Does it pay to be Shariah-compliant? Evidence from the European stock market

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Abstract— **The comparison of financial results between different cultural and religious systems is still an open academic debate. There is no consensus among scholars on the existence and magnitude of financial performance differences for companies acting under diverse cultural and religious background.**
The aim of this paper is to compare the performance of European listed firms applying Shariah principles and those who do not act according to such guidelines. To serve such purpose we have built a sample of companies operating with Shariah-based principles of management and compared the latter with a control comprising companies that do not adopt Shariah parameters over the period 2005–2017.
Results suggest that the Shariah-compliant sample performs better than the conventional one. In particular, during the recent recession, Shariah-compliant companies obtained better periodical stock market returns and even in the event of negative returns, losses posted by these companies were lower than those of conventional companies. Moreover, Shariah-compliant sample presents a lower risk-profile than conventional one.

Keywords- Islamic Finance, Shariah-compliant stocks, European markets, financial performance, ethical investments

I. INTRODUCTION

The global Islamic finance industry has rapidly grown over the past two decades. In line with this growth, attention towards Shariah-compliant financial products and services has increased in non-Muslim countries as well. Western economic and financial systems have perceived the potential of Islamic financial products not only as a plausible alternative to conventional sources of financing, but also as a potential instrument supporting integration and financial inclusion policies, especially in European countries with a significant and growing Muslim population.

In the light of the ethical and moral rules and also of the relatively high degree of prudence characterizing Islamic investments, Islamic finance seems to represent an interesting alternative for international investors. The central role assumed by responsible and sustainable finance along with the implementation of United Nations Sustainable Development Goals over the past few years have led to greater awareness regarding Islamic finance, which is deemed to create an equitable financing system with a positive impact on society. Although there has been a considerable diffusion of Shariah-compliant economic and financial systems, it is also true that all types of investors (inspired or not by Shariah principles) are increasingly looking for investments with the potential to generate a positive social impact (Bennet and Iqbal, 2013) [1]. However, the comparison of results between the financial performance of Shariah-compliant and conventional stocks still remains an open question among scholars and practitioners (Reddy and Fu, 2014) [2]. The aim of our study is to delve deeper into any performance differences between Shariah-compliant and conventional companies over the period 2005 – 2017 within the European stock markets.

II. LITERATURE REVIEW

Islamic finance has experienced a significant growth in the last couple of decades and it is a growing area of this industry. Although the Islamic finance industry only started to flourish recently, its roots date back centuries (Biancone and Radwan, 2015) [3].Western investors are increasingly considering investing in Islamic financial products (Bennet and Iqbal, 2013) [1], considering them an ethical, non-risky and attractive financial instrument also for non-Muslim investors. The increasing growth of the SRI philosophy among conventional investors may encourage the acceptance of Shariah-compliant products by non-Muslim investors, attentive to investments with a positive social impact. The attention towards Shariah-compliant financial instruments, as well as towards the whole Islamic financial sector, has progressively attracted scholars' scrutiny; scientific literature has investigated the potential of ethical and religious screening to affect firm financial performance (Mazouz, Mohamed and Saadouni, 2016) [4].

Nainggolan, How and Verhoeven (2016) [5] highlighted that ethical screening can reduce the investment universe available to investors while yielding a mean variance efficient frontier that is less optimal than the one currently available to conventional investors. Other scholars maintain that ethical screening has the potential to guarantee that the selected investments are consistent with investors' personal values, a factor that may put pressure on firms less responsive to social and ethical concerns to change their attitude (Sauer, 1997) [6].

A common approach that can be seen in literature compares ethical-religious funds' performance with that of traditional funds; however, this comparison has not yet generated conclusive results. Moving further, several empirical studies

have investigated the characteristics and properties of Islamic financial products through the analysis of their returns, risks, and performance in various markets. On the other hand, from a geographical point of view, a series of works has focused on emerging countries, whereas the study of such issue in the US and European markets has met a lower level of attention so far (Jawadi, Jawadi and Louhichi, 2014) [7].

