

The Impact of Awareness Stimulating Activities and Events on Global Islamic Finance Assets: Enhancing Financial Risk Management and Economic Security in Non-Muslim Countries

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Abstract

The article aims at disclosing the direction and strength of linear connection between Islamic finance assets and awareness stimulating activities and events, namely exclusive Islamic finance news, Islamic finance seminars, and Islamic finance conferences. The methodology includes the linear pairwise regression analysis, estimating correlation coefficient and its significance, calculating the elasticity coefficient and approximation error, and determining the statistical significance of regression equation parameters. There are a high and inverse connection between the volume of Islamic finance assets and exclusive Islamic finance news, a very high and direct connection between assets and Islamic finance seminars, as well as a high and direct connection between assets and Islamic finance conferences. Most awareness enhancing measures were held in countries and regions with the widespread use of Islamic finance instruments meaning that non-Islamic countries may have lower values of increase in Islamic finance assets, which can be overcome by introducing special surveys providing information on them in more detail. Financial institutions and governmental bodies can use our results to develop new strategies for enhancing financial risk management and economic security in non-Muslim countries. The study is a pioneer one in determining the efficiency of awareness stimulating measures concerning Islamic finance development.

Keywords¹

Economic security, financial risk management, Islamic finance, Islamic finance assets, Islamic finance conferences, Islamic finance news, Islamic finance seminars

1. Introduction

A lion's share of people in non-Muslim countries, including European ones, are at least cautious (if not afraid of) about everything concerning Islam due to their general ignorance and mass media biased news on whatever involving Muslims, Islam in general and Shariah in particular. Fear and suspicion caused by the lack of adequate information result in misunderstandings and lost opportunities in different spheres, especially in economy and finance. Islamic finance has the plentiful set of attractive tools to offer African, American, Asian, and European clients not familiar with Islam at all.

Some of Islamic financial instruments have conventional equivalents of some kind, but some, even invented many centuries ago, still have innovative nature. For example, Islamic mortgage is totally different from the so-called traditional one. Islam bans the use of interest-bearing loans, therefore,

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there are three main halal mortgage alternatives, namely Ijara, diminishing Musharaka, and Murabaha.

To put it in a nutshell, the key idea is that they are no-interest home-buying plans. A bank buys a real estate asset on behalf of its client and becomes a temporary legal owner. The client's monthly payments are equivalents of rent designed to buy out the stake of the property owner. The client becomes the legal owner after buying the property back or settling the outstanding sum after the end of negotiated term of halal mortgage alternatives [12]. Therefore, even if the bank's client runs out of money and goes bankrupt, he or she will not be driven out of his or her home, as at least some part will still belong to him or her.

In contrast, for example, in Ukraine at the same situation clients are responsible for the loan and interest. If they are not able to cover them, the property is taken away and sold. If money received is not sufficient for covering the debt, clients will be paying the remaining sum from other sources of their income. Even if the bank forgives interest or some part of the loan body, clients will pay 18 percent of the forgiven amount according to income tax regulations. Therefore, Islamic mortgage provides more mercy and social justice for bank clients than its conventional equivalent.

The projects at Abu Halim in Sudan also vividly illustrates the potential of Islamic banking to take advantage of business opportunities and improve the living conditions of low-income people. The Islamic Development Bank, the Khartoum Bank (Sudan) and the Central Bank of Sudan provided funding to 125 graduates of agricultural colleges working with their families to build and manage greenhouses on profit-based contracts applying Mudarab (Islamic capital management). The profit distribution ratio was as follows: 40 percent to project managers (grantees), and 60 percent to investing banks. In addition, banks covered losses if any. However, participating family members received living wages throughout production process regardless of financial results. Therefore, the project provided an effective way to reduce regional poverty; helped low-income households to acquire production capacity and develop human capital. Nowadays, these greenhouses belong to the most important suppliers of vegetables in the Khartoum region [28]. These two examples serve as strong arguments for introducing effective Islamic finance tools into financial systems of EU member-states and other European countries enhancing their financial risk management and economic security [29].

2. Literature Review

In contrast, for example, in Ukraine at the same situation clients are responsible for the loan and interest. If they are not able to cover them, the property is taken away and sold. If money received is not sufficient for covering the debt, clients will be paying the remaining sum from other sources of their income. Even if the bank forgives interest or some part of the loan body, clients will pay 18 percent of the forgiven amount according to income tax regulations. Therefore, Islamic mortgage provides more mercy and social justice for bank clients than its conventional equivalent.

