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Mutual fund performance in MENA countries: Environmental conditions and fund characteristics

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Abstract

Islamic funds are an upcoming alternative to conventional funds, aided by the increasing prominence of Islamic finance. This paper contributes to the extant literature by comparing the performance of Islamic and conventional funds during crisis and recovery periods. In contrast to most previous literature, we focus on the countries of the Middle East and North African region (MENA), which represent an appealing context to study both from a financial and socioeconomic point of view due to recent events in the area. To this end, we consider a linear model control- ling for the bias of omitting relevant benchmarks. Although this methodology is now widely accepted in the financial literature, it is less common when evaluating Islamic mutual funds, but it is particularly appropriate when the aim is to focus on markets where Shari'ah-compliant investments are in home territory. Our results show that the relative performance of Islamic and conventional funds must be tempered by several factors such as the (geographical) context in which the investment is made. Considering all the MENA region, Islamic funds perform, on average, slightly worse than conventional funds. However, if the analysis is restricted to GCC countries, the result is the opposite. This evidence holds for both crisis and recovery periods. In addition, the performance gap between the two types of funds either widens or shrinks when considering recovery or crisis times, reinforcing the views that Islamic funds are more stable in hazardous times.

Keywords: GCC, Islamic funds, MENA, performance.

JEL classification: G11, G12, G14, G23

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1. Introduction

In the wake of the global financial crisis, conventional finance in general and conventional mutual funds in particular are facing a plethora of recommendations for tighter control of leverage and risk. By contrast, some particular types of funds such as Socially Responsible Investment (SRI) or Islamic funds have demonstrated more stable tendencies in the unsettled landscape of global financial markets (Askari et al., 2010). In the particular case of Islamic finance,[1] some of the most up-to-date statistics place Islamic finance assets above the $1 trillion mark, with around 350 institutions competing to cater for the needs of Muslim and Western investors.

While it is natural to expect an expansion of Islamic finance in Muslim dominated countries as both population and per capita income increase, it is more surprising to observe the rising appeal to non-Muslims, many of whom have been driven to look for new options by the unattractive risk/return mix of conventional products. Islamic finance has been an important contemporary issue for financial markets worldwide, as witnessed by the large expansion of Islamic equity indices, bond indices and mutual funds, in many occasions under the auspices of Western governments.

Islamic mutual funds offer a diversified income source by investing pooled funds in assets that would appreciate in time. Contrary to conventional mutual funds, the investment universe of Islamic funds is restricted by *Shari'ah* principles, which prohibit interest payments, investing in complex derivatives (e.g., conventional credit default swaps, futures or options) and short-selling. In addition, business and financial screening ensures that funds are not directed to companies that are either heavily indebted or engaged in non-permissible lines of business (e.g., gambling, conventional finance, weapons). For an in-depth discussion on business type and financial screening see Ali (2005), Elfakhani et al. (2007) and Khatkhatay and Nisar (2007), among others. Nevertheless, both Islamic and

[1]Islamic finance is based upon the principle of risk sharing and undue risk avoidance. Islamic financial products are mainly asset-backed and are grounded on the risk-sharing principle on both the asset and the liability side of the balance sheet. Islamic financial products may be classified as equity-based or fee-based. A widely used equity-based contract is that of *Mudarabah*; this is an agreement between a financier and an entrepreneur to jointly enter a business venture. The financier provides capital whereas the entrepreneur provides the knowhow. Any profits are shared between the two parties at a pre-agreed ratio, while financial losses are borne by the financier in full. With *Murabahah*, an intermediary purchases an asset on the buyer's behalf and subsequently sells it to the buyer at a pre-agreed profit margin. For more detailed explanations of Islamic finance contracts, see Olson and Zoubi (2008),Khan (2010) and Khaldi and Hamdouni (2011).

conventional funds are actively managed in the sense that the fund manager rebalances the portfolio with a view to attaining the funds' objectives. However, objectives of Islamic and conventional funds may differ substantially. For example an Islamic mutual fund may not be pursuing the maximum possible return; instead it may be settling for a diversification strategy while minimizing potential losses or not investing in entities that do not meet the screening criteria.

Although Islamic finance is gaining momentum all over the world, its relevance and relative importance is not homogeneous across countries. In particular, in Western economies its role, albeit growing, is relatively modest compared to other types of investment (such as, for instance, Socially Responsible Investment), whereas in other regions it is too big to be ignored. This would be the case of the Middle East and North Africa (MENA) region and, more specifically, the part of this region whose countries are members of the Gulf Cooperation Council (GCC).

Attention to the MENA region has been increasing from several points of view, and for a variety of reasons. These reasons go beyond finance or economics, since several countries in the region have recently experienced political turmoil which, in some cases (such as Egypt), are not entirely over. In this line, several contributions have already examined general socioeconomic and political aspects related to the Arab Spring (Chaney et al., 2012; Winckler, 2013; Sekkat, 2014), and in some cases the analyses have focused more deeply on the economics. This is the case of Malik and Awadallah (2013), Knutsen (2014), and the relevant contribution by Chaney (2013).

With regard to economics and finance-related aspects, although the economies in this region have always been classified as bank-based due to the fact that banks are the dominating financial institutions (Graham et al., 2013), their stock markets have become more important over the last two decades. The reason for this is that most countries in the region began to liberalize their stock markets in the 1990s—far later than comparative regions such as Latin America and Asia. Therefore, some authors such as Naceur et al. (2008), Achy (2001), Neaime (2005) and Gentzoglanis (2007), among others, have analyzed various aspects of stock market liberalization in the MENA region—particularly related to macroeconomic factors.

In addition to the liberalization of the stock markets, a subset of countries in the region has recently gained economic visibility. Specifically, the Gulf Cooperation Council (GCC) countries have witnessed increased international exposure during the last years due to surging oil prices since the start of the 2000s, accumulation of petrodollars, and the global invesments of their sovereign wealth funds (Graham et al., 2013). These and related issues have contributed to the steady growth of the GCC stock market during the last decade and, although total GCC market capitalization is well below 2% of world market capitalization, it constitutes roughly 70% of total Arab stock market capitalization (Akoum et al., 2012; Graham et al., 2013).

Despite the (growing) economic and financial importance of the region, and the increasing attention that academics, policy-makers and practitioners are devoting to it, some issues have received very limited attention. Specifically, although an increasing number of studies now focus on the performance of Islamic mutual funds, which are of paramount importance in the region (see, among others Abdelsalam et al., 2014a,b), initiatives analyzing the performance of mutual funds whose general investment areas are MENA (and, consequently, GCC) countries are almost entirely yet to come.

Therefore, the first objective of our study is to analyze the comparative performance of both conventional and Islamic Funds in a region where most of the latter are concentrated. Specifically, we estimate mutual fund performance through a methodology that considers different factors related to the geographical area of investment of the fund. We do this in an attempt to avoid the presence of any bias related to the omission of relevant benchmarks, as suggested by Pástor and Stambaugh (2002) and Matallín-Sáez (2006), among others. In particular, we propose a linear multifactor model in line with previous studies such as Sharpe (1992) and Elton et al. (1993) (among others), who also adjust mutual fund returns to a set of relevant benchmarks.

The second objective of the study is to compare the performance of funds in both crisis and recovery times. In the aftermath of the recent financial crisis, this issue has attracted great interest among analysts of conventional mutual funds. Kosowski (2011) and Glode (2011) find that funds perform better in bad economic times than in good ones. De Souza and Lynch (2012) also analyze this issue, finding a more complex picture to

explain how performance can vary over the business cycle. Kacperczyk et al. (2014) also show that managers' skills are related to economic cycles. In line with this literature, we will also compare the performance of Islamic and conventional funds in periods of crisis and recovery. As far as we know, there is no previous evidence comparing this issue for Islamic and conventional funds in the MENA region investment area. We consider that this issue deserves investigation, given the intrinsic characteristics of this investment area, especially due to the constraints affecting Islamic funds.

