstein and Freedman (1994) based on the survey of corporate shareholders using disclosures of the firm's annual report. Besides, some minority shareholders demanded that corporate performance reports on the ethical, environmental, and social activity should have been audited by external auditors (Adams, 2004). Similarly, the criteria on the subjective/personal image of individual Greek investors in the Athens stock market was ranked the second-highest factor after accounting information, with the 'get rich quick' choices appearing the highest and firms' political party affiliation as the lowest within the category (Merikas et al., 2004).

The firm image regarding its level of *Shari'ah* compliance could also be a determinant factor for individual investor trading behaviour. For example, a study highlighted by Farooq and Alahkam (2016) in the MENA region from 2005 to 2009 found that the status of *Shari'ah* compliance labelled a firm has a certain degree of advantage compared to those firms that are non-*Shari'ah* compliant. Furthermore, they documented that the performance between non-*Shari'ah*

firms and *Shari'ah* compliant firms was perceived differently by investors. Hence, with regard to the previous literature, this study develops the fifth hypothesis:

H5 *A statistically significant relationship exists between self/firm image coincidence and individual investors' stock trading behaviour.*

Neutral Information

Other factors—that might have an impact on individual investor trading behaviour are common information such as changes in a company's stock, government and politicians' statements, volatilities movement in the primary market indices, and some indicators of economic conditions—are considered as public or common information (Al-Tamimi, 2006). In addition, Nagy and Obenberger (1994) added neutral information, including financial press coverage and the historical performance of stock market prices.

In the case of individual investors in the UAE and Greek stock markets, neutral information was found to be in the third rank of the factor influencing their trading behaviour (Al-Tamimi, 2006; Merikas et al., 2004). However, according to Chong and Lai (2011), there was much more concern about the neutral information in the Malaysian stock market, which makes it one of the most influential factors among others. In fact, neutral information seemed to respond positively to the expected return. Thus, this discussion helps to formulate the sixth hypothesis:

H6 *A statistically significant relationship exists between neutral information and individual investors' stock trading behaviour.*

Advocate Recommendation

Social interaction has become an integral part of our daily activities. Information observed by one individual from others can transform a person's decision regarding social and economic activities (Bikhchandani et al., 1998). For example, retail investors often use social peers' advice and interaction when it comes to decision-making related to their investment (Cohen et al., 2007). Specifically, it is argued that stockholding and trading decision in the capital market is significantly affected by peer influence (Ouimet & Tate, 2017).

In addition, analysts' report, which represents the brokerage firm's recommendations, is believed to be associated with the investors' trading reactions. Such stock recommendation has been specifically defined by Francis and Soffer (1997: 198, emphasis added): "A recommendation is a statement of the analyst's belief about the stock's

intrinsic value relative to its market value; *therefore, a buy (sell) recommendation, whether new or reiterated, implies that the analyst believes the security is under-priced (over-priced), while a hold recommendation implies that the stock is fairly priced*".

Interestingly, the role of analyst reports from brokerage firms' recommendations can impact investor behaviour in two ways. First, the advice on selling stock would be perceived as holding the stock; and second, the recommendation on holding stock might be observed as selling the stock (Francis & Soffer, 1997). Accordingly, the seventh hypothesis is formulated as follows:

H7 *A statistically significant relationship exists between advocate recommendations and investors' stock trading behaviour.*

Personal Financial Needs

In fulfilling personal financial needs, efficient allocation of investment products is essential to obtain optimal growth of the returns while minimising risks at the same time. Thus, for an individual investor, the financial manager will determine their personal financial decisions to make investment portfolios from any capital they might have to gain personal net worth. Findings from other research asserted that personal financial needs are particularly relevant in determining individual investors' trading behaviour in the equity market. For example, Nagy and Obenberger (1994) found that the factors included in personal financial needs, among others, are the availability of funds needed for other investment or consumption purposes and diversification requirements. While it is essential to have a diversified portfolio to minimise risk, ease of borrowing funds and the rising attractiveness of non-stock investment alternatives could also be considered a group of variables that affect individual investor behaviour (Pocius et al., 2014).

In the case of the Greek and the UAE stock market, personal financial needs were among the least influential factors on individuals' trading behaviour (Al-Tamimi, 2006; Merikas et al., 2004). On the other hand, case studies in the Khulna City of Bangladesh (Khan et al., 2015) and the Indian IT sector (Koppa & Shalini, 2012) stock market demonstrate that personal financial needs were considered one of the most influential factors on the stock trading behaviour of individual investors. Based on the discussion, the last hypothesis is developed as follows:

H8 *A statistically significant relationship exists between personal financial needs and individual investors' stock trading behaviour.*

Conceptual and Operational Framework

In conceptualising and operationalising the research, the above literature review functions to identify factors that influence individual investor trading behaviour in HPX Syariah within the economic behavioural analysis. Thus, in line with the hypotheses, eight independent variables are constructed into a conceptual and operational framework depicted in Figure 3. The independent variables consist of: 'investors' level of religiosity', 'sadaqah feature in HPX Syariah', 'investor's risk aversion', 'accounting information', 'self/firm image coincidence', 'neutral information', 'advocate recommendation', and 'personal financial needs'.

The determining factors, as explained by these independent variables, are measured by the use of the questionnaire, while the dependent variable is represented by measuring investors' monthly trading transactions in HPX Syariah.

Research Methodology

Sampling

The individual investors undertaking stocks trading using the SOTS platform, especially in HPX Syariah, constitute the target population for the questionnaire design. There were 13 registered stock brokerage firms that provide the SOTS platform in Indonesia. The population of SOTS investors

was 29,670 by April 2018, while HPX Syariah itself was 536 investors by December 2017.

In administrating the questionnaire, this research adopted random sampling through which each investor in the SOTS platform and HPX Syariah had a chance to contribute to the survey. Consequently, the sample consisted of 64 SOTS Investors and 46 HPX Syariah Investors totalling 110 individual investors. Considering the small nature of the population, such a sample size should, nevertheless, be regarded as acceptable.