The first step in stimulating Islamic finance development in non-Muslim countries all over the world is educating and increasing awareness of general population, bankers, financial officials, and governmental bodies. There is an extensive body of literature revealing different aspects of Islamic finance development, including educative and awareness components. For example, Nikonova, Kokh, and Safina [24] explain the promising business future of Islamic banking and finance by their unique features, including real value principle of asset pricing, and clear definition of sharing profits and losses among partners. Sapuan [26] sheds light on Mudabarah (profit sharing) as an alternative vehicle for financing stressing the existence of asymmetric information creating problems of moral hazard and negative (adverse) selection. Based on the global survey, Ahmad, Lensinka, and Mueller [1] constructed the panel of 101 Islamic and 543 conventional microfinance institutions operating in Islamic and non-Muslim countries to discover that Islamic microfinance institutions outperform conventional ones in breadth and depth of operations slightly losing to latter ones in financial results. Alkhan and Hassan [3] used qualitative methodology and Islamic microfinance window in Kyrgyzstan to discover that Islamic microfinance tools foster poverty reduction, enhancement of economy and social conditions, improvement of wealth distribution and circulation as well as intellectual level of society.

Considering special financial resilience of Islamic financial institutions, Igonina, Vagizova, Batorshyna, and Sabirzyanov [20] revealed the optimal level of risk liquidity and measures to enhance liquidity management at Islamic financial organizations. To avoid financial crises Ozsoy [25] suggests applying Islamic finance principles to operations, for instance, ban postpones sales of financial vehicles and keep them in bank's possession till fully paid by clients. Boukhatem and Moussa [10] discovered strong evidence of stimulation of economic growth in selected MENA countries by their national Islamic financial systems, but underdeveloped institutional frameworks hinder this positive effect, therefore, governments need to proactively stimulate the development of Islamic finance. Azmi, Ng, Dewandaru, and Nagayev [5] argue that combining Islamic and sustainability investing strategies results in additional profit during economic booms, bullish financial markets and subprime crisis periods.

Buchari, Rafiki, and Qassab [11] relying on the descriptive analysis of 102 questionnaires of employees working in Bahrain's Islamic retail banks in Bahrain claim that gender and level of education have statistically significant impacts on awareness and attitudes towards Islamic finance services. More people know about Islamic banking services, more they trust them. It means that introducing Islamic financial products and services at new markets of non-Muslim countries requires efforts aimed at education on this issue. Mariatul and Rosidah [23] applied theory of planned behavior for disclosing predictors of adopting Islamic finance, as well as structural equation modeling to find that behavioral control and personal subjective norms influence the level of acceptance of Islamic financial services as possible alternatives for standard financial tools.

Magd and McCoy [22] highlight the essential role of education on Islamic finance in preparing workforce with relevant knowledge and trained professionals, as well as increasing the awareness of clients. Ilnytsky (2015) applying correlation analysis between R&D and economic indicators confirmed the law of diminishing returns, better results are due to the world-class research universities. Belouafi, Belabes, and Daoudi [9] argue that attractiveness of Islamic finance to financial institutions and clients has stimulated the growth of Islamic finance education in non-Muslim countries, for instance, the UK, being the symbol of new global rivalry between national economies. Belabes, Belouafi, and Daoudi [8] have supported the experiment of the Islamic Economics Institute (IEI) of King Abdulaziz University, which developed the first Islamic finance higher educational program at a Saudi Public University using the glocalization approach to shape graduates' skills to meet local market needs.

Arsyianti and Kassim [4] declare that knowledge on Islamic finance shapes attitude later influencing financial behavior of potential low-income clients of Islamic finance institutions including them into socioeconomic activities aimed at improving their well-being. Akhtyamova, Panasyuk, and Azitov [2] consider that delivering lectures and seminars on Islamic economy should cover Islamic law and classical economy for trainees to comprehend the material and acquire competitive skills. Bayram [7] suggests that to achieve positive impact on financial and economic situation Islamic finance education must combine university degree programs, training and workshops, distance learning programs, as well as publications, webinars, and other media.

In our previous publications, we have disclosed the positive impact of development of global Islamic finance on economic growth of Muslim countries [6], as well as demonstrated potential benefits of using Islamic credit tools to finance Ukrainian agricultural business entities within the framework of ensuring food security as the component of economic security of Ukraine [27].