In this regard, the available empirical evidence to date suggests that there are stock selection benefits to be found in small and specialized funds that could lead to better performance than the market. Such funds may be created by the application of stock selection criteria under the umbrella term of Socially Responsible Investments (SRI)[2] but may be further decomposed into ethical, social and religious investments.[3] With Islamic mutual funds on the rise, interest in their financial performance and how they compare against conventional investments has been receiving growing interest, as shown by several indicators. In fact, restrictions like the ones in Islamic finance would seem to make good investment sense, thus enhancing portfolio stability (Askari et al., 2010) particularly during financial downturns, while offering comparable or even better returns to investors.

Some of the empirical findings in support of this contention are presented here. Specifically, the study of Merdad et al. (2010) uses a sample of monthly data of Islamic and conventional funds in Saudi Arabia during the January 2003 to January 2010 period to examine risk return behavior. In their analysis they use asset pricing models and allow for bearish and bullish periods. Their results suggest that Islamic funds underperform conventional funds in bull periods but outperform them in bear periods; thus they offer hedging opportunities to investors during economic downturns. A similar conclusion is reached in Abdullah et al. (2007) for the Malaysian capital market during January 1992 to Decem-

[2]The main differences between Islamic finance and the rest of SRI are: i) the screening rules are based on *Shari'ah* (Islamic Law) and the investment has to be approved by a *Shari'ah* supervisory board appointed by the fund management; ii) the extensive use of financial screening criteria; iii) the provision for *zakat*, a charitable donation made at the fund level to "purify" any earnings from non-permissible sources. Consistency in Islamic finance as far as mutual fund investments are concerned is highlighted by the alignment in the financial criteria adopted by those with an interest in Islamic finance. Most recently, the Securities Commission in Malaysia made a move toward harmonization by adopting the financial criteria used by major index providers.

[3]Although the most well known religious investment today is Islamic finance, there are other religious investments that may adhere to rules set by, for example, the Christian church.

ber 2001 using a similar approach. Other studies such as Elfakhani et al. (2007) or, more recently, Hayat and Kraeussl (2011), however, fail to find any statistical difference in the financial performance of Islamic and conventional funds. Yet, when the observation period allows for bear/bull market classification, results show that Islamic mutual funds significantly outperform their benchmarks; hence they appear as attractive choices in enhancing portfolio diversification due to their low correlation to the market.

However, studies that examine the financial performance of mutual funds have not to date explicitly taken into account bear and bull markets. Accounting for this issue in the context of emerging markets has not yet received due attention, which contributes to enhance the relevance of our second objective.

The remainder of the paper is structured as follows. Section 2 provides details on the methodologies used to measure funds' performance. Section 3 describes the data used in the study; Section 4 reports the results, and finally, Section 5 presents some concluding remarks.

2. Methodology: mutual fund performance measurement

We now present the methods and model considered to measure the performance of both conventional and Islamic funds. Previous mutual fund performance literature has extensively applied linear models, which adjust a fund's returns to different risk factors; notable contributions to this literature include Fama and French (1993) and Carhart (1997). Other studies (Sharpe, 1992; Elton et al., 1993) also considered linear models including as factors the returns of the benchmarks represented by the asset classes in which the evaluated funds invest. In this line, and given that our interest lies in evaluating the performance of funds with differing geographical investment focuses, we propose a linear model with *multiple* benchmarks as follows:

$$r_{p,t} = \alpha_p + \beta_{p,g} r_{g,t} + \beta_{p,m} r_{m,t} + \varepsilon_{p,t} \tag{1}$$

In this expression $r_{p,t}$ corresponds to the excess return over the risk-free asset of the assessed fund, and α_p measures the fund's abnormal performance. The risk factors correspond to the excess returns, which in this particular context are: (i) a global benchmark

representing investment in different markets in the geographic area of influence of the fund ($r_{g,t}$); (ii) a specific benchmark which represents investment conditioned by the geographical focus defined by the fund ($r_{m,t}$). Due to the disparate behavior of the investment areas under study, we consider a specific benchmark with the aim of avoiding bias caused by omitting relevant benchmarks, as pointed out by Pástor and Stambaugh (2002) or Matallín-Sáez (2006), among others

3. Data

Our dataset comprises Islamic and conventional equity funds over the period January 2006 to December 2013 in the MENA region. Specifically our sample includes funds that invest in Egypt, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, Turkey and United Arab Emirates. As indicated in the introduction, our focus on the MENA region is driven, in part, by the importance of Islamic finance in the region, particularly in the GCC countries. The sample, free of survivorship bias, consists of 336 mutual funds, out of which 105 are Islamic and 231 are conventional. For mutual funds, benchmarks and factors, returns are computed monthly.

Descriptive statistics are reported in Tables 1, 2, 3 and 4. These tables report information not only on the number of funds and their average return and standard deviation for the countries and geographical areas included in the analysis, but also on the benchmarks used. Specifically, Table 1 reports information on the benchmarks considered for the funds with a given geographical investment focus (both general and specific), whereas Tables 2 and 3 report average return and average standard deviation for the sample of funds and benchmarks used, respectively. Both Table 2 and Table 3 report the information according to the geographical investment focus, considering countries individually and also grouped according to GCC and MENA.

More specifically, Table 1 reports information on these investment area as well as the number of funds and benchmarks (both general and specific) used in model (1). As can be observed in the table, one of the most prominent features is the disparate number of funds according to the different areas. At the top end we find Morocco (84), Saudi Arabia (71) and GCC (44), whereas the countries with fewer funds are Qatar (9), Oman (4) and Egypt

(2).

Several features emerge when examining the descriptive statistics reported in these tables. One of them is the remarkable disparities in terms of average return (Table 2), which is 2.71% for the 336 funds in the sample. However, underlying this positive average return we find negative average returns for those funds investing in Egypt (-12.50%), in contrast to much better returns (8.02%) for those investing in United Arab Emirates. Although the number of funds investing in Egypt is particularly low (only 2), this poor performance also existed for those investing in Kuwait (-6.68%). In this particular regard, although this hypothesis deserves careful examination, it should be noted that the funds with the worst average return correspond to those investing in countries where intense Arab revolutions took place (Egypt and Tunisia, -6.19%).

Table 3 shows some descriptive statistics for market factors used when model (1) is applied to performance measurement. These data reveal that average returns are higher in non-GCC country investment areas (Egypt, Morocco, Tunisia and Turkey) than in the other areas. This result and, in general, the disparities found for risk and returns warns us of the need to consider specific market factors in order to adjust mutual fund returns. If we proceeded differently, for instance by considering a global market factor only, performance would be affected by a local bias indicating that the best (worst) funds are those corresponding to the best (worst) investment areas.

Finally, Table 4 reports information on the two summary statistics considered (average and standard deviation) for different country classifications. Results in the upper panel correspond to those funds investing in GCC or MENA (excluding GCC) countries and, on average, the funds investing in the MENA region (excluding GCC) show higher returns. The lower panels separate funds according to their Islamic orientation, and returns differ depending on the investment zone. This analysis, albeit interesting, gains in depth when specifically mutual fund performance is measured, to which we devote the next section.

4. Results

We will present the results proceed in several stages. First, we analyze the performance for the entire period. Second, we consider that results could be affected by the recent events

that took place in some of the analyzed countries in the most recent years and, therefore, we consider two periods (2006/1–2009/2, and 2009/3–2013/12). Finally, we will also present results for systematic risk.