Researchers have reached conflicting findings with respect to the performance of conventional and Islamic indices (Setiawan and Oktariza, 2013; Ahmad and Ibrahim, 2002; Husein and Omran, 2005; Aka, 2009; Albaity and Ahmad, 2008, 2011; Dharani and Natarajan, 2011; Ho, Abd Rahman, Muhamad Yusuf and Zamzamin, 2014) [8, 9, 10, 11, 12, 13, 14, 15].

Some scholars have extended the analysis of differences in risk and return between Islamic investment instruments and conventional investments to equity funds (Hayat and Kraussl, 2011; Elfakhani and Kabir, 2005; Fikriyah, Hassan and Shamsher, 2007) [16, 17, 18].

In conclusion, it seems that there is still no consensus on whether Shariah-compliant stocks perform better than conventional ones.

III. DATA AND METHODOLOGY

In order to investigate potential differences between Shariah-compliant companies and conventional ones over the period 2005 – 2017 in the European stock markets, we have drawn data regarding the Eurostoxx 600 Index[1] covering this period. Daily stock prices and financial ratios of companies listed on the Eurostoxx 600 for the period 2005 – 2017 have been collected from the Eurostoxx 600 site, Datastream and Bloomberg. Before carrying out the qualitative and quantitative parts of our analysis, we have chosen to obtain two samples from the selected index, the Shariah-compliant and the conventional one. During this first stage, we have eliminated 145 companies with missing data.

We have followed two criteria in order to classify a company as Sharia-compliant: qualitative and quantitative. Qualitative criteria reflect the company's core business: we have thus excluded companies that do not pass this first screening from any additional quantitative consideration. Our selection has been carried out according to the most relevant literature in the field based on the principles guiding the creation of stock market Shariah-compliant indices, such as the Dow Jones Islamic Market Indices, the MSCI Islamic Index, the FTSE Shariah Global Equity Index Series and the S&P Shariah Indices. Such classification typically does not include haram businesses, i.e. companies operating in alcohol, pork related products, pornography, tobacco, gambling, conventional financial services, weapons and defense, biological human and animal genetic engineering, and media and advertising companies with exception to news channels, newspapers, and sports (Biancone and Radwan, 2016) [19].

In line with this selection criterion, with reference to Eurostoxx 600, we have excluded firms that operate in the following businesses: Consumer Goods (Beverages, Food Producers, Tobacco); Consumer Services (Media, Food & Drug Retailers, Travel & Leisure, General Retailers); Financials (Financial Services, Banks, Real Estate Investment Trusts, Real Estate Investment & Services, Life and Non-Life Insurance); Industrials (Aerospace & Defense, Support Services related to financial services). More specifically, for companies operating in the Consumer Goods sector, in order to verify their involvement in haram businesses, we have carried out controls on company individual websites. Applying this additional filter, especially regarding the sub-sectors of food products and food retailers & wholesalers, meat producers, commercial chains, retailers and supermarkets have been excluded as they may produce pork meat and/or produce alcohol. The qualitative screening process of our analysis has resulted in the exclusion of 160 companies from the original sample. Once companies have passed the qualitative criterion, we have moved on to the second phase of the screening, considering quantitative factors. Specific financial ratios of the sample companies were considered to this regard. In order to be Shariah-compliant, companies should not be heavily financially indebted, should not base their ability to generate revenues mainly on trade credits and, finally, should not hold an "excessive" amount of "idle" cash among their assets. The three ratios used to this regard are the following (Collina and Gatti, 2009) [20]:

- D/E = Total Debt / 12 months average market capitalization
- AR/E = Accounts Receivables / 12 months average market capitalization
- Ca+S/E = Cash + Interest Bearing Securities / 12 months average market capitalization

The D/E ratio measures the level of debt a company has assumed compared to its market value; the AR/E ratio measures the level to which a company allows delayed payments to its clients compared to its market size; Ca+S/E measures the percentage (as a function of size) of company liquidity that a company invests in illicit products. In order to be maintained in our sample, companies must post a lower than 33.33% for all the three ratios. Once the qualitative and quantitative factors have been considered in the analysis, our final Shariah-compliant sample includes 48 companies. At the same time, the conventional control sample is made up of 407 companies basically made of those companies which haven't overcome the initial qualitative test and the quantitative one if only for one year of the period examined here.