Considering all the above-mentioned, we may conclude that despite the abundant literature on Islamic finance, the interplay between awareness and development of Islamic finance assets needs additional considering due to its potential for enhancing financial risk management and economic security in non-Muslim countries.

3. Methodology

Islamic finance assets consist of Islamic banking assets, Takaful, OIFI, Sukuk and Islamic funds. We use the Islamic Finance Development Indicator (IFDI) to achieve our research goals. It is a composite weighted index consisting of 10 key metrics including Knowledge (Education and Research sub-indices), Governance, Corporate Social Responsibility, and Awareness [19]. In turn,

Awareness includes three components: exclusive Islamic finance news – English-language stories on sharia-compliant equity, capital and sukuk market, banking services and products, regulation, innovation and education, standards, etc.; Islamic finance seminars – a gathering of less than 100 individuals discussing new issues concerning Islamic finance; and Islamic finance conferences – a meeting of more than 100 attendants debating over matters related to Islamic finance [13].

Table 1 indicates that Islamic finance assets, seminars and conferences grew by 63.3, 201.9 and 88.2 percent in 2012–2019 respectively, while exclusive Islamic finance news decreased by 15.9 percent in 2013–2019.

Table 1

Islamic Finance Assets Growth and Awareness Stimulating Activities and Events in 2012–2019

Period	Islamic Finance Assets, \$ trillion	Exclusive Islamic Finance News	Islamic Finance Seminars	Islamic Finance Conferences
2012	1761	n.a.	106	76
2013	2060	14490	124	107
2014	1975	19119	142	122
2015	2201	17795	213	112
2016	2307	18018	294	120
2017	2461	13257	276	141
2018	2513	13095	302	137
2019	2875	12181	320	143
Change, %	63.3	-15.9	201.9	88.2

Source: compiled and calculated based on [13–19]

We apply the linear pairwise regression analysis, estimating correlation coefficient and its significance, calculating the elasticity coefficient and approximation error, and determining the statistical significance of regression equation parameters to estimate the efficiency of Islamic finance news, seminars and conferences for stimulating Islamic finance assets growth.

We apply the following formulas to calculate:

Sample averages:

$$\bar{x} = \frac{\sum x_i}{n} \quad (1)$$

$$\bar{y} = \frac{\sum y_i}{n} \quad (2)$$

$$\overline{xy} = \frac{\sum x_i y_i}{n} \quad (3)$$

Sample variances:

$$S^2(x) = \frac{\sum x_i^2}{n} - \bar{x}^2 \quad (4)$$

$$S^2(y) = \frac{\sum y_i^2}{n} - \bar{y}^2 \quad (5)$$

Standard deviation:

$$S(x) = \sqrt{S^2(x)} \quad (6)$$

$$S(y) = \sqrt{S^2(y)} \quad (7)$$

Regression coefficients a and b:

$$b = \frac{\bar{x} * \bar{y} - \bar{x} * \bar{y}}{S^2(x)} \quad (8)$$

$$a = \bar{y} - b * \bar{x} \quad (9)$$

The next step is to calculate the linear pairwise correlation coefficient:

$$r_{x,y} = \frac{b * S(x)}{S(y)} \quad (10)$$

We put forward the following hypotheses:

H₀: $r_{xy} = 0$, there is no linear relationship between variables;

H₁: $r_{xy} \neq 0$, there is a linear relationship between variables.

The observed error and critical value are determined:

$$t_{observed} = \frac{r_{x,y} * \sqrt{n - 2}}{\sqrt{1 - r_{xy}^2}} \quad (11)$$

$$t_{critical} \left(n - m - 1; \frac{\alpha}{2} \right) \quad (12)$$

If $|t_{observed}| > t_{critical}$, then the correlation coefficient is statistically significant.

The elasticity coefficient is:

$$E = \frac{b * \Theta_y(x)}{\Theta_x(y)} \quad (13)$$

If the elasticity coefficient is less than 1, it means that the 1 percent change of x causes the change of y that is less than 1 percent, in other words, the impact of x on y is not essential.

We estimate the quality of the regression equation using the absolute approximation error:

$$\bar{A} = \frac{\sum |y_i - y_x| : y_i}{n} * 100\% \quad (14)$$

If the error is less than 7%, then the equation can be used as a regression.

The next step is to determine the accuracy of regression coefficients estimates.

The unbiased estimate of the variance of disturbances is the unexplained variance or variance of the regression error (a measure of the spread of the dependent variable around the regression line).