4.1. Results for the entire period

Results for the entire period of analysis (2006–2013) and all countries in the sample are reported in Table 5. As well as the number of funds for each country or geographical area considered and their average performance (α) over the analyzed period, the different columns in the table contain the percentage of funds with either positive ($\alpha > 0$) or negative performance ($\alpha < 0$), and the percentages of funds with *significantly* positive or negative performance (p-value$\leq .05$). As in the data section, we report results that also consider a variety of classifications according to both the investment zone and the orientation (Islamic/conventional), i.e., the two upper panels report results considering the geographical investment zone,[4] whereas the two lower panels consider the investment orientation.

The information in the upper panel shows that, on average, the performance of the 336 funds in the sample is negative (-0.5770%). This average effect is caused by funds with positive and negative performance in almost equal proportions (50.89% of the funds had $\alpha < 0$, whereas 49.11% had $\alpha > 0$). In addition, this is an *average* effect which varies remarkably across countries. For instance, similarly to what was noted in Section 3 for the *returns*, we find negative average *performance* for those funds investing in Egypt (-10.45%), whereas performance is much better (4.16%) for those investing in Morocco. Although, the number of funds investing in Egypt is particularly low (only 2), this poor performance also existed for the higher number of funds (41) investing in Kuwait (-6.68%). In this particular regard, although this hypothesis deserves careful examination, we should stress that, apart from Kuwait, the funds with the worst average performance are those investing in countries where intense Arab revolutions took place (Egypt and Tunisia, -10.45% and -5.28%, respectively). However, although the percentage of funds with negative performance is quite high in the three cases (92.68% for Kuwait, 100% for Egypt and 81.25% for Tunisia),

[4] In the upper panel, apart from individual countries we also consider GCC and MENA categories since some funds invest in specific countries whereas others invest in more general areas (GCC and MENA) without specifying which country in particular.

they were only significantly lower than zero for 39.02% and 25% of the instances for Kuwait and Tunisia, respectively. In the case of Egypt, since only two funds in our sample invested in the country results are not (cannot be) significant.

At the other extreme we find the average positive performance for Morocco (4.16%). Out of the 84 funds investing in the area, 83.33% had positive performance. However, only 25% showed positive performance significantly different from zero. For the rest of the countries or investment areas, as shown in the upper panel of Table 5, average performance is either negative (GCC, Saudi Arabia, United Arab Emirates, MENA, Turkey) or slightly positive (Oman, Qatar).

As shown in Table 5, we also split the sample of 336 funds into the 181 and 155 investing in GCC and MENA (excluding GCC) countries, respectively, for which average performance differs remarkably, being negative (-1.9253%) for the former and positive (0.9976%) for the latter. Again, this outcome is generated by differing behaviors. In the particular case of funds investing in GCC countries, although the average performance is negative, many funds (40.33%) had positive performance (although only 7.73% *significantly* positive).

The lower two panels in Table 5 report results according to the fund's orientation—either Islamic or conventional. In the particular case of the lower panel, the results are reported for funds investing in GCC countries only. We consider it necessary to show the comparison of Islamic and conventional funds only for GCC because the vast majority of Islamic funds correspond to the GCC region. The average performance shows particularly interesting trends since, regardless of the investment zone, conventional funds exhibit better performance than their Islamic peers (-0.2263% vs. -1.3484%). However, if the analysis is confined to funds investing in GCC only, the outcome is the opposite due to a much worse performance of conventional funds (-2.5676%).

The results commented on in the previous paragraphs are based on the analysis of averages values. We complement this information by estimating nonparametrically, via kernel smoothing (see Silverman, 1986), the densities corresponding to the different mutual funds according either to general investment region or to orientation. Specifically, Figure 1 shows the densities corresponding to Islamic and conventional funds depending on the

general investment zone, i.e., MENA (excluding GCC), GCC or MENA region. The vertical lines correspond to the mean for each group of funds (i.e., the solid line corresponds to the Islamic funds, and the dashed line to the conventional funds).

Results show that the differences are indeed quite small; however, differences exist, and the figures nicely complement the analysis for the means. Specifically, Figure 1a indicates that the relatively lower *average* performance (α) of Islamic funds in MENA (excluding GCC) countries compared to their conventional peers is mainly caused by a group of countries which perform relatively poorly—as shown by the notable bump in the vicinity of -0.15. However, the majority of Islamic funds in the MENA countries (excluding GCC) perform quite similarly to their conventional counterparts, since both densities almost superimpose in the vicinity of the mean corresponding to the conventional funds—shown by the dashed vertical line. At the other extreme, there is a modest bump constituted by a small group of conventional funds (in the vicinity of 0.17) which perform particularly well. Should we focus on the GCC region only (Figure 1b), the emerging picture is different, since the density corresponding to Islamic funds (represented by the solid line) is shifted slightly rightwards—i.e., although the means do not differ much, there is a notable number of Islamic funds performing better than their conventional counterparts. Taking the whole MENA region into account (Figure 1c), the densities corresponding to Islamic and conventional funds almost superimpose, indicating performance differences are negligible.

Figure 2 reports similar information as in Figure 1 but with a different sorting. In this case, the three subfigures display densities for Islamic, conventional and all funds—Figures 2a, 2b and 2c, respectively. Compared to Figure 1, according to the region (GCC/MENA (excl.GCC)) the differences are quite apparent, particularly for conventional funds in Figure 2b.

Examining jointly Figures 1 and 2, as well as the analysis stemming from the analysis of means, one may conclude that for funds investing in these particular countries, the differences are relatively low (except for the best and worst funds, located at the tails of the distributions), and the context (i.e., GCC or MENA (excl.GCC) countries) is more important than the orientation (Islamic/conventional), as shown when Figures 1c and 2c are compared directly.

4.2. Results for crisis and recovery periods

We also report results for the crisis and recovery periods within the period of analysis. The crisis period runs from the beginning of 2006 to February 2009 (2009/2), whereas the recovery period runs from March 2009 (2009/3) until December 2013 (2013/12). In order to determine these periods we analyzed the evolution of the stock market indices for the GCC and MENA areas. In both cases, the minimum corresponded to February 2009. As Table 3 shows, the first period is characterized by relatively high market volatility, and a bearish outcome. The second one is characterised by a moderate stock market growth, with relatively low volatility. In this analysis, the number of funds is restricted to 200, since the data should also correspond to one year, both before and after the cutoff point (February 2009). Analogously to the previous section, performance is estimated via model (1). We will compare the results for the performance achieved and the systematic risk corresponding to the fund in both periods.

Table 6, analogously to Table 5, reports the results for performance estimation considering groups according to geographical investment focus, as well as orientation—Islamic or conventional. A comparison of the results in Tables 5 and 6 reveals an overall improvement in performance, so that, as shown in the upper panel of Table 6, average performance becomes positive (3.66%). This result might be pointing to the ability of mutual fund managers for obtaining positive value added in an scenario of higher volatility and crisis.

Comparing the funds investing in the GCC area with those in the rest of MENA countries, Table 6 shows that the latter obtain higher performance than the former (4.6324 vs. 2.6802). Again, comparing Islamic vs. conventional funds in these areas is tricky because most of the funds investing in GCC countries are Islamic. Therefore, in the lower panel of Table 6, as in Table 5, we report results for Islamic and conventional funds that invest exclusively in GCC countries. In this case, the performance of Islamic funds almost doubles that achieved by their conventional counterparts—specifically, the difference is 1.69% higher annualized performance.

Results for the recovery period are reported in Table 7. Considering all investment areas, average annualized performance is negative (–2.0145%). This implies that managers find it more difficult to add value in a period of low volatility and moderate stock market

growth. This would be a scenario with fewer opportunities to generate benefits that offset the costs attributable to management, which might not be flexible enough to adapt to changing scenarios. However, many tendencies are similar when the results corresponding to the two periods are compared (Tables 6 and 7), i.e. funds investing in the GCC area perform worse than the rest of funds and, in addition, as shown in the lower panel, the tendency reverses for Islamic funds in GCC countries—the difference between Islamic and conventional funds in this area is 1.59%.

