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Are the Islamic indexes size or sector oriented? evidence from Dow Jones Islamic indexes

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Abstract

This paper examines the impact of the Shari'ah filtering criteria on the composition in size and sectors of Dow Jones Islamic indexes relative to their conventional counterparts. Filtering criteria remove a large number of Shari'ah non-compliant firms, reducing the number of stocks included in the DJ Islamic indexes, and thus implying the relative under-diversification of the Islamic indexes. We show that all conventional and Islamic indexes are rather small-cap oriented, except for DJ Islamic Asia and Japan indexes which are more mid-cap oriented. Further, the Shari'ah compliant screens slightly modify the proportion of firm sizes. However, we find that filtering leads to higher concentration in some sectors, especially Basic Materials, Industrials and Technology focused in most DJ Islamic indexes, whereas the conventional indexes are rather Industrials, Consumer Goods and Services and Financials sector oriented. Finally, we compare the risk-adjusted performance on the Islamic and conventional size- and sector-indexes. We find that the Islamic size sub-indexes exhibit higher risk-adjusted performance than their conventional counterpart, and the Islamic sector sub-indexes outperform their non-Islamic counterpart for Basic Materials, Consumer Goods and Services, Health Care, Industrials, Technologies and Telecommunications. These differences in performance at the sector level can explain the higher performance of the DJIM than the DJGM at the aggregate level.

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1. Introduction

Islamic finance is based on the application of classical Islamic law in the management of money: this implies the prohibition of interest, of excessive risk, of gambling, the exclusion of investments in arms, alcohol, casinos, tobacco, pornography and pork, and a major attention on social welfare. Like any other modern avatars of ethical investments, such as *green*, *faith* or *socially responsible* investments, the Islamic investing aims at generating low volatility returns and value enhancement opportunities by focusing on low-debt, non-financial, social-ethical investment vehicles (De Lorenzo, 2001).[1]

Some studies investigate the impact of ethical screening on the performance of Islamic indexes relative to their conventional counterparts.[2] Using various measures of risk-adjusted performance, they find that there are no significant difference in the risk-adjusted performance of both indices, suggesting that the Islamic and conventional indexes are of similar performance (see, e.g., Ahmad and Ibrahim, 2002; Hussein, 2004, 2007; Albaity and Ahmad, 2008; Girard and Hassan, 2008; Dharani and Natarajan, 2011a; Abbes, 2012). Consequently, it seems that whether an investor invests in screened or non-screened index, the returns will not differ. Nevertheless, Hussein (2004, 2007), Hassan and Girard (2011) and Abbes (2012) find that the Islamic indices yield statistically significant positive abnormal returns in the bull market period, although it underperforms the counterpart indices in the bear market period. This finding can guide investors in their investment decision by providing information on the risk and return relation during bull and bear periods. Further, Ho et al. (2014) find that Islamic indices outperformed their conventional counterparts during crisis periods (Dotcom crisis and Global Financial Crisis periods), but results are inconclusive for the non-crisis periods, by comparing risk-adjusted performance. Jawadi et al. (2014) also show that Islamic indices appear to outperform conventional indices, particularly during the Global Financial Crisis, while non-Islamic indices seem to be preferred in calm periods.

Alternative plausible explanations have been proposed in the literature to explain the difference of risk and performance between the Islamic and conventional indexes. First, the relative under-diversification of the Islamic indexes due to filtering criteria that remove a large number of *Shari'ah* non-compliant firms. The systematic exclusion of the largest firms from the broad universe of investable equities included in Islamic indexes due to the financial ratios screen implies that the remaining *Shari'ah* compliant firms are smaller (Hussein and Omran, 2005; Girard and Hassan, 2008; Sati et al., 2014). Hussein and Omran (2005) and Girard and Hassan (2008) find that Islamic indices are small-cap oriented and conventional indices are relatively more mid-cap focused. Second, as a result, *Shari'ah* compliant firms becomes less diversified and being concentrated in some specific sectors (Hussein and Omran, 2005). Therefore, lower leverage and less diversification are the main distinctive features of Islamic indices. Dewandaru et al. (2015) find that DJ Islamic indexes are concentrated in health care, industrial goods, oil and gas, retail and technology. Girard and Hassan (2008) find that FTSE Islamic indices are growth oriented and conventional indices are relatively more value focused, and suggest that one reason behind the high proportion of growth stocks may come from the exclusion of value sectors with higher environmental risks, such as chemical, energy, and basic industries. Therefore, as suggested by Yilmaz et al. (2015), since sub-indexes have been created, investors can have the opportunity to allocate their portfolio in distinctive sectors.