The formula for estimation is:

$$S^2 = \frac{\sum (y_i - y_x)^2}{n - m - 1} \quad (15)$$

The standard error of estimate:

$$S = \sqrt{S^2} = \frac{\sum (y_i - y_x)^2}{n - m - 1} \quad (16)$$

S_a is the standard deviation of the random variable a.

$$S_a = \frac{S * \sqrt{\sum x^2}}{nS(x)} \quad (17)$$

S_b is the standard deviation of the random variable b.

$$S_b = \frac{S}{\sqrt{n}S(x)} \quad (18)$$

We advance the following hypotheses:

H₀: $a = 0, b = 0$, there is no linear relationship between variables;

H₁: $a \neq 0, b \neq 0$, there is a linear relationship between variables.

The observed error and critical value (formula 11) are determined:

$$t_b = \frac{b}{S_b} \quad (19)$$

$$t_a = \frac{a}{S_a} \quad (20)$$

If $|t_b| > t_{critical}$, then the correlation parameter b is statistically significant.

If $|t_a| > t_{critical}$, then the correlation parameter a is statistically significant.

Finally, we determine the confidence intervals of the regression coefficients with a reliability of 95%:

$$(b - t_{critical} * S_b; b + t_{critical} * S_b) \quad (21)$$

$$(a - t_{critical} * S_a; a + t_{critical} * S_a) \quad (22)$$

4. Results

4.1. The Interplay between Islamic Finance Assets and Exclusive Islamic Finance News

We develop Table 2 to calculate the regression parameters for evaluating the interplay between Islamic finance assets and exclusive Islamic finance news.

Table 2

Calculation table to determine regression parameters for Islamic finance assets and exclusive Islamic finance news in 2013–2019

Period	x (exclusive Islamic finance news)	y (Islamic finance assets)	x ²	y ²	x*y
2013	14490	2060	209960100	4243600	29849400
2014	19119	1975	365536161	3900625	37760025
2015	17795	2201	316662025	4844401	39166795
2016	18018	2307	324648324	5322249	41567526
2017	13257	2461	175748049	6056521	32625477
2018	13095	2513	171479025	6315169	32907735
2019	12181	2875	148376761	8265625	35020375
Total	107955	16392	1712410445	38948190	248897333

Source: authors' own elaboration.

We receive the following parameters of the regression: Sample averages:

$$\bar{x} = \frac{\sum x_i}{n} = \frac{107955}{7} = 15422.143$$

$$\bar{y} = \frac{\sum y_i}{n} = \frac{16392}{7} = 2341.714$$

$$\bar{xy} = \frac{\sum x_i y_i}{n} = \frac{248897333}{7} = 35556761.857$$

Sample variances:

$$S^2(x) = \frac{\sum x_i^2}{n} - \bar{x}^2 = \frac{1712410445}{7} - 15422.143^2 = 6787573.27$$

$$S^2(y) = \frac{\sum y_i^2}{n} - \bar{y}^2 = \frac{38948190}{7} - 2341.714^2 = 80401.35$$

Standard deviation:

$$S(x) = \sqrt{S^2(x)} = \sqrt{6787573.27} = 2605.297$$

$$S(y) = \sqrt{S^2(y)} = \sqrt{80401.35} = 283.551$$

Regression coefficients a and b:

$$b = \frac{\bar{xy} - \bar{x} * \bar{y}}{S^2(x)} = \frac{35556761.857 - 15422.143 * 2341.714}{6787573.27} = -0.08213$$

$$a = \bar{y} - b * \bar{x} = 2341.714 - (-0.08213) * 15422.143 = 3608.3962$$

The next step is to calculate the linear pairwise correlation coefficient:

$$r_{x,y} = \frac{b * S(x)}{S(y)} = \frac{-0.08213 * 2605.297}{283.551} = -0.755$$

Thus, the connection between attribute y (Islamic finance assets) and factor x (exclusive Islamic finance news) is inverse and high.