Survey Questionnaire: Data Generation and Variables

The primary focus of this study is to examine the behavioural factors (including religiosity and charitable giving) influencing individual investors' decisions in the Indonesian stock exchange. Therefore, we delineate our structured online questionnaire in Appendix Table A1, specifically designed to obtain data from both SOTS providers and HPX Syariah to capture information relating to individual investors' trading behaviour. Our data were collected from 1st May to 30th June 2018.

We constructed the questionnaire based on the indicators drawn from the literature review regarding those factors by which individual investors could be characterized. These include:

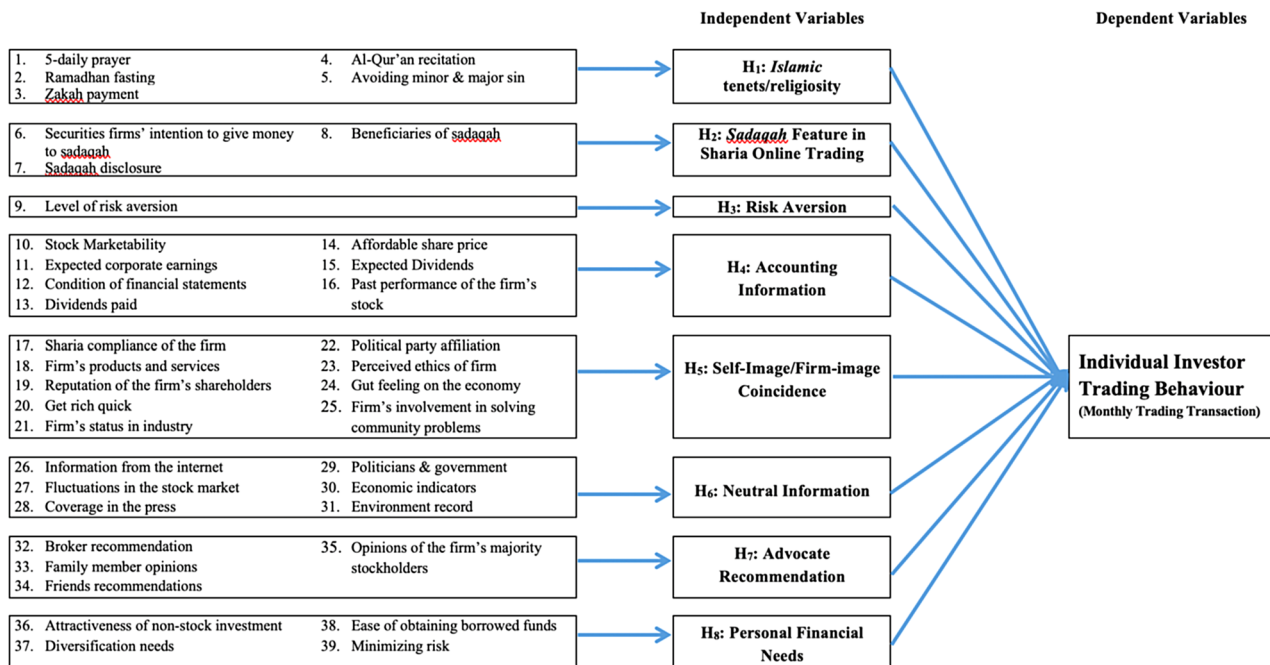


Fig. 3 Conceptual and operational framework

- (i) Investors' level of religiosity (Tobin, 1958; Seyyed et al., 2005; Pakeeza & Chishti, 2007; Dorn & Huberman, 2007; Jagodzinski, 2010; Kumar, 2009; Białkowski et al., 2012; Canepa & Ibnrubbian, 2014; Al-Khazali, 2014; Pan et al., 2015)
- (ii) *Sadaqah*/charity feature in the company's online trading platform (Balabanis et al., 1998; List, 2011; Wang & Coffey, 1992; Wang et al., 2011)
- (iii) Investor's risk aversion (Friedman & Savage, 1948; Markowitz, 1952; Lintner, 1965b; Miller, 1977; Pindyck, 1988; Decamps & Lovo, 2002; Wood & Zai-chkowsky, 2004; Barber & Odean, 2011)
- (iv) Accounting information (Baker & Haslem, 1973; Easley & O'hara, 1987; Hirshleifer & Teoh, 2003; Al-Razeen & Karbhari, 2004; Mirshekary & Sauda-garan, 2005; Alattar & Al-Khater, 2008; Alzarouni et al., 2011; Al-Ajmi, 2009; Sitinjak & Ghozali, 2012; Lerman, 2017)
- (v) Self/firm image coincidence (Adams, 2004; Al-Tamimi, 2006; Epstein & Freedman, 1994; Farooq & Alahkam, 2016; Merikas et al., 2004; Nagy & Obenberger, 1994)
- (vi) Neutral information (Winsen, 1976; Nagy & Oben-berger, 1994; Kutan & Aksoy, 2003; Merikas et al., 2004; Al-Tamimi, 2006; Chong & Lai, 2011; Farooq & Alahkam, 2016)
- (vii) Advocate recommendation (Shiller, 1984; Shiller & Pound, 1989; Francis & Soffer, 1997; Cohen et al., 2007; Brown et al., 2008, 2003; Bursztyn et al., 2012; Ouimet & Tate, 2017)
- (viii) Personal financial needs (Nagy & Obenberger, 1994; Merikas et al., 2004; Al-Tamimi, 2006; Horne & Wachowicz, 2008; Koppa & Shalini, 2012; Pocius et al., 2014; Khan et al., 2015; Visockaite & Ged-mintience, 2016).

In addition to the above variables, this study also added specific variables such as *Shari'ah* compliance, *sadaqah* giving and *saqadah* information disclosure, among others.