[1] The most important difference between Islamic and other ethical funds is that in addition to the exclusion of particular sectors, Islamic funds do not deal in fixed income market and the receipt and payment of interest is not permitted (Hussein, 2004).

[2] See Hassan and Girard (2011) for a review of empirical literature on faith-based Islamic investing.

This paper contributes to the literature by examining the impact of the *Shari'ah* filtering criteria on the composition in size and sectors of Dow Jones Islamic indexes relative to their conventional counterparts. Filtering criteria remove a large number of *Shari'ah* non-compliant firms, reducing the number of stocks included in the DJ Islamic indexes, and thus implying the relative under-diversification of the Islamic indexes. Thus, we try to response to the following question: Are the Islamic indexes size or sector-oriented? We show that, in contradiction with the previous studies, all conventional and Islamic indexes are rather small-cap oriented, except for DJ Islamic Asia and Japan indexes which are more mid-cap oriented. Further, the *Shari'ah* compliant screens slightly modify the proportion of firm sizes (increasing or decreasing). It seems that a potential size bias due to the *Shari'ah* filtering criteria, which tend to exclude the largest, more stable, constituents from the broad universe of investable stocks, cannot be a relevant explanation on difference between Islamic and conventional indexes. However, we find that *Shari'ah* filtering leads to higher concentration in some sectors, especially Basic Materials, Industrials and Technology focused in most DJ Islamic indexes, whereas the conventional indexes are rather Industrials, Consumer Goods and Services and Financials sector oriented. Finally, we compare the risk-adjusted performance on the Islamic and conventional size- and sector-indexes. We find that the Islamic size sub-indexes exhibit higher risk-adjusted performance than their conventional counterpart, and the Islamic sector sub-indexes outperform their non-Islamic counterpart for Basic Materials, Consumer Goods and Services, Health Care, Industrials, Technologies and Telecommunications. These differences in performance at the sector level can explain the higher performance of the DJIM than the DJGM at the aggregate level, due to the fact that the DJIM is sector oriented.

This article is organized as follows. Section 2 presents briefly the *Shari'ah* filtering criteria and the data. Section 3 presents the effects of filtering criteria on the composition in size and sectors of the Islamic and conventional indexes. Section 4 compares the risk-adjusted performance of Islamic and conventional size- and sector-indexes. Finally, Section 5 concludes.

2. Data

In February 1999, New York-based Dow Jones was the first to launch *Shari'ah*-compliant indexes - i.e. based on a subset of investable equities that are compatible with the Islamic finance principles - in respond to the increasing demand for ethical investments from the Muslim community and other socially responsible investors. Broadly speaking, Islamic indexes track the performance of a subset of eligible stocks that are already included in the corresponding global indexes. To become eligible for inclusion in the Islamic index, a company has to satisfy two main screening criteria (see Dow Jones, 2009):

- The *industry* screen, which attempts to remove any companies having primary business activities that are not compatible with the principles of Islamic finance (e.g. alcohol; pork-related products; conventional financial services; entertainment; tobacco; weapons and defense);

- The *financial ratios* screen, which is intended to remove companies based on their levels of leverage or interest income; all of the following financial ratios must not exceed 33% in order for a company to be included in the index: (i) the debt ratio; (ii) the ratio of interest income to total revenue; (iii) the ratio of accounts receivables to the market value of total assets.

In addition, the composition of the indexes is reviewed on a quarterly basis and the index's weighting scheme follows a free-floating market capitalization, as well as on an ongoing basis to take into account extraordinary events, such us delisting activities, bankruptcies, and mergers. When a new issue is added to the Dow Jones indexes, it is also evaluated according to the Dow Jones Islamic (DJI) indexes criteria to determine whether it will be included in the DJI indexes. All revisions are supervised by an independent *Shari'ah* board composed of Islamic scholars.

For the purpose of our analysis, we first consider several major (conventional and Islamic) stock market indexes in different jurisdictions (region and country): Dow Jones (Islamic) Asian, Dow Jones (Islamic) Canada, Dow Jones (Islamic) Japan, Dow Jones (Islamic) United Kingdom, Dow Jones (Islamic) United States, Dow Jones (Islamic) World. The data are obtained from the Dow Jones company database.