We put forward the following hypotheses:

H₀: r_{xy} = 0, there is no linear relationship between variables;

$H_1: r_{xy} \neq 0$, there is a linear relationship between variables.
Our calculations of the observed error give us the following value:

$$t_{observed} = \frac{r_{x,y} * \sqrt{n-2}}{\sqrt{1-r_{xy}^2}} = \frac{-0.755 * \sqrt{5}}{\sqrt{1-0.755^2}} = -2.572$$

Considering the degree of freedom $k = n - 2 = 5$ and the level of significance $\alpha = 0.05$, the critical point value according to the Student distribution is:

$$t_{critical} \left(n - m - 1; \frac{\alpha}{2} \right) = t_{critical}(5.0; 0.025) = 3.163$$

As $|t_{observed}| < t_{critical}$, then the correlation coefficient is statistically not significant. It means that there is no linear connection between Islamic finance assets and exclusive Islamic finance news. Therefore, we are not able to determine the interplay between them and estimate the efficiency of investing in creating and broadcasting news on Islamic finance to increase the volume of Islamic finance assets.

4.2. The Interplay between Islamic Finance Assets and Islamic Finance Seminars

We design Table to calculate the regression parameters for evaluating the interplay between Islamic finance assets and Islamic finance seminars.

Table 3

Calculation table to determine regression parameters for Islamic finance assets and Islamic finance seminars in 2012–2019

Period	x (exclusive Islamic finance seminars)	y (Islamic finance assets)	x^2	y^2	$x*y$
2012	106	1761	11236	3101121	186666
2013	124	2060	15376	4243600	255440
2014	142	1975	20164	3900625	280450
2015	213	2201	45369	4844401	468813
2016	294	2307	86436	5322249	678258
2017	276	2461	76176	6056521	679236
2018	302	2513	91204	6315169	758926
2019	320	2875	102400	8265625	920000
Total	1777	18153	448361	42049311	4227789

Source: authors' own elaboration

We receive the following parameters of the regression: Sample averages:

$$\begin{aligned} \bar{x} &= \frac{\sum x_i}{n} = \frac{1777}{8} = 222.125 \\ \bar{y} &= \frac{\sum y_i}{n} = \frac{18153}{8} = 2269.125 \\ \overline{xy} &= \frac{\sum x_i y_i}{n} = \frac{4227789}{8} = 528473.625 \end{aligned}$$

Sample variances:

$$S^2(x) = \frac{\sum x_i^2}{n} - \bar{x}^2 = \frac{448361}{8} - 222.125^2 = 6705.61$$

$$S^2(y) = \frac{\sum y_i^2}{n} - \bar{y}^2 = \frac{42049311}{8} - 2269.125^2 = 107235.61$$

Standard deviation:

$$S(x) = \sqrt{S^2(x)} = \sqrt{6705.61} = 81.888$$

$$S(y) = \sqrt{S^2(y)} = \sqrt{107235.61} = 327.468$$

Regression coefficients a and b:

$$b = \frac{\bar{x} * \bar{y} - \bar{x} * \bar{y}}{S^2(x)} = \frac{528473.625 - 222.125 * 2269.125}{6705.61} = 3.6453$$

$$a = \bar{y} - b * \bar{x} = 2269.125 - 3.6453 * 222.125 = 1459.4036$$

The next step is to calculate the linear pairwise correlation coefficient:

$$r_{x,y} = \frac{b * S(x)}{S(y)} = \frac{3.645 * 81.888}{327.468} = 0.912$$

Thus, the connection between attribute y (Islamic finance assets) and factor x (Islamic finance seminars) is direct and very high.

We put forward the following hypotheses:

H₀: r_{xy} = 0, there is no linear relationship between variables;

H₁: r_{xy} ≠ 0, there is a linear relationship between variables.

Our calculations of the observed error give us the following value:

$$t_{observed} = \frac{r_{x,y} * \sqrt{n-2}}{\sqrt{1-r_{xy}^2}} = \frac{0.912 * \sqrt{6}}{\sqrt{1-0.912^2}} = 5.431$$

Considering the degree of freedom k = n - 2 = 6 and the level of significance α = 0.05, the critical point value according to the Student distribution is:

$$t_{critical} \left(n - m - 1; \frac{\alpha}{2} \right) = t_{critical}(6.0; 0.025) = 2.969$$

As |t_{observed}| > t_{critical}, then the correlation coefficient is statistically significant. It means that there is a linear connection between Islamic finance assets and Islamic finance seminars.

The elasticity coefficient is:

$$E = \frac{b * \Theta_y(x)}{\Theta_x(y)} = \frac{3.645 * 222.125}{2269.125} = 0.357$$

It means that the 1 percent change of x (Islamic finance seminars) causes the change of y (Islamic finance assets) equaling 0.357 percent in average.