These eight independent variables were constructed into a theoretical framework to explore the factors of individual investors' trading behaviour. However, the questionnaire for other SOTS providers is slightly different from HPX Syariah, where the question on *the sadaqah* feature is in the form of a hypothetical question. The outline of the questions in the questionnaire illustrating the independent variables is summarised in table 3.

The questionnaire was then classified into two sections. The first section consisted of information regarding the demographic profile of the respondents, including their monthly trading transactions as a mandatory question. The second part intends to capture information about factors affecting individual investors' trading behaviour.

Table 3 Questionnaire structure

No.	Independent variables	No. of questions	Total ques-tions
1	Individuals' religiosity	12–16	5
2	Risk aversion level	17	1
3	Accounting information	18–24	7
4	Self/firm image coinci-dence	25–33	9
5	Neutral information	34–39	6
6	Advocate recommenda-tion	40–43	4
7	Personal financial needs	44–47	4
8	<i>Sadaqah</i> feature	48–50	3
Total Question			39

Regarding the measurement of the dependent variables, an open-ended question regarding individual investors' monthly trading transactions is used as the dependent variable. Due to utilizing the logistic regression method, individual investors' monthly trading transaction in terms of value is analysed further by scoring either '1' or '0' to differentiate which trading behaviour is considered active. For scoring purposes, this research uses the average monthly transaction in the SOTS industry over the last three years as the parameter. Based on Table 2, the average was approximately IDR 5.6 million. Hence, a score of '1' is given to investors with monthly trading transactions higher than 5.6 M and a score of '0' if the value of a monthly trading transaction is less than 5.6 M.

The remainder of the questionnaire comprised the ques-tions implying independent variables measurement used to explore the factors influencing individual investor trading behaviour. However, the questionnaire for SOTS providers is slightly different from HPX Syariah, where the question on the *sadaqah* feature is in the form of a hypothetical question.

The questionnaire was designed using six Likert-type scales ranging from (1) never, (2) very rarely, (3) rarely, (4) frequently, (5) very frequently, and (6) always. The primary purpose of using an even Likert scale is to avoid central tendency bias where the respondent only responds to the neutral or middle response category, which does not necessarily represent their real answer and eventu-ally becomes a false response (Bishop, 1987; Krosnick et al., 2002). The factors with a mean value less than 3 are deemed to have less impact on their trading behaviour, and greater than 3 is considered the most predominant factor of individual investors' trading behaviour.

Empirical Process and the Model

Exploratory factor analysis (EFA) is used to examine a measure's factor structure and the internal reliability of questionnaire instruments (Osborne, 2014). Generally, EFA is used for instruments (or scales) that have never been tested before (for their validity or reliability) (Osborne, 2014). Thus, considering that the questionnaire developed in this study is not entirely based on previous literature and has not been tested before, EFA is regarded as an efficient method. A validity test is used to measure factor structure, which is carried out to prove that the indicator can represent the variable well. According to Malhotra and Dash (2016), the indicator is considered valid and feasible if it has a Kaiser-Meyer-Olkin (KMO) value and the factor loading value in the component matrix is 0.5. However, Hair *et al.* (1998) added that the value of factor loading between 0.3 and 0.4 is still considered valid.

A reliability test is carried out to examine its internal reliability. The test refers to how the scale chosen by the respondent can provide consistent results if repeated measurements are carried out (Malhotra & Dash, 2016). High reliability indicates that the indicators or questions/statements have high consistency in measuring the latent variables. According to Malhotra and Dash (2016), each indicator in the questionnaire is considered reliable and consistent if it has a Cronbach's alpha value of 0.6. The results of the research questionnaire validity and reliability test can be seen in Table 4.

As shown in Table 4, all variables employed in this study are reliable because the value of Cronbach's alpha for all variables meets the value of 0.6. The highest reliability value is the *sadaqah* feature variable, with 0.931. Furthermore, all variables have a satisfactory result regarding the value of KMO and the factor loading. The highest validity value is the self-image/firm-image variable, with 0.834.

As for the econometric modelling, since the dependent variable is binomial, binary logistic regression is used to determine which factors significantly impact investors' trading behaviour in HPX Syariah. The regression model is as follows:

$$y = \beta_0 + \beta_1 IR + \beta_2 S + \beta_3 IRA + \beta_4 AI + \beta_5 IC + \beta_6 NI + \beta_7 AR + \beta_8 PFN + \varepsilon$$

where: y is investor monthly trading value, β_0 is constant value or interception, β_{1-8} is regression coefficient, IR is individual's religiosity, S is *sadaqah* feature, IRA is individual's risk aversion, AI is accounting information, IC is self/firm image coincidence, NI is neutral information, AR is advocate recommendation, PFN is personal financial needs, ε is the error term.

Analysis and Findings

As to the demographic profile of our respondents, it can be seen in Appendix Table A2 that out of 100 respondents, 76% are male, with 82% of them younger than 40 years of age, 55% of the respondents unmarried, 50% possessed an undergraduate degree, 85% were working in the public sector, with 62% earning less than IDR 5 million per month, and lastly, 81% have less than 3 years experience in the capital market.

Ranking of Factors Influencing Individual Investors' Trading Behaviour

This study has identified six main factors influencing individual investors' trading behaviour in SOTS and HPX Syariah: accounting information, self/firm image coincidence, neutral information, advocate recommendation, personal financial needs, and the *sadaqah* feature.

Investors' Trading Behaviour in SOTS Providers

As outlined in Table 5, out of 64 SOTS investors, all the factors are considered a determining factor in influencing their stock trading behaviour because all the mean values are greater than 3. There are three main findings that we can draw from the table. First, it is argued that the most influential factor is accounting information, with the highest mean value of 4.482. The result implies that most investors commonly employed this type of information by considering stock marketability, expected corporate earnings, financial statement condition, dividends paid, affordable share price, expected dividends, and past performance of the firm's stock.