Similarly to the analysis undertaken for the entire period, we do not constrain the analysis to a summary statistic only (i.e., the mean) but extend it to the whole distribution. Specifically, the densities corresponding to the crisis period are reported in Figures 3 and 4, whereas those corresponding to the recovery period are displayed in Figures 5 and 6.

The differences observed for the entire period (Figures 1 and 2) were moderate. However, they are now more notable. In the case of Islamic funds, the analysis by subperiods does not exactly mimic that for the entire period. Although they still outperform their conventional counterparts in GCC countries, this result is stronger for the recovery period (Figure 5b)—although both types of funds performed worse in the recovery period. However, in the case of the MENA region (excluding GCC), Islamic funds perform fairly heterogeneously, as shown by the spread of the probability mass (see Figures 3a and 5a).

The densities in Figures 4 and 6 report analogous information to Figures 3 and 5 following a different ordering, in order to obtain deeper insights. Regardless of the subperiod considered, the conclusions obtained from the analysis for the entire period hold, i.e., Islamic funds clearly outperform their conventional counterparts in the GCC countries, whereas conventional funds are *slightly* (albeit noticeably) better than Islamic funds in the rest of the MENA region. Although differences exist, the performance differentials are present during both the crisis (Figures 4a and 4b) and recovery (Figures 6a and 6b) periods.

We also ran some tests in order to ascertain whether the differences observed between periods are statistically significant or not. As shown in Table 8, these differences are notable, and always significant at the usual levels (1%, 5%).

4.3. Results for systematic risk

We now compare the levels of systematic risk corresponding to the funds in each of the analyzed periods (Tables 9 and 10). Table 9 reports results for the first period and shows that, in general, the specific market factor, or benchmark, is significant for most funds (99.39%), with $\beta_{p,g} = 0.8027$. However, the general market factor is not as relevant, since only in 24% of the cases do we find significance, and the average value corresponding to $\beta = 0.2090$.

Table 10 reports the results for the second period. The value of the average β with a specific market factor, albeit significant, declines to 0.6593. In contrast, the average β with a general benchmark increases in significance, although its value is stable (0.2199, very similar to that corresponding to the first period). When the two periods are compared, the R^2 also worsens—from 0.7652 to 0.7033. Given that the specific market factor is the most relevant one, we may conclude that funds have a weaker link to this factor during the second period—both the lower β and lower R^2 point to this conclusion.

Table 11 shows the differences, and significance, for the betas corresponding to both periods. In most cases the differences in the average of the beta with the general benchmark are not significant. Only when the funds are grouped by general investment zone does the average of the funds outside the GCC increase the beta. With regard to the main systematic factor, i.e., beta with the specific benchmark, Table 11 shows how, on average, it diminished significantly from the crisis period to the recovery period. This last result holds regardless of how funds are grouped.

Recall (Table 3) that the first period is characterized by higher volatility and negative return, whereas the second one, on the contrary, shows less volatility and positive returns.

Therefore, the weaker link with the market in those moments where it presents better behavior is an opposite management style to what one might expect from good managers' abilities. In other words, in a recovery period with a moderate stock market growth, we should expect good managers to increase $\beta_{p,m}$, and not to diminish it. This would imply that the managers' timing would have been the opposite to the market evolution. However, it might have also been the case that managers are not actually carrying out active timing but, on the contrary, this is a passive outcome due to an asymmetric behavior of the assets

as suggested by Matallín-Sáez et al. (2014). These authors show that in bullish markets (such as that corresponding to our second period) the correlation among assets is lower, but it increases in bearish times, and with higher volatility (like our first period). This would imply an asymmetric behaviour in the assets' betas, where it is higher in bearish periods and lower in bullish periods, which would contribute to explain our findings.

In addition, as indicated in the lower rows corresponding to the right panel in Table 11, when comparing the results for Islamic and conventional funds we observe that the effect commented on above is higher for Islamic funds. The beta (for the specific benchmark) varies between –0.1344 for Islamic funds and –0.0838 for conventional funds. Since the Islamic stocks are usually more stable and less correlated with the market than other stocks (see, for instance Askari et al., 2010), it might be the case that, as correlation increases (in higher volatility times and market downturns), this asymmetric effect is exacerbated. As a consequence, the higher value added of Islamic fund managers with respect to their conventional peers might be eroded for this reason, contributing to shrink the gap between the two performances (1.69% in the first period and 1.59% in the second one) from data of lower panels of Tables 6 and 7 respectively.

5. Conclusions

The popularity of Islamic finance continues to grow even after (or maybe partly as a result of) the recent financial crisis. In this context, the present study compares the performance of Islamic and conventional mutual funds in the Middle East and North Africa region, broadly defined to include Turkey. To do so we utilize a linear model that adjusts mutual funds returns to different market factors according to their geographical investment focus. The first is a general market factor and the second a specific market factor both avoid incurring biases from the omission of relevant benchmarks. The sample, free of survivorship bias, consists of 336 mutual funds from January 2006 to December 2013.

We consider the study is pertinent for a variety of reasons. First, there are theoretical arguments supporting the view that Islamic funds, as well as other types of constrained investments such as Socially Responsible Investment (SRI), might exhibit more stable patterns in turbulent times, from both a financial and a socioeconomic point of view (Askari

et al., 2010; Abdelsalam et al., 2014a). If we factor in the growth of these types of funds (especially Islamic) since the beginning of the 2000s (Abdelsalam et al., 2014b), they offer a particularly interesting field of research.

Second, because of these reasons, several studies have compared the relative performance of Islamic with either conventional or other types of constrained investments such as SRI. However, the previous literature does not usually exclusively consider those funds investing in the MENA region. This region has become particularly important both from a financial perspective (due to the stock markets liberalization initiatives in several countries) as well as a socioeconomic one (due to the revolts in the area).

Third, conducting an analysis by subperiods allows us to factor into the analysis the existence of bear and bull markets and, therefore, to assess with more precision whether Islamic funds are more stable—i.e., we can evaluate the hypothesis of whether their performance is, in general, comparable to that of conventional funds, and more resilient during financial downturns.

Results can be explored from a variety of perspectives. Specifically, we report results grouping mutual funds according to their geographical investment focus (country), their general investment zone (GCC or MENA, excluding GCC), or orientation (Islamic or conventional). In general, we find notable discrepancies in the performance of the funds investing in the area. These discrepancies are quite apparent when evaluating the performance for funds investing in each particular country, in specific groups of countries (GCC/rest of MENA), or according to the Islamic orientation. The analysis by subperiods is also pertinent, since these results change for each subperiod considered.

Firstly, our results show that when mutual funds are grouped by general investment zone, the average performance of mutual funds of the GCC region perform worse than the funds from the rest of the MENA zone. This evidence holds both for the analysis of the entire sample and for the two subsample periods, crisis and recovery, this difference is most notable in the second period.

Secondly, we compare the performance of Islamic and conventional mutual funds. Compared with previous literature, we find that distinguishing between different regions and orientations is quite relevant since conventional funds perform (on average) better than

their Islamic counterparts when considering the entire MENA region but the opposite results are found for the GCC countries. Since most Islamic funds belong to the GCC region, a direct comparison between the two types of funds may be biased by the better performance of other countries in the MENA region. Therefore a more appropriate comparison would be only that focusing on the GCC, where the vast majority of Islamic funds invest. In the latter case, the performance of Islamic funds is better than conventional funds, and this finding holds both for the analysis of the entire period and for the two subperiods.

Thirdly, we analyze the performance of the mutual funds in the sample differentiating between crisis and recovery periods. We find evidence that mutual funds perform better in bad states than in good states. This result is in line with previous literature on conventional mutual funds. This evidence holds for both Islamic and conventional mutual funds. Therefore, although the literature indicates that Islamic finance is more stable and less sensitive to conventional markets, the evidence, in relation to the performance achieved by mutual funds, is that both Islamic and conventional funds show a similar pattern when bad and good states are compared.