We estimate the quality of the regression equation using the absolute approximation error:

$$\bar{A} = \frac{\sum |y_i - y_x| : y_i}{n} * 100\% = \frac{0.342}{8} * 100\% = 4.27\%$$

The calculated values deviate from the actual ones by 4.27%. Since the error is less than 7%, then this equation can be used as a regression.

We estimate the quality of the regression parameters developing Table for calculations.

The unexplained variance is:

$$S^2 = \frac{\sum (y_i - y_x)^2}{n - m - 1} = \frac{145024.27}{6} = 24170.712$$

The standard error of estimate:

$$S = \sqrt{S^2} = \sqrt{24170.712} = 155.47$$

S_a is the standard deviation of the random variable a.

$$S_a = \frac{S * \sqrt{\sum x^2}}{nS(x)} = \frac{155.47 * \sqrt{448361}}{8 * 81.888} = 158.909$$

S_b is the standard deviation of the random variable b.

$$S_b = \frac{S}{\sqrt{n}S(x)} = \frac{155.47}{\sqrt{8} * 81.888} = 0.671$$

We advance the following hypotheses:

H₀: a = 0, b = 0, there is no linear relationship between variables;

H₁: a ≠ 0, b ≠ 0, there is a linear relationship between variables.

Table 4

Calculation table to determine regression parameters for Islamic finance assets and Islamic finance seminars in 2012–2019

Period	x (Islamic finance seminars)	y (Islamic finance assets)	y(x)	$(y_j - y_{average})^2$	$(y - y(x))^2$	$ y - y_x : y$
2012	106	1761	1845.81	258191.016	7192.693	0.0482
2013	124	2060	1911.426	43733.266	22074.266	0.0721
2014	142	1975	1977.042	86509.516	4.17	0.00103
2015	213	2201	2235.861	4641.016	1215.308	0.0158
2016	294	2307	2531.134	1434.516	50236.006	0.0972
2017	276	2461	2465.518	36816.016	20.41	0.00184
2018	302	2513	2560.297	59475.016	2236.971	0.0188
2019	320	2875	2625.913	367084.516	62044.446	0.0866
Total	1777	18153	18153	857884.875	145024.27	0.342

Source: authors' own elaboration

The observed error and critical value are determined as follows:

$$t_b = \frac{b}{S_b} = \frac{3.645}{0.671} = 5.43$$

$$t_a = \frac{a}{S_a} = \frac{14509.404}{158.909} = 9.18$$

$$t_{critical} \left(n - m - 1; \frac{\alpha}{2} \right) = t_{critical} (6.0; 0.025) = 2.969$$

As $|t_b| > t_{critical}$ ($5.43 > 2.969$) and $|t_a| > t_{critical}$ ($9.18 > 2.969$), then the correlation parameters are statistically significant.

Finally, we determine the confidence intervals of the regression coefficients with a reliability of 95%:

$$(b - t_{critical} * S_b; b + t_{critical} * S_b) = (3.65 - 2.969 * 0.671; 3.65 + 2.969 * 0.671) = (1.652; 5.638)$$

$$(a - t_{critical} * S_a; a + t_{critical} * S_a) = (1459.404 - 2.969 * 158.909; 1459.404 + 2.969 * 158.909) = (987.602; 1931.206)$$

4.3. The Interplay between Islamic Finance Assets and Islamic Finance Conferences

We develop Table to calculate the regression parameters for evaluating the interplay between Islamic finance assets and Islamic finance conferences.

We receive the following parameters of the regression: Sample averages:

$$\bar{x} = \frac{\sum x_i}{n} = \frac{958}{8} = 119.75$$

$$\bar{y} = \frac{\sum y_i}{n} = \frac{18153}{8} = 2269.125$$

$$\overline{xy} = \frac{\sum x_i y_i}{n} = \frac{2220965}{8} = 277620.625$$

Table 5

Calculation table to determine regression parameters for Islamic finance assets and Islamic finance conferences in 2012–2019

Period	x (exclusive Islamic finance conferences)	y (Islamic finance assets)	x ²	y ²	x*y
2012	76	1761	5776	3101121	133836
2013	107	2060	11449	4243600	220420
2014	122	1975	14884	3900625	240950
2015	112	2201	12544	4844401	246512
2016	120	2307	14400	5322249	276840
2017	141	2461	19881	6056521	347001
2018	137	2513	18769	6315169	344281
2019	143	2875	20449	8265625	411125
Total	958	18153	118152	42049311	2220965