Second, although the *sadaqah* feature does not exist in other SOTS trading platforms, surprisingly, the mean value of the *sadaqah* feature is considerably higher (4.390). This would imply that investors would have considered the *sadaqah* feature in their stock trading activities if it had been included in their trading platform. Third, information from the internet, fluctuations in the stock market, coverage in the press, statements from politicians and government officials, economic indicators, and corporate environmental news are considered essential factors in influencing individual investors' trading behaviour. These six items can be named the 'neutral information' factor, which has 4.359 of the mean value.

Furthermore, Table 6 presents the analysis of more specific information on each variable that is the most and the least influencing factor on the trading behaviour of SOTS individual investors. The table shows the relative

Table 4 Validity and reliability test

Variables	KMO	Cronbach's Alpha	Indicators	Component matrix (factor loadings)
Religiosity Index	0.662	0.743	RI1	0.825
			RI2	0.907
			RI3	0.704
			RI4	0.701
			RI5	0.398
Risk aversion level			RAL	1
Accounting information	0.672	0.804	AI1	0.454
			AI2	0.663
			AI3	0.678
			AI4	0.780
			AI5	0.641
			AI6	0.775
			AI7	0.747
Self-Image/Firm-Image	0.834	0.892	SI1	0.799
			SI2	0.857
			SI3	0.776
			SI4	0.522
			SI5	0.831
			SI6	0.329
			SI7	0.915
			SI8	0.881
			SI9	0.726
Neutral Information	0.597	0.830	NI1	0.795
			NI2	0.891
			NI3	0.896
			NI4	0.357
			NI5	0.702
			NI6	0.772
Advocate recommendation	0.657	0.701	AR1	0.583
			AR2	0.842
			AR3	0.852
			AR4	0.587
Personal financial needs	0.701	0.768	PFN1	0.751
			PFN2	0.868
			PFN3	0.752
			PFN4	0.699
Sadaqah features	0.679	0.931	SF1	0.938
			SF2	0.973
			SF3	0.905

importance of the influence of each factor by examining the frequency distribution of each variable. Accordingly, the three most influential factors by order of its importance are the affordability of share price (92.19%), condition of financial statements (87.5%), and past performance of the firm's stock (85.94%). Hence, the result is consistent with the previous analysis that the accounting information, such as the firm's share price, financial statement conditions,

and historical firms' stock price provides an important role in the SOTS investors' stock trading activities. In addition, the economic indicators (87.5%) are also considered important by individual investors in SOTS providers. This perhaps reveals that individual investors in SOTS providers have paid substantial attention to how future economic trends are likely to behave to help them towards their stock trading activities.

Table 5 Descriptive statistics of the variables influencing individual investors' trading behaviour in SOTS providers

Variables	Mean	SD
Accounting Information	4.482	0.839
<i>Sadaqah Feature</i> in SOTS (Hypothetical)	4.390	1.339
Neutral Information	4.359	0.946
Self/firm image coincidence	4.163	0.891
Personal Financial Needs	3.695	1.086
Advocate Recommendation	3.336	1.083

Another significant finding suggests that *Shari'ah* compliance of the firm (with 84.38%) plays an important role in influencing individual investors' trading behaviour in SOTS providers. This indicates that individual investors in SOTS are concerned about the firms' status governed by *Shari'ah* principles. Consistently, more than 73% of the respondents in SOTS providers confirm that a *sadaqah* feature in their trading platform can influence their stock trading behaviour. Finally, among the least considered factors shaping individual investors' trading behaviour in SOTS providers are family member opinions and ease of obtaining borrowed funds (69%). Political party affiliation (61%) and friends' recommendations (56%) are considered less critical when individual investors were making a stock trading decision on the SOTS platform.

Table 6 Frequency distribution of the factors influencing individual investors' trading behaviour in SOTS providers

(4–6 Likert scale)		Most influential factors	(1–3 Likert scale)	Least influential factors	
%	Rank		%	Rank	
92.19%	1	Affordable share price	69%	1	Family member opinions
87.50%	2	Condition of financial statements	69%	2	Ease of obtaining borrowed funds
87.50%	3	Economic indicators	61%	3	Political party affiliation
85.94%	4	Past performance of the firm's stock	56%	4	Friends recommendations
84.38%	5	<i>Shari'ah</i> compliance of the firm	53%	5	Opinions of the firm's majority stockholders
84.38%	6	Fluctuations in the stock market	53%	6	Attractiveness of non-stock investment
82.81%	7	Expected corporate earnings	50%	7	Get rich quick
82.81%	8	Gut feeling on the economy	42%	8	Broker recommendation
79.69%	9	Firm's products and services	41%	9	Statements from politicians and government officials
79.69%	10	Information from the internet	38%	10	Diversification needs
79.69%	11	Coverage in the press	34%	11	Dividends paid
78.13%	12	Firm's status in industry	34%	12	Expected Dividends
78.13%	13	Minimizing risk	34%	13	Firm's involvement in solving community problems
76.56%	14	Stock Marketability	28%	14	Firm's products and services
76.56%	15	Corporate environmental news	27%	15	<i>Sadaqah</i> Feature (hypothetical)
75.00%	16	Perceived ethics of firm	25%	16	Perceived ethics of firm
73.17%	17	<i>Sadaqah</i> Feature (hypothetical)	23%	17	Stock Marketability
71.88%	18	Firm's products and services	23%	18	Corporate environmental news
65.63%	19	Dividends paid	22%	19	Firm's status in industry
65.63%	20	Expected Dividends	22%	20	Minimizing risk
65.63%	21	Firm's involvement in solving community problems	20%	21	Firm's products and services
62.50%	22	Diversification needs	20%	22	Information from the internet
59.38%	23	Statements from politicians and government officials	20%	23	Coverage in the press
57.81%	24	Broker recommendation	17%	24	Expected corporate earnings
50.00%	25	Get rich quick	17%	25	Gut feeling on the economy
46.88%	26	Opinions of the firm's majority stockholders	16%	26	<i>Shari'ah</i> compliance of the firm
46.88%	27	Attractiveness of non-stock investment	16%	27	Fluctuations in the stock market
43.75%	28	Friend's recommendations	14%	28	Past performance of the firm's stock
39.06%	29	Political party affiliation	13%	29	Condition of financial statements
31.25%	30	Family member opinions	13%	30	Economic indicators
31.25%	31	Ease of obtaining borrowed funds	8%	31	Affordable share price