To compare the performance we then consider the size- and sector-indexes of the Dow Jones Islamic Market (DJIM) index and the Dow Jones World Market (DJGM) index. The sector-indexes are selected solely on the basis of no data availability for Islamic sector-indexes in both region and country basis. We study (1) the sub-indexes based on size (proxied by the free float-adjusted market capitalization) and classified into three categories: large-, mid- and small-caps; and (2) the sector-indexes and classified according to the Industry Classification Benchmark (ICB) developed by Dow Jones and Financial Times Stock Exchange (FTSE) into ten categories: Basic Materials, Consumer Goods, Consumer Services, Financials, Health Care, Industrials, Oil & Gas, Technology, Telecommunications, and Utilities. The daily returns are computed as the natural logarithmic first difference of the daily closing prices, which are obtained from Datastream Thomson, spanning April 8^{th}, 1996 to March 3^{rd}, 2014 (4,676 observations).

3. Size and sectors in DJ Islamic indexes

Table 1 shows that filtering criteria remove a large number of *Shari'ah* non-compliant firms, reducing the number of stocks included in the DJ Islamic indexes by 60-70%, and thus implying the relative under-diversification of the Islamic indexes. The first question we ask is whether the application of the filtering criteria leads, as some observers have argued (see, e.g., Hussein and Omran, 2005; Girard and Hassan, 2008), to a systematic exclusion of the largest firms from the broad universe of investable stocks included in Islamic indexes. If this is indeed the case, the remaining *Shari'ah* compliant firms should be smaller. The second question we ask is whether *Shari'ah* compliant firms become concentrated in some specific sectors (Hussein and Omran, 2005; Dewandaru et al., 2015).

3.1. Does the size matter?

To answer the first question, Table 1 summarizes the results of bivariate comparisons of the size variable (free float-adjusted market capitalization as of October 2010, expressed in billions US$). Specifically, we compare the distribution of the size in the various sub-portfolios (Islamic vs. non-Islamic indexes constituent firms, classified by region/country) by performing standard mean tests and two non-parametric tests: (1) a chi-square two-sample test on the equality of

medians; and (2) a Wilcoxon-Mann-Whitney test for the hypothesis that two independent samples are from populations with the same distribution. Note that "Islamic-compatible firms" in Table 1 are defined as eligible firms included in the Islamic DJ indexes, while "non-Islamic firms" are firms that are included in the conventional DJ indexes but do not satisfy the screening criteria to become eligible for inclusion in the corresponding Islamic indexes.[3] Table 1 reveals that in the vast majority of cases, there is no significant difference between the distributions of the size variable in the two sub-samples of firms ("Islamic" vs "non-Islamic"). However, when the difference is significant, the large cap firms included in the Islamic indexes are larger, not smaller, than the remaining large cap firms in the conventional indexes (e.g. US and Canadian indexes). Further, the *Shari'ah* compliant screens slightly modify the proportion of firm sizes (increasing or decreasing) but not significantly from the nonparametric McNemar test, except for the UK in medium cap firms and for Canada and Japan in both large and small cap firms (Table 2).

3.2. Are DJ Islamic indexes sector oriented?

To answer the second question, Table 2 displays the proportion of firms in each sector-index among ten ICB sectors as well as the nonparametric McNemar test. The results show that most of DJ Islamic indexes are driven by investing in few sectors, such as Basic Materials, Industrials and Technology firms, showing significant difference between the proportions in the Islamic and non-Islamic indexes. We further can observe that some jurisdictions in Islamic indexes are concentrated in some specific sectors, with Oil and Gas sector for Canada and the UK, and Health Care sector for Japan, the US and World. The DJ conventional indexes are more concentrated in Industrial, Consumer Services and Financial sectors. The DJ and DJI of the Canada indexes are strongly focused on Oil and Gas and Basic Material firms. Both Islamic and conventional indexes for Asia, Japan and World have a higher proportion of Consumer Good firms than other jurisdictions. The DJ and DJI US indexes have a higher proportion of Health Care and Technology firms than other markets.