The annual average returns of both samples have been calculated, starting from the daily prices of individual

[1] The STOXX Europe 600 Index is derived from the STOXX Europe Total Market Index (TMI) and is a subset of the STOXX Global 1800 Index. With a fixed number of 600 components, the STOXX Europe 600 Index represents large, mid and small capitalization companies across 17 countries of the European region: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. (www.stoxxx.com)

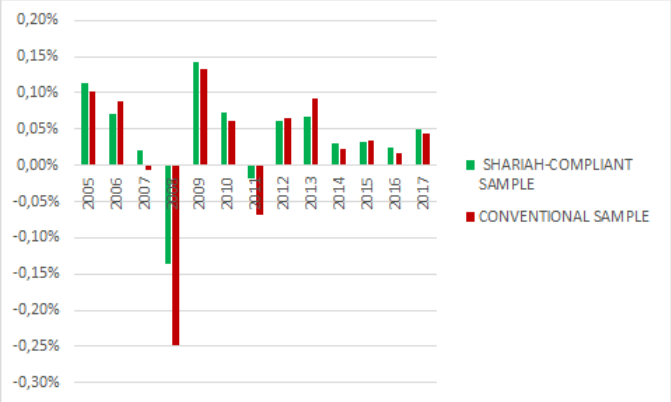
companies and individual stocks based on the following formula (Reddy and Fu, 2014) [2]:

$$R_t = ln\ (P_t/P_{t-1}) \quad (1)$$

where P_t is the stock price in period t and P_{t-1} is the stock price in period $t-1$.

The annual average return of the two samples has been compared in order to identify potential differences between Shariah-compliant and conventional companies over the period 2005 – 2017 in the European stock markets.

FIGURE I. COMPARISON BETWEEN SHARIAH-COMPLIANT AND CONVENTIONAL COMPANY RETURNS



The previous figure shows that returns of the Shariah-compliant sample are generally higher than conventional ones. While many researchers argue whether the global financial crisis has had a lower impact on Shariah-compliant stocks compared to conventional ones, interestingly enough, our findings suggest that during recessions, Shariah-compliant companies have shown greater returns and, even in the event of negative returns, losses were limited. Our findings are in line with prior studies, such as Ho, Abd Rahman, Muhamad Yusuf and Zamzamin (2014) [15] who found support for Islamic indices outperforming their conventional counterparts during crisis periods. The authors deduced that this may be due to the conservative nature of Shariah-compliant investments that, in this case, may represent a valid investment alternative during times of crisis.

Afterwards, an analysis on a sector-level between the two samples has been carried out among the following sectors: Basic Materials, Consumer Goods, Health Care, Industrials and Technology. Such comparison aims at highlighting differences between Shariah-compliant and conventional stock returns, comparing specific samples made up of companies belonging to the same sector (Table I).

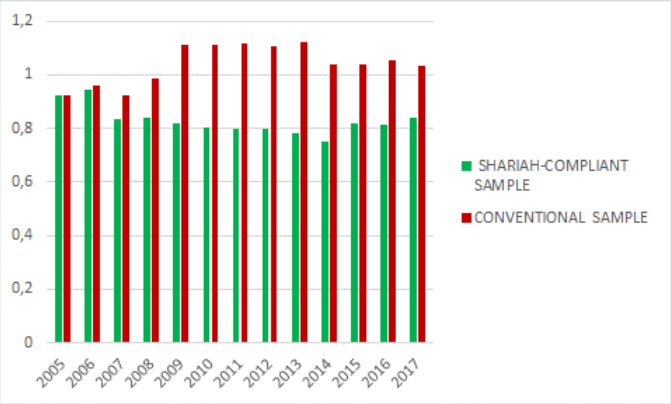
TABLE I. COMPARISON BETWEEN SHARIAH-COMPLIANT AND CONVENTIONAL STOCK RETURNS ON A SECTOR-LEVEL