Fourthly, mutual fund systematic risk is analyzed. The results show that the most important systematic risk factor is the local or specific benchmark. In the aggregate, the funds investing in the GCC region are slightly less risky than the rest of the funds in the MENA region. Between Islamic and conventional, the former are slightly less risky than the latter. When crisis and recovery periods are differentiated, in aggregate mutual funds have reduced their risk position in the second case, which could be interpreted as incorrect market timing. When mutual funds are grouped by Islamic orientation, the systematic risk reduction was greater in Islamic than in conventional funds. This result could be explained in part by the more stable behavior of the Islamic assets.

References

Abdelsalam, O., Duygun, M., Matallín-Sáez, J. C., and Tortosa-Ausina, E. (2014a). Do ethics imply persistence? The case of Islamic and socially responsible funds. *Journal of Banking & Finance*, 40:182–194.

Abdelsalam, O., Fethi, M. D., Matallín, J. C., and Tortosa-Ausina, E. (2014b). On the comparative performance of Socially Responsible and Islamic mutual funds. *Journal of Economic Behavior & Organization*, 103:S108–S128.

Abdullah, F., Hassan, T., and Mohamad, S. (2007). Investigation of performance of malaysian islamic unit trust funds: Comparison with conventional unit trust funds. *Managerial Finance*, 33(2):142–153.

Achy, L. (2001). Financial liberalization, savings, investment, and growth in MENA countries. *Research in Middle East Economics*, 6:67–94.

Akoum, I., Graham, M., Kivihaho, J., Nikkinen, J., and Omran, M. (2012). Co-movement of oil and stock prices in the GCC region: A wavelet analysis. *Quarterly Review of Economics and Finance*, 52(4):385–394.

Ali, S. S. (2005). Islamic capital market products: Developments and challenges. Occasional Paper 9 (1425H/2005), Islamic Research and Training Institute (IRTI), Islamic Development Bank Group, Jeddah, Saudi Arabia.

Askari, H., Iqbal, Z., Krichene, N., and Mirakhor, A. (2010). *The Stability of Islamic Finance*. Wiley Finance. Wiley, Singapore.

Carhart, M. M. (1997). On persistence in mutual fund performance. *Journal of Finance*, 52(1):57–82.

Chaney, E. (2013). Revolt on the Nile: Economic shocks, religion, and political power. *Econometrica*, 81(5):2033–2053.

Chaney, E., Akerlof, G. A., and Blaydes, L. (2012). Democratic change in the Arab World, past and present. *Brookings Papers on Economic Activity*, Spring:363–414.

De Souza, A. and Lynch, A. W. (2012). Does mutual fund performance vary over the business cycle? Working Paper 18137, National Bureau of Economic Research, Cambridge, MA.

Elfakhani, S. M., Hassan, M. K., and Sidani, Y. M. (2007). Islamic mutual funds. In Hasan, M. K. and Lewis, M. K., editors, *The Handbook of Islamic Banking*, chapter 16, pages 256–273. Edward Elgar Publishing, Cheltenham.

Elton, E. J., Gruber, M. J., Das, S., and Hlavka, M. (1993). Efficiency with costly information: A reinterpretation of evidence from managed portfolios. *Review of Financial Studies*, 6(1):1–22.

Fama, E. F. and French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33(1):3–56.

Gentzoglanis, A. (2007). Financial integration, regulation and competitiveness in Middle East and North Africa countries. *Managerial Finance*, 33(7):461–476.

Glode, V. (2011). Why mutual funds "underperform". *Journal of Financial Economics*, 99(3):546–559.

Graham, M., Kiviaho, J., Nikkinen, J., and Omran, M. (2013). Global and regional co-movement of the MENA stock markets. *Journal of Economics and Business*, 65:86–100.

Hayat, R. and Kraeussl, R. (2011). Risk and return characteristics of Islamic equity funds. *Emerging Markets Review*, 12(2):189–203.

Kacperczyk, M., Van Nieuwerburgh, S., and Veldkamp, L. (2014). Time-varying fund manager skill. *Journal of Finance*, 69(4):1455–1484.

Khaldi, K. and Hamdouni, A. (2011). Islamic financial intermediation: equity, efficiency and risk. *International Research Journal of Finance and Economics*, 65:145–160.

Khan, F. (2010). How "Islamic" is Islamic banking? *Journal of Economic Behavior & Organization*, 76(3):805–820.

Khatkhatay, M. H. and Nisar, S. (2007). Shari'ah compliant equity investments: an assessment of current screening norms. *Islamic Economic Studies*, 15:47–76.

Knutsen, C. H. (2014). Income growth and revolutions. *Social Science Quarterly*, 95(4):920–937.

Kosowski, R. (2011). Do mutual funds perform when it matters most to investors? US mutual fund performance and risk in recessions and expansions. *Quarterly Journal of Finance*, 1(3):607–664.

Malik, A. and Awadallah, B. (2013). The economics of the Arab Spring. *World Development*, 45:296–313.

Matallín-Sáez, J. C. (2006). Seasonality, market timing and performance amongst benchmarks and mutual fund evaluation. *Journal of Business Finance & Accounting*, 33(9-10):1484–1507.

Matallín-Sáez, J. C., Moreno, D., and Rodriguez, R. (2014). Why timing is perverse? *European Journal of Finance*, forthcoming.

Merdad, H., Hassan, M. K., and Alhenawi, Y. (2010). Islamic versus conventional mutual funds performance in saudi arabia: a case study. *Journal of King Abdulaziz University: Islamic Economics*, 23(2).

Naceur, S. B., Ghazouani, S., and Omran, M. (2008). Does stock market liberalization spur financial and economic development in the MENA region? *Journal of Comparative Economics*, 36(4):673–693.

Neaime, S. (2005). Financial market integration and macroeconomic volatility in the MENA region: An empirical investigation. *Review of Middle East Economics and Finance*, 3(3):231–255.

Olson, D. and Zoubi, T. A. (2008). Using accounting ratios to distinguish between Islamic and conventional banks in the GCC region. *International Journal of Accounting*, 43:45–65.

Pástor, L. and Stambaugh, R. F. (2002). Investing in equity mutual funds. *Journal of Financial Economics*, 63(3):351–380.

Sekkat, K. (2014). Inter-state tensions and regional integration: could the Arab Spring initiate a virtuous circle? *Contemporary Arab Affairs*, 7(3):363–379.

Sharpe, W. F. (1992). Asset allocation: management style and performance measurement. *Journal of Portfolio Management*, 18(2):7–19.

Silverman, B. W. (1986). *Density Estimation for Statistics and Data Analysis*. Chapman and Hall, London.

Winckler, O. (2013). The "Arab Spring": Socioeconomic aspects. *Middle East Policy*, 20(4):68–87.