4. Performance measures

The standard performance measures developed in the literature consist of investigating the relationship between the expected returns and risk associated with investment in risky financial assets. Several tools have been introduced to evaluate stock market index performance and these often differ depending on the type of risk measure under consideration. We apply different standard performance measures, namely the Sharpe ratio, Treynor ratio, Jensen's alpha and Black-Treynor ratio to conventional and Islamic sector sub-indexes.

The first performance measure is the Sharpe ratio (SR), also often referred to as "Reward to Variability", which indicates if an investment's high return is a result of excessive risk. It measures the performance of an index by dividing the amount of excess return (risk premium)

[3] As a robustness check, we also performed the bivariate comparisons using the following sub-portfolios: firms included in the Islamic index versus firms included in the corresponding conventional index. The results (omitted to save space) strengthen the findings discussed in the previous sections as they are weaker than those reported in Table 1: there is no significant difference between the distributions of the size variable in the two sub-samples of firms.

to total risk, measured by standard deviation. The higher the *SR* is consistent with a higher probability that the index return exceed the risk-free return. If the *SR* is negative (resp. positive), the index i underperforms (resp. outperforms) the referential given by the risk-free asset.

$$SR = \frac{(R_{i,t} - R_{f,t})}{\sigma(R_{i,t})}$$

where $R_{i,t}$ denotes the stock return of the index i, $R_{f,t}$ refers to the risk-free return, and $\sigma(R_{i,t})$ the standard deviation of the returns of the index i. We use the one-month Treasury bill rate as the risk-free rate, available from Kenneth French's website.

The second performance measure is the Treynor ratio (TR) which measures the index performance for its given level of market risk (CAPM). The TR is similar to the *SR* except that it substitutes total risk by systematic risk and therefore uses beta instead of standard deviation as a proxy for risk.

$$TR = \frac{(R_{i,t} - R_{f,t})}{\beta_i}$$

where $\beta_i = cov(R_{i,t}, R_{M,t})/\sigma^2(R_{M,t})$, with $R_{M,t}$ the market benchmark return. We use the MSCI AC World index as the market benchmark.

The last performance measure is the adjusted Jensen's alpha (α), also based on systematic risk. It measures the performance excess of a fund or portfolio in relation to the CAPM performance. A positive α means that the index achieves excess return relative to the market, negative α means underperformance.

$$\alpha_i = (R_{i,t} - R_{f,t}) - \beta_i(R_{M,t} - R_{f,t})$$

The fourth performance measure is the Black-Treynor ratio (BTR), which can be defined as the alpha-beta ratio of a portfolio.

$$BTR = \frac{\alpha_i}{\beta_i}$$

Table 3 displays the risk-adjusted performance measures for the DJIM and DJGM indexes as well as the Islamic and conventional size- and sector-indexes. The results show that the Islamic stock index outperform its conventional counterpart, whatever the measures. This finding also holds at the size level as the Islamic size-indexes exhibit higher risk-adjusted performance than their conventional counterparts. Further, Islamic small caps sub-index presents the highest performance over the study period.

Among ten ICB sectors we can see that Islamic sub-indexes outperform their non-Islamic counterpart for Basic Materials, Consumer Goods and Services, Health Care, Industrials, Technologies and Telecommunications, whereas the conventional sub-indexes have higher performance for Financials, Oil & Gas and Utilities than the Islamic sub-indexes. We find that Islamic Consumer Services and Health Care present the highest performance, whereas Financials present the lowest performance. These differences in performance at the sector level can explain the higher performance of the DJIM than the DJGM at the aggregate level, due to the fact that the DJIM is sector oriented.

5. Conclusion

This paper examined the impact of the *Shari'ah* filtering criteria on size and sectors of Dow Jones Islamic indexes relative to their conventional counterparts. Filtering criteria remove a large number of *Shari'ah* non-compliant firms, reducing the number of stocks included in the DJ Islamic indexes, and thus implying the relative under-diversification of the Islamic indexes. We showed that, in contradiction with the previous studies, all conventional and Islamic indexes are rather small-cap oriented, except for DJ Islamic Asia and Japan indexes which are more mid-cap oriented. Further, the *Shari'ah* compliant screens slightly modify the proportion of firm sizes (increasing or decreasing). It seems that a potential size bias due to the *Shari'ah* filtering criteria, which tend to exclude the largest, more stable, constituents from the broad universe of investable stocks, cannot be a relevant explanation on difference between Islamic and conventional indexes. However, we found that *Shari'ah* filtering leads to higher concentration in some sectors, especially Basic Materials, Industrials and Technology focused in most DJ Islamic indexes, whereas the conventional indexes are rather Industrials, Consumer Goods and Services and Financials sector oriented.