YEARS	Basic Materials		Consumer Goods		Health Care		Industrials		Technology	
	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE
2005	0.26%	0.10%	0.07%	0.09%	0.10%	0.14%	0.14%	0.12%	0.13%	0.13%
2006	0.11%	0.11%	0.08%	0.08%	0.04%	0.09%	0.12%	0.10%	0.05%	0.07%
2007	0.05%	0.03%	0.06%	0.02%	0.02%	0.00%	0.00%	-0.01%	-0.02%	-0.01%
2008	-0.19%	-0.24%	-0.20%	-0.29%	-0.12%	-0.14%	-0.10%	-0.25%	-0.14%	-0.33%
2009	0.25%	0.20%	0.15%	0.18%	0.11%	0.05%	0.15%	0.15%	0.17%	0.20%
2010	0.14%	0.11%	0.09%	0.11%	0.02%	0.06%	0.13%	0.09%	0.06%	0.11%
2011	-0.13%	-0.11%	0.00%	-0.04%	-0.02%	0.01%	-0.03%	-0.06%	0.02%	-0.11%
2012	0.00%	0.05%	0.05%	0.09%	0.05%	0.08%	0.09%	0.08%	0.11%	0.08%
2013	0.06%	0.00%	0.05%	0.10%	0.08%	0.13%	0.06%	0.11%	0.07%	0.12%
2014	0.02%	0.02%	0.02%	0.03%	0.06%	0.06%	0.01%	0.01%	-0.01%	0.08%
2015	-0.04%	-0.04%	0.01%	0.08%	0.05%	0.11%	0.01%	0.04%	0.09%	0.07%
2016	0.14%	0.11%	0.02%	0.00%	0.00%	0.00%	0.05%	0.04%	0.03%	0.00%
2017	0.01%	0.07%	0.07%	0.06%	0.06%	0.03%	0.07%	0.05%	0.06%	0.12%

As shown in the previous table, comparing stock returns for the two samples on a sector-level, a positive trend emerges, concerning the Shariah-compliant companies belonging the Basic Materials and Industrials sectors, while in the other observed sectors (Consumer Goods, Health Care, and Technology) the conventional sample appears to perform better. In particular, if we consider the Basic Materials sector, the Shariah-compliant sample has registered better performance in almost all the analysis years, except for 2006, 2011, 2012 and 2017. This negative trend could be due to the aftermath of the recession as well as to problems closely linked to the sector in object. Moreover, if we consider the Industrials, the Shariah-compliant sample has registered better performance in almost all the analysis years, except for 2009, 2013, 2014 and 2015. Concerning the other sectors, namely Consumer Goods, Health Care, and Technology, we observe that the two samples registered an erratic performance during the considered timeframe, with a slightly improved performance on behalf of conventional firms.

In order to ensure a detailed and complete analysis as well as to account for potential differences concerning the risk factor between the two samples considered, the annual average levered beta has been calculated for both samples. Levered beta measures the risk of a firm with both debt and equity in its capital structure with respect to the volatility of the market (Damodaran, 2003) [21]. It is viewed as a proxy for the total risk of a firm and used to estimate the volatility of an investment (Reddy and Fu, 2014) [2].

FIGURE II. COMPARISON OF LEVERED BETA BETWEEN THE SHARIAH-COMPLIANT AND THE CONVENTIONAL SAMPLES



The previous figure shows that the beta of the Shariah-compliant sample is permanently lower than the beta of the conventional sample during the considered timeframe. Thus, the Shariah-compliant sample presents a lower risk-profile than the conventional one. Moreover, it is possible to observe that the values of the levered beta of the Shariah-compliant sample always lie below the unit, highlighting that the stocks belonging to the aforementioned sample tend to limit market fluctuations. Diversely, the stocks belonging to the conventional sample post average beta values above the unit in almost all the analysis years, highlighting a propensity to amplify market fluctuations.

Next, a sector level analysis has been carried out for the two samples, using the same sectors mentioned in our previous analysis: Basic Materials, Consumer Goods, Health Care, Industrials and Technology. This comparison aims to highlight eventual differences between the Shariah-compliant stock beta and the one of conventional firms.