Source: authors' own elaboration

Sample variances:

$$S^2(x) = \frac{\sum x_i^2}{n} - \bar{x}^2 = \frac{118152}{8} - 119.75^2 = 428.94$$

$$S^2(y) = \frac{\sum y_i^2}{n} - \bar{y}^2 = \frac{42049311}{8} - 2269.125^2 = 107235.61$$

Standard deviation:

$$S(x) = \sqrt{S^2(x)} = \sqrt{428.94} = 20.711$$

$$S(y) = \sqrt{S^2(y)} = \sqrt{107235.61} = 327.468$$

Regression coefficients a and b:

$$b = \frac{\bar{x} * \bar{y} - \bar{x} * \bar{y}}{S^2(x)} = \frac{277620.625 - 119.75 * 2269.125}{428.94} = 13.7384$$

$$a = \bar{y} - b * \bar{x} = 2269.125 - 13.7384 * 119.75 = 623.954$$

The next step is to calculate the linear pairwise correlation coefficient:

$$r_{x,y} = \frac{b * S(x)}{S(y)} = \frac{13.738 * 20.711}{327.468} = 0.869$$

Thus, the connection between attribute y (Islamic finance assets) and factor x (Islamic finance conferences) is direct and very high.

We put forward the following hypotheses:

H₀: r_{xy} = 0, there is no linear relationship between variables;

H₁: r_{xy} ≠ 0, there is a linear relationship between variables.

Our calculations of the observed error give us the following value:

$$t_{observed} = \frac{r_{x,y} * \sqrt{n-2}}{\sqrt{1-r_{xy}^2}} = \frac{0.869 * \sqrt{6}}{\sqrt{1-0.869^2}} = 4.3$$

Considering the degree of freedom k = n - 2 = 6 and the level of significance α = 0.05, the critical point value according to the Student distribution is:

$$t_{critical} \left(n - m - 1; \frac{\alpha}{2} \right) = t_{critical}(6.0; 0.025) = 2.969$$

As |t_{observed}| > t_{critical}, then the correlation coefficient is statistically significant. It means that there is a linear connection between Islamic finance assets and Islamic finance seminars.

The elasticity coefficient is:

$$E = \frac{b * \Theta_y(x)}{\Theta_x(y)} = \frac{13.738 * 119.75}{2269.125} = 0.725$$

It means that the 1 percent change of x (Islamic finance conferences) causes the change of y (Islamic finance assets) equaling 0.725 percent in average.

We estimate the quality of the regression equation using the absolute approximation error:

$$\bar{A} = \frac{\sum |y_i - y_x| : y_i}{n} * 100\% = \frac{0.409}{8} * 100\% = 5.12\%$$

The calculated values deviate from the actual ones by 5.12%. Since the error is less than 7%, then this equation can be used as a regression.

We estimate the quality of the regression parameters developing Table for calculations.

Table 6

Calculation table to determine regression parameters for Islamic finance assets and Islamic finance seminars in 2012–2019

Period	x (Islamic finance conferences)	y (Islamic finance assets)	y(x)	(y _j - y _{average}) ²	(y - y(x)) ²	y - y _x : y
2012	76	1761	1668.071	258191.016	8635.82	0.0528
2013	107	2060	2093.961	43733.266	1153.326	0.0165
2014	122	1975	2300.036	86509.516	105648.632	0.165
2015	112	2201	2162.653	4641.016	1470.526	0.0174
2016	120	2307	2272.56	1434.516	1186.142	0.0149
2017	141	2461	2561.066	36816.016	10013.118	0.0407
2018	137	2513	2506.112	59475.016	47.444	0.00274
2019	143	2875	2588.542	367084.516	82057.998	0.0996
Total	958	18153	18153	857884.875	210213.005	0.409

Source: authors' own elaboration

The unexplained variance is:

$$S^2 = \frac{\sum (y_i - y_x)^2}{n - m - 1} = \frac{210213.005}{6} = 35035.501$$

The standard error of estimate:

$$S = \sqrt{S^2} = \sqrt{35035.501} = 187.18$$

S_a is the standard deviation of the random variable a.

$$S_a = \frac{S * \sqrt{\sum x^2}}{nS(x)} = \frac{187.18 * \sqrt{118152}}{8 * 20.711} = 388.318$$

S_b is the standard deviation of the random variable b.

$$S_b = \frac{S}{\sqrt{n}S(x)} = \frac{187.18}{\sqrt{8} * 20.711} = 3.195$$

We advance the following hypotheses:

H₀: a = 0, b = 0, there is no linear relationship between variables;

H₁: a ≠ 0, b ≠ 0, there is a linear relationship between variables.