Finally, we compared the risk-adjusted performance on the Islamic and conventional size- and sector-indexes. We found that the Islamic size sub-indexes exhibit higher risk-adjusted performance than their conventional counterpart, and the Islamic sector sub-indexes outperformed their non-Islamic counterpart for Basic Materials, Consumer Goods and Services, Health Care, Industrials, Technologies and Telecommunications. These differences in performance at the sector level can explain the higher performance of the DJIM than the DJGM at the aggregate level, due to the fact that the DJIM is sector oriented. Therefore, as suggested by Yilmaz et al. (2015), investors can have the opportunity to allocate their portfolio in distinctive Islamic and non-Islamic sectors. These conclusions should be taken with caution due to the short data span and a strong possibility of variations in the risk-return patterns over the period covered.

References

Abbes, M.B. (2012) "Risk and return of Islamic and conventional indices" *International Journal of Euro-Mediterranean Studies* **5**, 1-23.

Ahmad, Z. and H. Ibrahim (2002) "A study of performance of the KLSE Shariah index" *Malaysian Management Journal* **6**, 25-34.

Albaity, M. and R. Ahmad (2008) "Performance of Shariah and composite indices: Evidence from Bursa Malaysia" *Journal of Accounting and Finance* **4**, 23-43.

De Lorenzo, Y.T. (2001) "Shariah supervision of islamic mutual funds" Paper in Proceedings of Fifth Harvard University Forum on Islamic Finance, Harvard University.

Dewandarua, G., Bacha, O.I., Masih, A.M.M. and R. Masih (2015) "Risk-return characteristics of Islamic equity indices: Multi-timescales analysis" *Journal of Multinational Financial Management* **29**, 115-138.

Dow Jones (2009) "Guide to the Dow Jones Islamic Market Indexes^{SM}".

Girard, E. and K.M. Hassan (2008) "Is there a Cost to Faith-Based Investing? Evidence from FTSE Indices" *Journal of Investing* **17**, 112-121.

Hassan, K.M. and E. Girard (2011) "Faith-based ethical investing: The case of Dow Jones Islamic indexes" Workin paper, Networks Financial Institute, Indiana State University.

Ho, C.S.F., Rahman, N.A.A., Yusuf, N.H.M. and Z. Zamzamin (2014) "Performance of global Islamic versus conventional share indices: International evidence" *Pacific-Basin Finance Journal* **28**, 110-121.

Hussein, A.K. (2004) "Ethical investment: Empirical evidence from FTSE Islamic index" *Islamic Economic Studies* **12**, 21-40.
Hussein, A.K. (2007) "Islamic investment: Evidence from Dow Jones and FTSE indices, in *Advances in Islamic Economics and Finance* by M. Iqbal, S.S. Ali, and D. Muljawan, Eds., Jeddah, KSA: Islamic Research and Training Institute, 387-401.
Hussein, K. and M. Omran (2005) "Ethical investment revisited: Evidence from Dow Jones Islamic indexes" *Journal of Investing* **14**, 105-124.
Jawadi, F., Jawadi, N. and W. Louhichi (2014) "Conventional and Islamic stock price performance: An empirical investigation" *International Economics* **137**, 73-87.
Yilmaz, M.K., Sensoy, A., Ozturk, K. and E. Hacihasanoglu (2015) "Cross-sectoral interactions in Islamic equity markets" *Pacific-Basin Finance Journal* **32**, 1-20.

Table 1: Bivariate comparisons of size between Islamic and conventional size sub-indexes