Table 1: Data on the geographical zone and benchmarks used

Geographical investment focus	Number of funds	Benchmarks	
		General	Specific
Egypt	2	S&P Pan Arab Composite	MSCI Egypt
GCC	44	S&P GCC Composite	
Kuwait	41	S&P GCC Composite	MSCI Kuwait
MENA	12	S&P Pan Arab Composite	
Morocco	84	S&P Pan Arab Composite	MSCI Morocco
Oman	4	S&P GCC Composite	MSCI Oman
Qatar	9	S&P GCC Composite	MSCI Qatar
Saudi Arabia	71	S&P GCC Composite	MSCI Saudi Arabia Domestic GR USD
Tunisia	16	S&P Pan Arab Composite	MSCI Tunisia
Turkey	41	S&P Pan Arab Composite	MSCI Turkey
United Arab Emirates	12	S&P GCC Composite	MSCI United Arab Emirates
Total	336		

Table 2: Descriptive statistics for the sample of funds

Geographical investment focus	Number of funds	Average return (annualized, %)	Average standard deviation (annualized, %)
GCC	44	2.12	19.33
Kuwait	41	–6.68	21.97
Oman	4	4.07	15.68
Qatar	9	7.71	20.27
Saudi Arabia	71	3.84	22.39
United Arab Emirates	12	8.02	26.19
MENA	12	–1.00	19.23
Egypt	2	–12.50	18.51
Morocco	84	6.76	17.33
Tunisia	16	–6.19	10.79
Turkey	41	5.02	32.84
Total	336	2.71	21.26

Table 3: Descriptive statistics for benchmarks and factors

Geographical investment focus	Average return (annualized, %)				Average standard deviation (annualized, %)			
	All sample	Crisis	Recovery	Difference (recovery - crisis)	All sample	Crisis	Recovery	Difference (recovery - crisis)
Risk free asset	1.39	3.43	0.06	–3.37	0.57	0.50	0.02	–0.48
GCC	–1.40	–30.26	17.51	47.76	22.68	28.61	15.48	–13.12
MENA	–1.15	–26.03	15.15	41.18	21.04	26.82	14.32	–12.50
Egypt	8.23	–4.42	16.52	20.95	34.97	37.86	32.71	–5.15
Kuwait	0.94	–15.89	11.97	27.87	24.71	28.15	21.58	–6.57
Morocco	9.27	27.40	–2.61	–30.01	21.99	27.77	16.29	–11.48
Oman	3.70	–7.78	11.22	19.00	21.38	27.64	15.62	–12.02
Qatar	7.45	–17.67	23.90	41.57	28.32	38.41	17.45	–20.96
Saudi Arabia	0.05	–32.54	21.40	53.94	29.18	38.75	18.16	–20.59
Tunisia	8.87	12.26	6.65	–5.61	18.86	19.04	18.71	–0.33
Turkey	9.65	–11.14	23.27	34.41	39.81	45.74	34.84	–10.90
United Arab Emirates	–1.47	–47.26	28.53	75.79	35.06	38.60	29.48	–9.11

Table 4: Descriptive statistics for the sample of funds and benchmarks used, groupings

Geographical investment focus	Number of funds	Average return (annualized)	Average standard deviation (annualized)
Grouping by general investment zone			
GCC	181	1.52%	21.55%
MENA (excluding GCC)	155	4.11%	20.92%
Total	336		
Grouping by Islamic orientation			
Islamic	105	2.11%	19.23%
Conventional	231	2.99%	22.18%
Total	336		
Grouping by Islamic orientation (only GCC general investment zone)			
Islamic	93	2.45%	19.94%
Conventional	88	0.53%	23.25%
Total	181		

Table 5: Results for mutual fund performance (α), whole period (2006–2013)

	Number of funds	Average performance (annualized), %	% of funds with $\alpha < 0$	% of funds with $\alpha < 0$ and p-value $\leq .05$	% of funds with $\alpha > 0$	% of funds with $\alpha > 0$ and p-value $\leq .05$
Grouping by geographical investment focus						
GCC	44	–0.5877	50.00	9.09	50.00	11.36
MENA	12	–3.2028	58.33	16.67	41.67	8.33
Egypt	2	–10.4549	100.00	0.00	0.00	0.00
Kuwait	41	–6.4385	92.68	39.02	7.32	2.44
Morocco	84	4.1586	16.67	0.00	83.33	25.00
Oman	4	0.5276	25.00	0.00	75.00	0.00
Qatar	9	0.4174	33.33	11.11	66.67	0.00
Saudi Arabia	71	–0.7756	52.11	4.23	47.89	9.86
Tunisia	16	–5.2808	81.25	25.00	18.75	0.00
Turkey	41	–1.2405	65.85	29.27	34.15	4.88
United Arab Emirates	12	–0.7871	58.33	0.00	41.67	8.33
Total	336	–0.5770	50.89	12.50	49.11	11.31
Grouping by general investment zone						
GCC	181	–1.9253	59.67	13.26	40.33	7.73
MENA (excluding GCC)	155	0.9976	40.65	11.61	59.35	15.48
Grouping by Islamic orientation						
Islamic	105	–1.3484	55.24	13.33	44.76	11.43
Conventional	231	–0.2263	48.92	12.12	51.08	11.26
Grouping by Islamic orientation (only GCC general investment zone)						
Islamic	93	–1.3176	54.84	12.90	45.16	11.83
Conventional	88	–2.5676	64.77	13.64	35.23	3.41

Table 6: Results for mutual fund performance (α), crisis period (2006/1–2009/2)

	Number of funds	Average performance (annualized), %	% of funds with $\alpha < 0$	% of funds with $\alpha < 0$ and p-value $\leq .05$	% of funds with $\alpha > 0$	% of funds with $\alpha > 0$ and p-value $\leq .05$
Grouping by geographical investment focus						
GCC	26	4.2322	38.46	3.85	61.54	15.38
MENA	6	–7.7179	50.00	16.67	50.00	0.00
Egypt	0	—	—	—	—	—
Kuwait	37	–5.0736	78.38	2.70	21.62	2.70
Morocco	54	9.2580	9.26	0.00	90.74	3.70
Oman	2	13.4238	0.00	0.00	100.00	0.00
Qatar	0	—	—	—	—	—
Saudi Arabia	36	8.5861	19.44	0.00	80.56	8.33
Tunisia	4	5.1757	25.00	0.00	75.00	25.00
Turkey	27	–1.9547	59.26	22.22	40.74	0.00
United Arab Emirates	8	6.5808	12.50	12.50	87.50	25.00
Total	200	3.6623	36.00	5.00	64.00	6.50
Grouping by general investment zone						
GCC	109	2.8524	43.12	2.75	56.88	9.17
MENA (excluding GCC)	91	4.6324	27.47	7.69	72.53	3.30
Total	200					
Grouping by Islamic orientation						
Islamic	55	3.5095	43.64	3.64	56.36	10.91
Conventional	145	3.7203	33.10	5.52	66.90	4.83
Total	200					
Grouping by Islamic orientation (only GCC general investment zone)						
Islamic	52	3.7353	44.23	3.85	55.77	11.54
Conventional	57	2.0469	42.11	1.75	57.89	7.02
Total	109					

Table 7: Results for mutual fund performance (α), recovery period (2009/3–2013/12)

	Number of funds	Average performance (annualized), %	% of funds with $\alpha < 0$	% of funds with $\alpha < 0$ and p-value $\leq .05$	% of funds with $\alpha > 0$	% of funds with $\alpha > 0$ and p-value $\leq .05$
Grouping by geographical investment focus						
GCC	26	–1.4774	46.15	3.85	53.85	7.69
MENA	6	–1.2522	66.67	16.67	33.33	16.67
Egypt	—	—	—	—	—	—
Kuwait	37	–7.8808	94.59	29.73	5.41	0.00
Morocco	54	1.8127	22.22	0.00	77.78	1.85
Oman	2	–0.0306	50.00	0.00	50.00	0.00
Qatar	—	—	—	—	—	—
Saudi Arabia	36	–2.8270	52.78	19.44	47.22	5.56
Tunisia	4	–5.1501	100.00	25.00	0.00	0.00
Turkey	27	–1.2886	77.78	33.33	22.22	0.00
United Arab Emirates	8	-0.7553	62.50	0.00	37.50	0.00
Total	200	–2.0145	56.50	15.00	43.50	3.00
Grouping by general investment zone						
GCC	109	–4.0172	66.06	17.43	33.94	3.67
MENA (excluding GCC)	91	0.3844	45.05	12.09	54.95	2.20
Total	200					
Grouping by Islamic orientation						
Islamic	55	–3.1183	50.91	9.09	49.09	9.09
Conventional	145	–1.5958	58.62	17.24	41.38	0.69
Total	200					
Grouping by Islamic orientation (only GCC general investment zone)						
Islamic	52	–3.1882	50.00	9.62	50.00	7.69
Conventional	57	–4.7735	80.70	24.56	19.30	0.00
Total	109					