Investors' Trading Behaviour in HPX Syariah

According to Table 7, considering that all the factors have a mean score greater than 3, the sample of 46 investors in HPX Syariah perceived that those factors impact their trading behaviour. First, similar to other SOTS providers, accounting information (4.180) and neutral information (4.178) have become the two most influential considerations for individual investors' trading behaviour in HPX Syariah.

Second, *Shari'ah* compliance of the firm, the firm's products and services, the reputation of the firm's shareholders, getting rich quickly, the firm's status in the industry, political party affiliation, perceived ethics of the firm, gut feeling on the economy, and firm's involvement in solving community problems are among the required information for individual investors in HPX Syariah as it can be helpful in their stock trading activities. These nine items can be grouped as 'self/firm image coincidence' with a mean value of 3.966. Finally, the *sadaqah* feature in HPX Syariah (3.833) is not perceived as necessary as in the SOTS providers (4.390). This would indicate that even when the *sadaqah* feature is offered, investors would still consider it as a factor that can influence their trading behaviour. However, when the *sadaqah* feature was implemented in their trading platform, unfortunately, the data shows that it was not valuable.

Essentially, Table 8 describes the breakdown of the six categories of the variables. Further detailed information is provided in HPX Syariah because the *sadaqah* feature consists of three factors: the firms' intention to give *sadaqah*, *sadaqah* disclosure, and beneficiaries of *sadaqah*. The calculation of frequencies, percentage, and rank of all 33 factors indicate each factor's importance in influencing individual investors' trading behaviour in HPX Syariah. Accounting information, particularly the stock marketability and affordable share price, are ranked high for being the most important determinant factor in influencing individual investors' trading behaviour, achieving 80.43% and 76.09%, respectively, in the HPX Syariah context.

In addition, the second most important factor respondents regarded to have a notable influence on their trading behaviour came out to be the firms' products and services

Table 7 Descriptive statistics of the variables influencing individual investors' trading behaviour in HPX Syariah

Variables	Mean	SD
Accounting Information	4.180	0.944
Neutral Information	4.178	0.963
Self/firm image coincidence	3.966	0.998
Sadaqah Feature in HPX Syariah	3.833	1.440
Personal Financial Needs	3.571	1.128
Advocate Recommendation	3.462	1.031

and economic indicators, with the same high percentage of 78.26%. Finally, the third most influencing factor, categorised as highly affecting investor trading behaviour in HPX Syariah, shares the same frequency distribution of 76.09% of the total respondents. These factors belong to the firm's status in the industry, gut feeling about the economy, stock market fluctuations, and press coverage.

Although the frequency distribution of the firm's *Shari'ah* compliance was more than 50%, the individual investors in HPX Syariah placed less emphasis on the *Shari'ah* compliance of the firm (67.39%) compared to the general investors in other SOTS providers. The relative importance of *sadaqah* beneficiaries, securities firms' intention to give *sadaqah*, and *sadaqah* disclosure, which correspond to a *sadaqah* feature in HPX Syariah, weights 60.87%, 58.70%, and 54.35%, respectively. This essentially means that individual investors in HPX Syariah were far more likely to consider the *sadaqah* feature as factors affecting their trading behaviour, mainly the information on where the *sadaqah* was allocated, followed by the intention of HPX Syariah in giving part of their fee-based transaction as *sadaqah*, and the disclosure on *sadaqah* distribution.

Lastly, family members' opinions, opinions of the firm's majority stockholders, and friends' recommendations were among the least important factors affecting the HPX Syariah individual investors. These three factors can be categorised as 'advocate recommendation' with a frequency distribution of 69.57%, 60.87%, and 56.52%, respectively. The findings indicate that individual investors in HPX Syariah were more self-reliant in their trading activities instead of overly dependent on other parties' views.

Identifying the Trading Behaviour of Investors in HPX Syariah

This section aims to elaborate on the constructed logistic regression model results to identify which factors have a significant impact on influencing individual investors' trading behaviour in HPX Syariah. Prior to performing the analysis and hypothesis testing, descriptive statistics are presented to ensure that the data meet the assumptions commonly found in quantitative research.

Table 9 presents the summary statistics, showing that the null hypothesis (H_0) means the data are symmetric and normally distributed. The results of the JB normality test show that each variable has a normal distribution ($p > 5\%$), indicating that the data have no unit root, and hence the series remain stationary.

Table 10 illustrates the multicollinearity test among the independent variables, which shows that all variables are independently correlated and insignificantly different from 0 at a 1% significance level ($p > 1\%$), indicating no multicollinearity issue.