Portfolio	Islamic-compatible firms			Non-Islamic firms			Mean/Median tests		
	N	Mean	Median	N	Mean	Median	t-stat[a]	Chi2[b]	z-stat[c]
Asia global	1,079	2.26	0.56	2401	2.04	0.49	1.01	6.03**	2.41**
Asia large caps	266	7.26	3.56	472	7.84	4.46	-0.67	2.85*	-2.17**
Asia mid caps	411	0.92	0.64	897	0.98	0.71	-1.17	3.41*	-1.32
Asia small caps	402	0.33	0.25	1032	0.31	0.24	1.03	0.50	1.43
Canada global	149	4.45	1.29	142	4.91	1.42	-0.41	0.09	-0.95
Canada large caps	23	20.2	14.3	33	16.2	8.69	0.90	3.61*	1.86*
Canada mid caps	54	2.64	2.05	55	2.29	2.02	1.11	0.00	0.66
Canada small caps	72	0.77	0.61	54	0.70	0.67	1.03	0.52	0.94
Emerging global	851	2.18	0.40	1520	1.86	0.48	1.36	3.33*	-1.29
Emerging large caps	236	6.53	2.74	316	6.50	3.33	0.03	7.58***	-3.14***
Emerging mid caps	293	0.73	0.46	520	0.99	0.59	-3.02***	13.7***	-3.92***
Emerging small caps	322	0.32	0.18	684	0.38	0.18	-1.45	0.46	-2.10**
Japan global	234	2.94	0.91	821	2.59	0.66	0.71	6.43**	2.42**
Japan large caps	58	9.30	5.75	151	10.7	6.36	-0.75	0.33	-0.45
Japan mid caps	96	1.25	1.04	317	1.25	1.04	0.04	0.00	0.18
Japan small caps	80	0.35	0.32	353	0.34	0.31	0.24	0.59	-0.09
UK global	85	10.1	2.56	179	9.48	2.12	0.20	1.41	0.84
UK large caps	13	48.9	40.1	30	43.8	28.4	0.37	0.19	0.26
UK mid caps	34	5.06	4.71	51	4.66	3.94	0.70	0.95	0.94
UK small caps	38	1.35	1.22	98	1.48	1.31	-0.87	0.58	-0.62
US global	585	11.0	2.79	806	7.64	2.81	2.67***	0.02	0.44
US large caps	125	40.8	22.2	138	29.9	17.3	2.01**	7.03***	2.54**
US mid caps	201	4.72	4.04	315	4.77	4.21	-0.21	0.40	-0.30
US small caps	259	1.44	1.30	353	1.49	1.40	-0.92	0.54	-1.48
World global	2,370	5.37	1.11	4517	4.08	1.09	3.70***	0.17	1.68*
World large caps	550	18.2	7.48	921	14.5	7.06	2.56**	0.20	0.26
World mid caps	853	2.32	1.35	1646	2.22	1.35	1.07	0.00	-0.19
World small caps	967	0.77	0.47	1950	0.72	0.41	1.78*	2.90*	1.68*

Note: This table presents the size variable (mean and median values), proxied by the free float-adjusted market capitalization, calculated separately for the full samples (global indexes by region/country) and various sub-samples of firms, defined with respect to the size variable (sub-indexes). "Islamic-compatible firms" are the eligible firms included in the Islamic DJ indexes. "Non-Islamic firms" are firms that are included in the conventional DJ indexes but do not satisfy the two screening criteria to become eligible for inclusion in the corresponding Islamic indexes. (a) t-test on the equality of means (two-sided); (b) nonparametric two-sample test on the equality of medians; and (c) Wilcoxon-Mann-Whitney rank-sum test for the hypothesis that the two independent sub-samples (i.e., unmatched data) are from populations with the same distribution. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 2: Proportions of firms in Islamic and conventional size and sector sub-indexes.

Indexes	Large caps	Medium caps	Small caps	Oil & Gas	Basic Materials	Industrials	Consumer Goods	Health Care	Consumer Services	Telecom.	Utilities	Financials	Technology
DJ Asia	0.21	0.37	0.41	0.03	0.11	0.23	0.15	0.04	0.10	0.01	0.03	0.19	0.09
DJI Asia	0.25	0.38	0.37	0.05	0.17*	0.27	0.15	0.09*	0.07	0.02	0.03	0.02*	0.14*
DJ Canada	0.20	0.39	0.41	0.22	0.27	0.10	0.04	0.02	0.10	0.03	0.04	0.15	0.03
DJI Canada	0.15*	0.36	0.48*	0.28*	0.45*	0.08	0.01	0.03	0.07	0.01	0.01	0.00*	0.05
DJ Japan	0.20	0.39	0.41	0.01	0.11	0.27	0.18	0.05	0.14	0.01	0.02	0.16	0.07
DJI Japan	0.25*	0.41	0.34*	0.01	0.12	0.30	0.19	0.13*	0.09*	0.01	0.00	0.01*	0.14*
DJ UK	0.16	0.33	0.51	0.07	0.07	0.21	0.09	0.02	0.21	0.03	0.03	0.21	0.06
DJI UK	0.15	0.40*	0.45	0.15*	0.16*	0.26	0.09	0.07*	0.09*	0.05	0.01	0.00*	0.11*
DJ US	0.19	0.38	0.43	0.07	0.05	0.18	0.09	0.09	0.14	0.02	0.05	0.19	0.12
DJI US	0.21	0.34	0.44	0.09	0.07	0.22	0.08	0.17*	0.12	0.01	0.01	0.01*	0.24*
DJ World	0.21	0.36	0.42	0.05	0.10	0.21	0.13	0.05	0.12	0.02	0.04	0.20	0.08
DJI World	0.23	0.36	0.41	0.08	0.16*	0.24	0.11	0.11*	0.08*	0.03	0.02	0.03*	0.14*