Table 8: Mutual fund performance (α), testing for the differences of means (comparing subperiods)

	Average performance (annualized, %)			
	Crisis	Recovery	Difference (Recovery - crisis)	*p*-value
All funds	3.66	–2.01	–5.68	0.0000
Grouping by general investment zone				
GCC	2.85	–4.02	–6.87	0.0000
MENA (excluding GCC)	4.63	0.38	–4.25	0.0122
Grouping by Islamic orientation				
Islamic	3.51	–3.12	–6.63	0.0009
Conventional	3.72	–1.60	–5.32	0.0000
Grouping by Islamic orientation (only GCC general investment zone)				
Islamic	3.74	–3.19	–6.92	0.0006
Conventional	2.05	–4.77	–6.82	0.0001

Table 9: Results for systematic risk (β), crisis period (2006/1–2009/2)

	Number of funds	Average beta with general bench-mark ($\beta_{p,g}$, %)	% of funds with significant β (p-value $\leq .05$)	Average beta with specific bench-mark ($\beta_{p,m}$, %)	% of funds with significant beta with specific bench-mark (p-value $\leq .05$)	R^2
Grouping by geographical investment focus						
GCC	26	0.7795	100	—	100.00	0.6342
MENA	6	0.7385	100.00	—	—	0.6050
Egypt	0	—	—	—	—	—
Kuwait	37	0.0998	10.81	0.7643	97.30	0.7494
Morocco	54	0.0244	1.85	0.8453	96.30	0.7027
Oman	2	0.2165	50.00	0.8437	100.00	0.8381
Qatar	—	—	—	—	—	—
Saudi Arabia	36	0.2632	13.89	0.7812	91.67	0.8614
Tunisia	4	0.1942	100.00	0.4232	100.00	0.5424
Turkey	27	0.0236	0.00	0.8558	100.00	0.9373
United Arab Emirates	8	0.0956	12.50	0.7896	100.00	0.8848
Total	200	0.2019	24.00	0.8027	99.39	0.7652
Grouping by general investment zone						
GCC	109	0.3177	33.94	0.7760	95.18	0.7705
MENA (excluding GCC)	91	0.0787	12.09	0.8288	91.21	0.7588
Total	200					
Grouping by Islamic orientation						
Islamic	55	0.4366	45.45	0.7484	94.29	0.7629
Conventional	145	0.1226	15.86	0.8170	96.99	0.7661
Total	200					
Grouping by Islamic orientation (only GCC general investment zone)						
Islamic	52	0.4185	42.31	0.7484	94.29	0.7742
Conventional	57	0.2258	26.32	0.7961	95.83	0.7672
Total	109					

Table 10: Results for systematic risk (β), recovery period (2009/3–2013/12)

	Number of funds	Average beta with general bench-mark ($\beta_{p,g}$, %)	% of funds with significant β (p-value $\leq .05$)	Average beta with specific bench-mark ($\beta_{p,m}$, %)	% of funds with significant beta with specific bench-mark (p-value $\leq .05$)	R^2
Grouping by geographical investment focus						
GCC	26	0.7371	92.31	—	—	0.6001
MENA	6	0.8388	0.00	—	—	0.6695
Egypt	—	—	—	—	—	—
Kuwait	37	0.2200	62.16	0.5144	94.59	0.6813
Morocco	54	0.1132	55.56	0.5777	100.00	0.6260
Oman	2	0.0264	0.00	0.7222	100.00	0.8379
Qatar	—	—	—	—	—	—
Saudi Arabia	36	0.0292	0.00	0.8259	97.22	0.7661
Tunisia	4	0.1277	25.00	0.3306	100.00	0.3513
Turkey	27	0.1394	44.44	0.8348	100.00	0.9298
United Arab Emirates	8	0.0189	0.00	0.6881	100.00	0.783
Total	200	0.2199	48.00	0.6593	94.83	0.7033
Grouping by general investment zone						
GCC	109	0.2620	43.12	0.6712	96.39	0.7003
MENA (excluding GCC)	91	0.1694	53.85	0.6477	93.41	0.7069
Total	200					
Grouping by Islamic orientation						
Islamic	55	0.3492	49.09	0.6150	91.43	0.6416
Conventional	145	0.1709	47.59	0.6710	100.00	0.7267
Total	200					
Grouping by Islamic orientation (only GCC general investment zone)						
Islamic	52	0.3256	46.15	0.6150	91.43	0.6476
Conventional	57	0.2040	40.35	0.7123	100.00	0.7483
Total	109					

Table 11: Systematic risk (β), testing for the differences of means (comparing subperiods)

	Average beta with general benchmark ($\beta_{p,g}$, %)				Average beta with specific benchmark			
	Crisis	Recovery	Difference (Recovery - crisis)	p-value	Crisis	Recovery	Difference (Recovery - crisis)	p-value
All funds	0.2090	0.2199	0.0109	0.7173	0.8027	0.6593	–0.1433	0.0000
Grouping by general investment zone								
GCC	0.3177	0.2620	–0.0557	0.2238	0.7760	0.6712	–0.1047	0.0022
MENA (excluding GCC)	0.0787	0.1694	0.0907	0.0048	0.8288	0.6477	–0.1810	0.0000
Grouping by Islamic orientation								
Islamic	0.4366	0.3492	–0.0875	0.2047	0.7484	0.6150	–0.1334	0.0155
Conventional	0.1226	0.1709	0.0482	0.0915	0.8170	0.6710	–0.1459	0.0000
Grouping by Islamic orientation (only GCC general investment zone)								
Islamic	0.4185	0.3256	–0.0929	0.1864	0.7484	0.6150	–0.1334	0.0155
Conventional	0.2258	0.2040	–0.0218	0.7005	0.7961	0.7123	–0.0838	0.0496