Table 8 Frequency distribution of the factors influencing individual investors' trading behaviour in HPX Syariah

(4–6 Likert scale)		Most influential factors	(1–3 Likert scale)		Least influential factors
%	Rank		%	Rank	
80.43%	1	Stock Marketability	69.57%	1	Family member opinions
78.26%	2	Firm's products and services	65.22%	2	Attractiveness of non-stock investment
78.26%	3	Economic indicators	60.87%	3	Opinions of the firm's majority stockholders
76.09%	4	Affordable share price	58.70%	4	Political party affiliation
76.09%	5	Firm's status in industry	56.52%	5	Friend's recommendations
76.09%	6	Gut feeling on the economy	54.35%	6	Diversification needs
76.09%	7	Fluctuations in the stock market	52.17%	7	Get rich quick
76.09%	8	Coverage in the press	52.17%	8	Ease of obtaining borrowed funds
73.91%	9	Expected corporate earnings	45.65%	9	Statements from politicians and government officials
73.91%	10	Broker recommendation	45.65%	10	<i>Sadaqah</i> disclosure
73.91%	11	Minimizing risk	43.48%	11	Dividends paid
69.57%	12	Firm's products and services	41.30%	12	Corporate environmental news
69.57%	13	Perceived ethics of firm	41.30%	13	Securities firms' intention to give money to <i>sadaqah</i>
69.57%	14	Information from the internet	39.13%	14	Beneficiaries of <i>sadaqah</i>
67.39%	15	Past performance of the firm's stock	36.96%	15	Expected Dividends
67.39%	16	<i>Shari'ah</i> compliance of the firm	34.78%	16	Condition of financial statements
65.22%	17	Condition of financial statements	34.78%	17	Firm's involvement in solving community problems
65.22%	18	Firm's involvement in solving community problems	32.61%	18	Past performance of the firm's stock
63.04%	19	Expected Dividends	32.61%	19	<i>Shari'ah</i> compliance of the firm
60.87%	20	Beneficiaries of <i>sadaqah</i>	30.43%	20	Firm's products and services
58.70%	21	Corporate environmental news	30.43%	21	Perceived ethics of firm
58.70%	22	Securities firms' intention to give money to <i>sadaqah</i>	30.43%	22	Information from the internet
56.52%	23	Dividends paid	26.09%	23	Expected corporate earnings
54.35%	24	Statements from politicians and government officials	26.09%	24	Broker recommendation
54.35%	25	<i>Sadaqah</i> disclosure	26.09%	25	Minimizing risk
47.83%	26	Get rich quick	23.91%	26	Affordable share price
47.83%	27	Ease of obtaining borrowed funds	23.91%	27	Firm's status in industry
45.65%	28	Diversification needs	23.91%	28	Gut feeling on the economy
43.48%	29	Friends recommendations	23.91%	29	Fluctuations in the stock market
41.30%	30	Political party affiliation	23.91%	30	Coverage in the press
41.30%	31	Opinions of the firm's majority stockholders	21.74%	31	Firm's products and services
34.78%	32	Attractiveness of non-stock investment	21.74%	32	Economic indicators
30.43%	33	Family member opinions	19.57%	33	Stock Marketability

Table 9 Descriptive statistics

Variables	Mean	Max	Min	SD	Prob JB	Prob ADF	Obs
Religiosity	3.9782	5.0000	2.0000	0.7742	0.3280	0.0001	46
<i>Sadaqah</i> Feature	3.2826	6.0000	1.0000	1.4245	0.6176	0.0000	46
Risk Aversion	3.2826	5.0000	1.0000	1.2412	0.2410	0.0001	46
Accounting Information	4.5434	6.0000	1.0000	1.2945	0.4284	0.0001	46
Self/Firm Image Coincidence	4.2826	6.0000	1.0000	1.4245	0.3001	0.0000	46
Neutral Information	4.3043	6.0000	1.0000	1.4278	0.3584	0.0000	46
Advocate recommendation	4.3695	6.0000	1.0000	1.2885	0.2635	0.0001	46
Personal financial needs	3.7608	6.0000	1.0000	1.4934	0.5619	0.0000	46

Table 10 Multicollinearity test

Variables	Accounting information	Advocate recommendation	Neutral information	Personal financial needs	Religiosity	Risk aversion	Sadaqah feature
Advocate recommendation	0.3698 0.0114						
Neutral information	0.3774 0.5208	0.5776 0.4050					
Personal financial needs	0.4595 0.0113	0.3356 0.0226	0.1078 0.4756				
Religiosity	-0.0101 0.9468	0.0750 0.6201	0.0865 0.5675	-0.0814 0.5904			
Risk aversion	0.1235 0.4133	-0.0111 0.9412	0.0005 0.9971	0.0372 0.8058	0.0990 0.5126		
Sadaqah feature	0.0956 0.5273	0.3413 0.0203	0.5467 0.0197	0.2518 0.0914	0.0459 0.7615	0.2303 0.1236	
Self/Firm image coincidence	0.3004 0.0425	0.5471 0.0128	0.6559 0.1440	0.3040 0.0400	0.2273 0.1287	0.1423 0.3453	0.5072 0.0138

Table 11 Heteroskedasticity test

Heteroskedasticity test: White			
Obs*R-squared	46.00000	Prob. Chi-Square (44)	0.3894
Scaled explained SS	48.83067	Prob. Chi-Square (44)	0.2851

A summary of the heteroskedasticity test is presented in Table 11, indicating H_0 's rejection since Prob. Chi-Square is higher than 5%. Hence, the data fulfil the homoscedasticity assumption at a 5% significance level.

Finally, for autocorrelation purposes, the Durbin-Watson test results ($d_L=0.074$ and $d_U=1.768$) imply H_0 was not rejected at the 5% significance level, indicating no autocorrelation.

In the logistic regression-based analysis, the dependent variable in this paper is the individual investors' monthly trading value labelled as 'MT'. The independent variables include religiosity (RLG), *sadaqah* feature (SF), risk aversion (RA), accounting information (AI), self/firm image coincidence (SFI), neutral information (NI), advocate recommendation (AR), and personal financial needs (PFN). Table 12 displays the results from the logistic regression analysis of investors' trading behaviour in HPX Syariah.