TABLE II. COMPARISON OF LEVERED BETA BETWEEN THE SHARIAH-COMPLIANT AND THE CONVENTIONAL SAMPLES ON A SECTOR-LEVEL

YEARS	Basic Materials		Consumer Goods		Health Care		Industrials		Technology	
	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE	SHARIAH-COMPLIANT SAMPLE	CONVENTIONAL SAMPLE
2005	0.47	0.73	0.80	0.84	0.92	0.82	0.79	0.95	1.55	1.69
2006	0.80	0.78	0.85	0.86	0.91	0.85	0.81	0.97	1.54	1.61
2007	0.66	0.77	0.77	0.82	0.80	0.78	0.66	0.94	1.40	1.57
2008	0.84	1.12	0.99	0.97	0.71	0.75	0.85	1.08	0.99	1.35
2009	1.40	1.30	0.82	1.14	0.60	0.79	1.01	1.22	0.80	1.32
2010	1.30	1.29	0.82	1.13	0.59	0.78	1.01	1.23	0.78	1.30
2011	1.23	1.30	0.81	1.13	0.58	0.77	1.02	1.24	0.79	1.34
2012	1.29	1.31	0.79	1.10	0.60	0.77	0.99	1.22	0.80	1.26
2013	1.35	1.30	0.74	1.10	0.59	0.77	0.99	1.22	0.74	1.19
2014	1.07	1.24	0.74	0.92	0.64	0.74	0.84	1.10	0.73	1.02
2015	1.26	1.30	0.80	0.95	0.71	0.75	0.91	1.10	0.78	1.03
2016	1.17	1.29	0.78	0.97	0.72	0.77	0.89	1.09	0.79	0.99
2017	1.20	1.33	0.80	1.00	0.72	0.78	0.95	1.12	0.84	1.00

As shown in the table, comparing the two samples' beta on a sector-level, the values of beta for the Shariah-compliant sample are lower for each sector in almost all the analysis years. This finding may be explained by the initial quantitative screening applied for firms in our overall sample. Considering the Basic Materials, results show that the Shariah-compliant sample has registered a lower beta in almost all the analysis years, with the exception of 2006, 2009, 2010 and 2013. Furthermore, if we consider the Consumer Goods sector, we can notice that, in this case as well, the Shariah-compliant sample has registered a lower beta in almost all the analysis years, except for 2008. Moreover, starting from 2009 the difference between the beta values of the Shariah-compliant sample and those of the conventional one is greater; in particular, from 2009 to 2014 the conventional sample beta registered values, which were well above the unit. Moving on to the next sector, HealthCare, the Shariah-compliant sample has registered a lower beta in almost all the analysis years, except for 2005, 2006 and 2007. It is interesting to observe that in all the analysis period the beta values of both samples never exceeded the unit. In the Industrials sector, the Shariah-compliant sample has registered a lower beta in all the analysis years, with values ranging from a minimum of about 0.6 to a maximum of around 1. Finally, as seen in the previous table, considering Technology, the Shariah-compliant sample has posted a lower beta in all the analysis years, with values exceeding one only in the first three years of the period (from 2005 to 2007).

IV. CONCLUSIONS

Islamic Finance has assumed a central role in recent years not only in Muslim countries; Western economic and financial systems have perceived the potential of Islamic Finance as a plausible alternative to conventional sources of financing. Stability during the years of recession and compliance with ethical principles represent the major reasons for Western countries to demonstrate heated interest in the field.

In this perspective, Shariah-compliant stocks represent an ethical, non-risky and attractive opportunity for non-Muslim investors as well. In fact, this study research findings have revealed that stock returns of Shariah-compliant firms have been higher than those of traditional counterparts for a great portion of the past decade. In particular, during the recession, Shariah-compliant companies not only presented greater returns but even in the event of negative returns their losses were limited. The second part of our analysis based on a sector focus also highlighted unequivocal results, although varying according to the examined sectors.

Moreover, also considering the differences concerning the risk factor between the two samples analysed, we have found that Shariah-compliant firms' beta values are lower than the ones of conventional firms in almost all the analysis years. Notwithstanding the former, because of the reduced starting sample and due to a lack of data, given the broad time horizon considered, it was impossible to extend our analysis to all sectors of companies listed on the Eurostoxx 600 Index.

Regarding future research ideas, we could improve our research considering other factors and measures for returns and risk-profile stocks in order to obtain diverse but comparable evidence concerning the comparison between Shariah-compliant sample and the conventional one. Moreover, it might be interesting to widen the geographical area of observation and above all, make further comparisons on more core levels (eg. sub-sectors).

Finally, in the light of the constant evolution and the open academic debate on the topics analyzed in this research work, our results will offer further food for thought for future surveys and research activities.

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