The observed error and critical value are determined as follows:

$$t_b = \frac{b}{S_b} = \frac{13.738}{3.195} = 4.3$$

$$t_a = \frac{a}{S_a} = \frac{623.954}{388.318} = 1.61$$

$$t_{critical} \left(n - m - 1; \frac{\alpha}{2} \right) = t_{critical}(6.0; 0.025) = 2.969$$

As $|t_b| > t_{critical}$ ($4.3 > 2.969$) and $|t_a| < t_{critical}$ ($1.61 < 2.969$), then the correlation parameter b is statistically significant and parameter a is not significant.

Finally, we determine the confidence intervals of the regression coefficients with a reliability of 95% only for parameter b :

$$(b - t_{critical} * S_b; b + t_{critical} * S_b) = (13.738 - 2.969 * 3.195; 13.738 + 2.969 * 3.195) \\ = (4.252; 23.225)$$

5. Discussion and Conclusions

The key well-known constituents of Islamic finance are the ban of interest; fair distribution of risks, profits and losses between partners; ban of speculation and uncertainty; inadmissibility of financing prohibited types of business (including production of weapons, alcohol, tobacco, pork and gambling); and asset support principle. To put it in a nutshell, Islamic financing aims at linking finance and real economic activities. The devotion to common prosperity results in adherence to Islamic principles: risk-sharing, not debt transferring; ban of socioeconomic exploitation; encouragement of following ethical standards, moral and social values; combination of risk and return in business.

Nowadays, many Islamic and non-Muslim countries choose to move from debt-based to equity-based financing, therefore, there is a growing interest in studying fundamentals of Islamic finance and economics. Even though educational programs and projects are of great importance in disseminating Islamic finance principles and vehicles, the lack of reliable statistical information limits the study of interplay between education on Islamic finance and development of global Islamic financial assets. Researchers of Islamic finance and economics still wait for improvement of collecting and processing statistical information on educational programs and project on Islamic finance, including the number of graduates, gender and geography, demand for professionals in Islamic finance and Islamic financial tools, etc.

Due to the lack of appropriate information campaign and educative programs, effective Islamic financial tools are mostly concentrated in countries with predominant Muslim population, but it is important to expand Islamic finance in countries where the tools and principles of Islamic finance are weak or non-existent, as well as in countries where there is a need to improve socioeconomic situation and ethical components of financial business. However, the Islamic finance industry has several global challenges. Institutional, technical and resource requirements of Islamic financial institutions are unique. Therefore, Islamic financial institutions require specialists with a combination of competencies in accounting, finance, and Sharia. On the one hand, the constantly increasing global demand for Islamic financial instruments and services cannot be satisfied without appropriate amount of specially trained workforce. On the other hand, clients also need special courses and trainings to understand the essence and possible competitive advantages of Islamic financial assets, such awareness stimulating activities include news, seminars, and conferences on Islamic finance.

There is no linear connection between Islamic finance assets and exclusive Islamic finance news. Therefore, we are not able to determine the interplay between them and estimate the efficiency of investing in creating and broadcasting news on Islamic finance to increase the volume of Islamic finance assets. It can be explained by the unpredictable reaction on news, and prevalence of negative or biased news reducing the desire to invest and develop new financial products. In contrast, there is a very high and direct connection between assets and Islamic finance seminars, as well as a high and direct connection between assets and Islamic finance conferences. The growth of number of seminars and conferences by one causes the average increase of the volume of Islamic finance assets by \$1.652–5.638 billion and \$4.252–23.225 billion, respectively.

Therefore, Islamic finance seminars and conference are the effective tools of improving the awareness and increasing the volume of operations applying Islamic finance assets. Exclusive Islamic finance news may cause unexpected effects due to the incorrect reporting of information, its distortion in the process of transmission and use. It is worth mentioning that most Islamic finance seminars and conferences were held in those countries and regions where Islamic finance is already widespread and there are specialized Islamic finance ecosystems, thus, non-Islamic countries may have lower values of increase in Islamic finance assets especially at the initial stages while overcoming bias

towards Islam and Muslims in general and the deficit of information on Islamic financial tools. Nevertheless, our findings show the potential efficiency of awareness stimulating activities and events for enhancing financial risk management and economic security in non-Muslim countries by introducing new for them and proved to be competitive component of Islamic finance assets.

6. References

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