Figure 1: Performance (α), Islamic vs. conventional, whole period

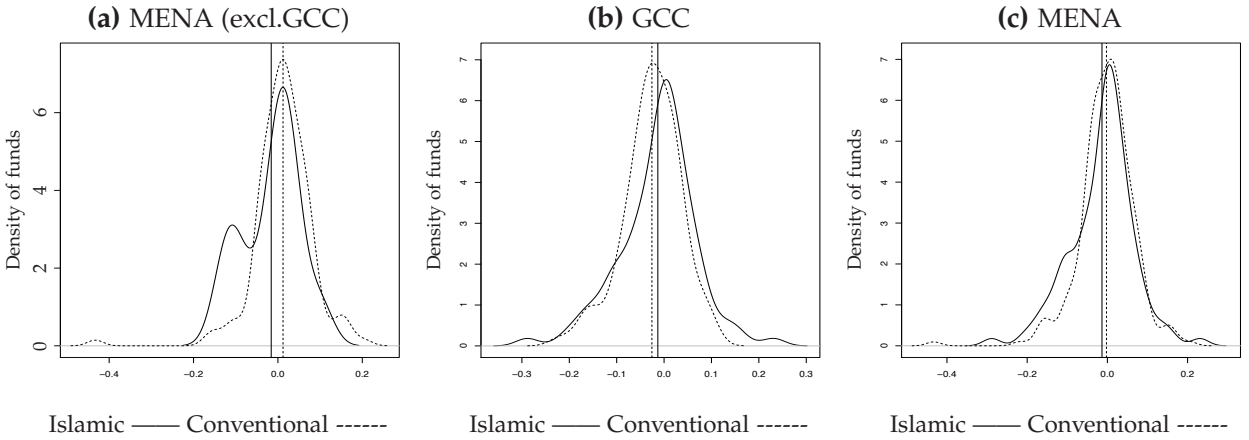

Figure 2: Performance (α), GCC vs. MENA (excl.GCC), whole period

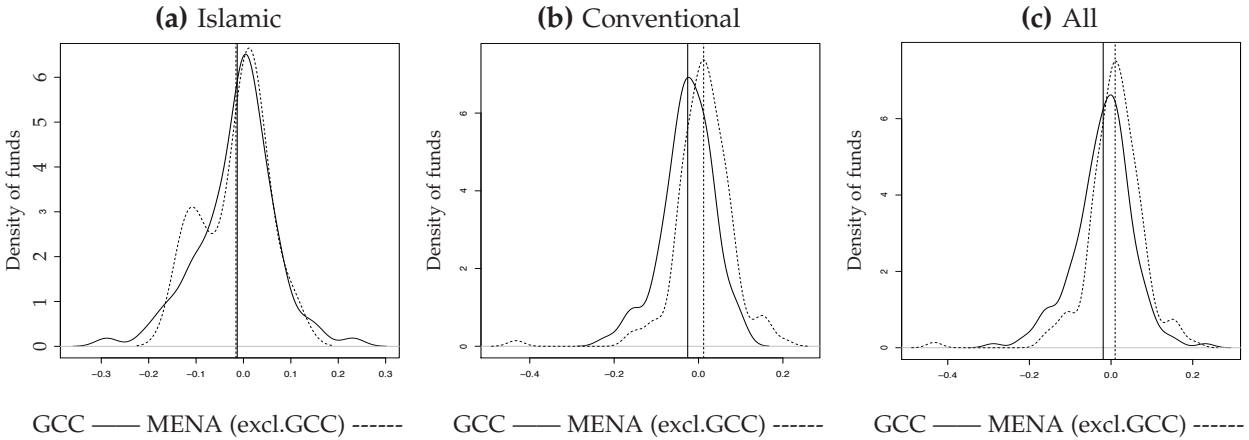

Figure 3: Performance (α), Islamic vs. conventional, crisis period (2006/1–2009/2)

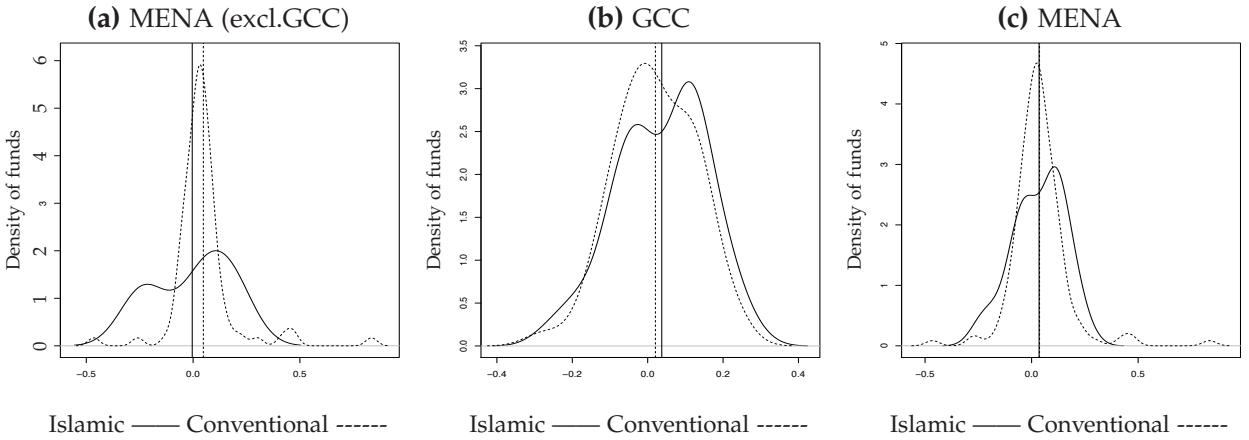

Figure 4: Performance (α), GCC vs. MENA (excl.GCC), crisis period (2006/1–2009/2)

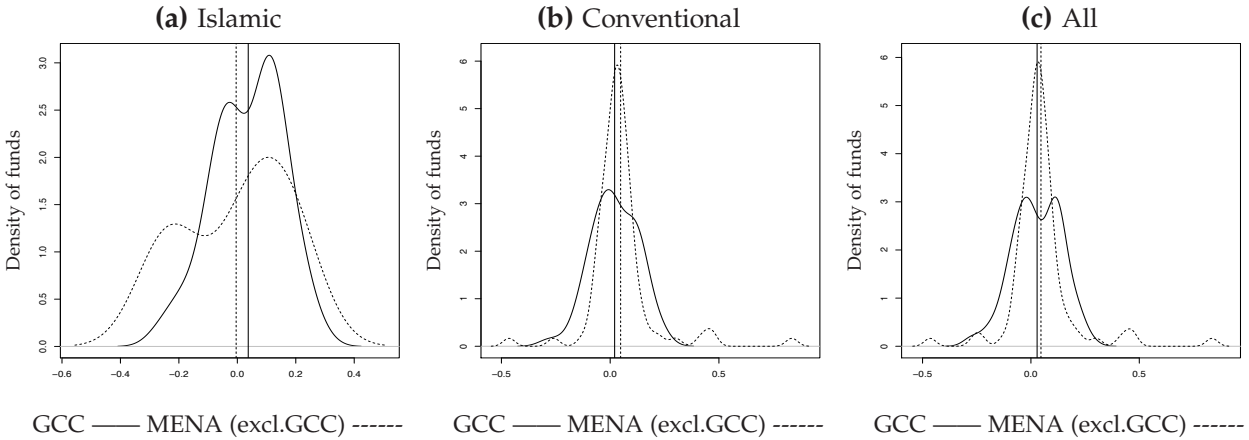

Figure 5: Performance (α), Islamic vs. conventional, recovery period (2009/3–2013/12)

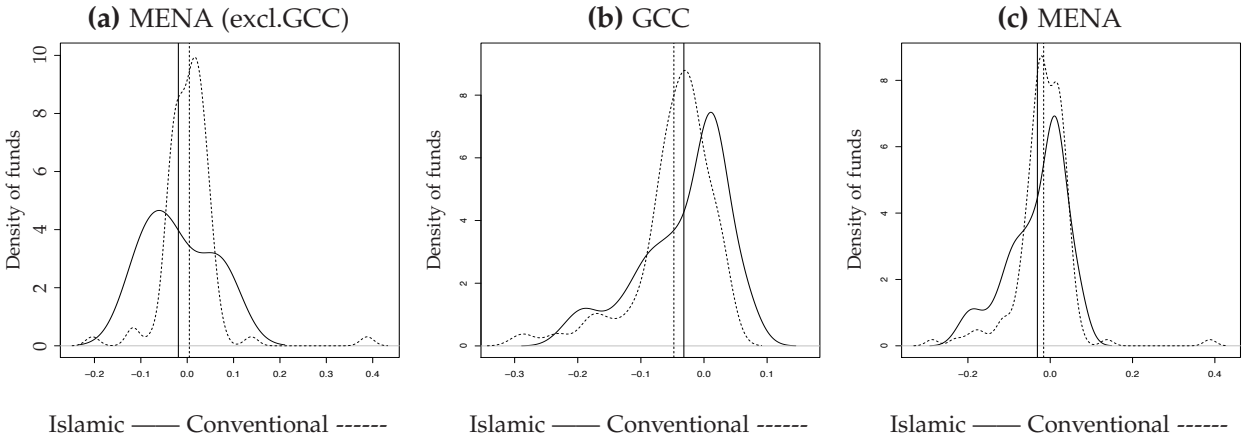

Figure 6: Performance (α), GCC vs. MENA (excl.GCC), recovery period (2009/3–2013/12)