Note: Table displays the proportion of firms in each sector-index. * indicates statistical significance at the 5% level of the nonparametric McNemar test for the proportion comparison.

Table 3: Performance measures.

Sub-indexes	type	Mean (%)	St. dev. (%)	Sharpe ratio	β	Treynor ratio	Jensen	Black Treynor
DJGM		0.0266	1.03	0.0146	0.527	0.0284	0.009	0.01653
DJIM		0.0354	1.08	0.0219	0.496	0.0479	0.018	0.03600
Basic Materials	DJ	0.0132	1.30	0.0024	1.032	0.0030	-0.017	-0.01647
	DJI	0.0188	1.37	0.0063	1.066	0.0081	0.037	0.03471
Consumer Goods	DJ	0.0218	0.82	0.0143	0.698	0.0168	0.084	0.12034
	DJI	0.0227	0.86	0.0146	0.715	0.0175	0.092	0.12867
Consumer Serv.	DJ	0.0225	1.01	0.0122	0.945	0.0131	0.079	0.08360
	DJI	0.0332	1.14	0.0202	0.964	0.0240	0.186	0.19295
Financials	DJ	0.0097	1.27	-0.0003	1.172	-0.0003	-0.059	-0.05034
	DJI	-0.0003	1.67	-0.0062	0.936	-0.0111	-0.148	-0.15812
Health Care	DJ	0.0290	0.97	0.0195	0.755	0.0250	0.153	0.20265
	DJI	0.0299	0.99	0.0199	0.758	0.0260	0.162	0.21372
Industrials	DJ	0.0155	1.09	0.0049	1.022	0.0052	0.006	0.00587
	DJI	0.0207	1.15	0.0092	1.066	0.0099	0.056	0.05253
Oil & Gas	DJ	0.0256	1.42	0.0109	1.053	0.0147	0.106	0.10066
	DJI	0.0252	1.46	0.0103	1.066	0.0141	0.101	0.09475
Technology	DJ	0.0233	1.61	0.0082	1.317	0.0100	0.071	0.05391
	DJI	0.0252	1.71	0.0088	1.359	0.0111	0.087	0.06402
Telecom.	DJ	0.0107	1.13	0.0006	0.934	0.0007	-0.037	-0.03961
	DJI	0.0151	1.18	0.0042	0.907	0.0055	0.007	0.00772
Utilities	DJ	0.0115	0.86	0.0016	0.638	0.0022	-0.016	-0.02508
	DJI	0.0096	1.10	-0.0005	0.674	-0.0008	-0.037	-0.05490
Small caps	DJ	0.0240	1.07	0.0224	0.971	0.0247	0.10	0.10299
	DJI	0.0382	1.26	0.0304	1.111	0.0344	0.23	0.20702
Medium caps	DJ	0.0241	1.03	0.0234	0.970	0.0249	0.10	0.10309
	DJI	0.0317	1.20	0.0265	1.103	0.0287	0.17	0.15413
Large caps	DJ	0.0146	1.05	0.0239	1.030	0.0142	0.0001	0.00010
	DJI	0.0190	1.08	0.0175	1.036	0.0183	0.04	0.03861

Note: Table reports average returns and standard deviation, and different risk-adjusted performance measures, namely the Sharpe ratio, Treynor ratio, Jensen's alpha and Black-Treynor ratio. β is obtained from a standard CAPM.