If the RLG, SF, RA, AI, SFI, NI, AR, and PFN can be 0, then we would expect that the monthly trading transaction (MT) of 1.048, while RLG with a negative coefficient of 1.910 means that if RLG increases by 1% (*ceteris paribus*), then the MT decreases 1.910 points. As the results demonstrate, SF with a coefficient of 1.7954 means that if SF increases by 1% (*ceteris paribus*), then the MT increases by 1.7954 points, while RA with a negative coefficient of

0.2353 means that if RA increases by 1% (*ceteris paribus*), then the MT decreases 0.2353 points.

As shown in Table 12, AI with a coefficient value of 1.3486 means that if AI increases by 1% (*ceteris paribus*), then the MT increases by 1.3486 points. Similarly, the coefficient of 0.4216 for SFI implies that if SFI increases by 1% (*ceteris paribus*), then the MT increases by 0.4216 points, while NI with the negative coefficient of 2.7343 means that if NI increases by 1% (*ceteris paribus*), then the MT decreases 2.7343 points. Furthermore, AR with a coefficient value of 1.4975 means that if AR increases by 1% (*ceteris paribus*), then the MT increases by 1.4975 points, while PFN with a negative coefficient of 1.414 implies that if PFN increases by 1% (*ceteris paribus*), then the MT decreases 1.414 points.

From the findings in Table 12, the *p*-value for religiosity indicates that religiosity has a significant impact on the individual investors' trading behaviour in HPX Syariah, as we rejected the null hypothesis at a 10% significance level. It is also found that the relationship between investors' religiosity and their trading behaviour is negative, which indicates that the more religious HPX Syariah investors are, the less likely they become active stock traders.

Sadaqah feature, a distinctive feature of HPX Syariah compared to other SOTS providers, was found to have a significant impact in influencing HPX Syariah investors' trading behaviour as the null hypothesis is rejected at a 5% significance level. Furthermore, having a positive relationship between the *sadaqah* feature and investors' trading behaviour made the factor of securities firms' intention to give *sadaqah*, the disclosure of *sadaqah* distribution, and the information on its beneficiaries relevant

Table 12 Logistic regression analysis

Logistic regression		Number of obs = 46				
Log likelihood = -9.1308093		LR chi2(8) = 17.36				
		Prob > chi2 = 0.0266				
		Pseudo R2 = 0.4874				
Monthly transaction	Coef	Std. Err	Z	P > z	[95% Conf. Interval]	
Religiosity	-1.9109	1.16	-1.64	0.10*	-4.19	0.36
<i>Sadaqah</i> Feature	1.7954	0.86	2.08	0.03	0.10	3.48
Risk Aversion	-0.2353	0.59	-0.40	0.69	-1.39	0.92
Accounting Information	1.3486	0.72	1.87	0.62*	-0.06	2.76
Self/Firm Image Coincidence	0.4216	0.94	0.45	0.65	-1.43	2.27
Neutral Information	-2.7343	1.39	-1.96	0.05**	-5.46	0.00
Advocate Recommendation	1.4975	1.09	1.37	0.16	-0.63	3.63
Personal Financial Needs	-1.4146	0.76	-1.85	0.65*	-2.91	0.08
_cons	1.0480	5.24	0.20	0.84	-9.22	11.32

*, **, *** denotes significance at 10%, 5%, and 1% respectively

for individual investors to trade more actively within HPX Syariah platform.

Based on the regression result for the risk aversion factor, we cannot reject the null hypothesis at a 10% significance level. The results suggest that the more risk-averse HPX Syariah investors were, the less trading behaviour would tend to be. This means that the relationship between risk aversion and investors' trading behaviour in HPX Syariah was negatively correlated but insignificant.

The regression results also indicate that individual investors in HPX Syariah have been using accounting information, as the results produced a positive correlation on their stock trading transactions. Furthermore, the null hypothesis for accounting information is rejected since the *p*-value is less than 10% significance level. Therefore, it can be argued that individual investors' trading behaviour in HPX Syariah is also influenced by accounting information such as stock marketability, expected corporate earnings, condition on the financial statement, information on dividends paid, affordable share price, expected dividends, and the historical performance of firms' stock.

Similar to the risk aversion factor, the self/firm image, which includes *Shari'ah* compliance of the firm and the intention of the investors to get rich quickly, was also considered the insignificant factor in influencing individual investors' trading behaviour in HPX Syariah. Since the *p*-value is greater than the 10% significance level, and hence the null hypothesis is not rejected. However, the relationship between self/firm image and individual investors' trading behaviour in HPX Syariah is positive, implying that a better firm reputation attracts more investors to trade more frequently with that firm.

The result for neutral information interestingly appeared to be one of the significant factors in influencing individual investors' trading behaviour in HPX Syariah because the null hypothesis is rejected at a 5% significance level. The correlation coefficient is also negative, which means that the more the individual investors in HPX Syariah rely on economic indicators, fluctuations in the stock market, and information from the internet, the less likely they tend to trade their stock more actively.

Another factor to be considered is advocate recommendations covering opinions from majority stockholders, recommendations by the broker, family members, and friends. Despite the positive relationship with the trading behaviour, we do not reject the null hypothesis as the *p*-value is greater than the 10% significance level, indicating that the advocate recommendation is not significant in influencing individual investors' trading behaviour in HPX Syariah. Consistently, this observation conveyed that those individual investors in HPX Syariah are more independent and tend to take less guidance from others.

Finally, as the findings indicate, personal financial need is significantly related to individual investors' trading behaviour in HPX Syariah, as the null hypothesis at the 10% significance level was rejected. In addition, the correlation is negatively correlated, implying that the more the investors in HPX Syariah are concerned with minimising risk, diversification, and other personal financial needs, the less is their stock trading activity.

Discussion and Conclusion

As the preceding analysis and discussion identifies, factors that were found to be the most influencing determinants for SOTS investors in their trading behaviour by its order of importance are affordability of share price, condition of financial statements, economic indicators, past performance of firms' stock, and *Shari'ah* compliance of the firm. In contrast, the least influencing factors on their trading behaviour were found as family members' opinions, ease of obtaining borrowed funds, political party affiliation, friends' recommendations, and opinions of firms' majority stockholders. Thus, the most influencing factors on trading behaviour from the perspective of individual investors in HPX Syariah are stock marketability, the firm's product and services, economic indicators, affordable share price, and the firm's status in the industry. Conversely, factors considered to have the least impact on their trading behaviour include family members' opinions, the attractiveness of non-stock investment, opinions from firms' majority stockholders, political party affiliation, and friends' recommendations. Moreover, accounting information also significantly determines investment behaviour. Interestingly, contrary to expectation, the results confirm the importance of market logic in investor decision-making as opposed to substantial morality-based action essentialised by the IME.

Moreover, in this study, we find that religiosity is significantly and negatively correlated with investors' trading behaviour, which is contrary to Asytuti (2016), who investigated Muslim investors in Central Java. She observed that being religious does not necessarily result in choosing Islamic financial instruments in the capital market, as profit-seeking motives and rationality are the primary consideration. This can be explained by the emerging moralities expressed through hybrid identities, namely by the prevailing market logic.

The findings further indicate that the presence of the *sadaqah* feature in HPX Syariah was considered less influential than individual investors in SOTS, which have been given a hypothetical question if there was a *sadaqah* feature in their platform. This result confirms that religiosity does not always lead to certain ethical preferences, such as the *sadaqah* feature. Therefore, in the *homoIslamicus* and *homoeconomicus* comparison, the calculative and performative economy appears to be the winner, as in Islamic banking (Asutay, 2007b). This conclusion is strengthened further by observing the level of importance of *sadaqah* in HPX Syariah that is lower than in SOTS. This means that the feature is more important when not posed than when it is part of the feature, such as in HPX Syariah.

This study also highlighted that for investors who do not yet have the *sadaqah* feature available in their trading

platform, hypothetically, the *sadaqah* feature would have been essential for them (SOTS users). However, given that HPX Syariah users have access to it, the feature becomes seemingly less critical. This result suggests a gap between reality (experienced-based) and investors' expectation of the presence of the *sadaqah* feature in influencing their trading behaviour, pointing out what Howell (2005) considers as form-based religiosity.

Regarding the potential impact of fee structure on the determining nature of the *sadaqah* feature being less influential in HPX investors compared with non-HPX, this stems from the argument that HPX may be more expensive, and investors may be paying or subsidizing part of 20% of their earnings. It should be noted that the median of buying and selling stocks that are most widely charged by securities companies is 0.15% for buying transactions and 0.25% for selling transactions. Similarly, HPX also charges transaction fees to its investors. The fee structure of the provider for buying and selling stocks is also different. For buying stocks, HPX charges 0.18% of the transaction value.

Meanwhile, for selling stocks, the fee charged is 0.28% of the transaction value. Based on the mean and standard analysis, the mean value of the *sadaqah* feature was considerably high (second-best after accounting information). This implies that investors would have considered the *sadaqah* feature in their stock trading activities if it had been included in their trading platform. In addition, the regression results indicate that the *sadaqah* feature was considered the most influential as the null hypothesis is rejected at a 5% significance level.

Despite the findings, the image of HPX Syariah giving *sadaqah* increases its attractiveness. In other words, investors may not act upon such ethical qualities, yet they observe such attributes in their dealing with firms and other individuals. Hence, *sadaqah* facilitation can help to develop giving behaviour amongst investors. This argument bodes well with Indonesian society, which is generally concerned about social conduct. Particularly in charitable activities, Charities Aid Foundation reported that Indonesia was ranked second in the World Giving Index, replacing the US with a 4% points gap (Low, 2017).

Reflecting on the results concerning the less significant nature of the *sadaqah* feature among HPX investors, this could be because *sadaqah* is voluntary, even though it can help with the *falah* process through *ihsan*. The results evidence hybrid and emerging ethicalities within the Islamic finance and *halal* market landscape (Sencal & Asutay, 2019).

This deviation reflects the current situation among the Muslim population that they have not embedded themselves in the Islamic value system in their everydayness of economic and financial matters. Therefore, the lived experience differs from expressed interest, as when active participation is expected, the actualisation of the initially expressed behaviour does not

occur. This is substantiated by Howell (2005), who stated that Indonesian religiosity still emphasises form over substance, which implies that normative conceptions of religion have not been readily embodied within their everydayness. Tamney (1980), who observed religiously active Muslims of Java, argued that the behavioural bias in the religious commitment could be attributed to modernisation and the development of urban life. Consequently, emerging hybrid identities result in new moralities instead of essentialised morality (Sencal & Asutay, 2019).

Regarding the theoretical implication vis-à-vis IME or Islamic logic vs market logic debate in individual economic behaviour and business ethics, the divergence between contemplation and action has been shaping the emerging nature of economic moralities in the Muslim world, including in Indonesia regardless of the substantial morality essentialised nature of IME (among others, Asutay, 2007a, 2007b, 2012). In other words, on the one hand, the IME's deductive process of defining economic and financial behaviour is in line with Islamic ontology referring to Islamic logic; on the other hand, the realities of everydayness in the economic and financial sphere, namely the market logic. The gap between the two determines the nature of the emerging Islamic economic and financial identities of Muslims worldwide, resulting in hybridity under the domination of market logic (Sencal & Asutay, 2019). Hence, the 'process of spiritual realisation' should have been rejuvenated towards 'ihsani being', which harmoniously integrates acquired theoretical knowledge and correct action in the same way that Islamic teaching manifests. This implies that contemplation (*al-'ilm*) and action (*al-'amal*) are inextricably intertwined (Nasr, 1978), which seems to be increasingly contested for Muslim individuals in the economic and financial behaviour leading to emergence of new and privatised moralities in the contemporary world.

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Data availability Research data are not shared.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants involved in the study.

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