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INTERTEMPORAL TEST OF BETA STATIONARITY PERFORMANCE OF ISLAMIC SECTOR STRUCTURED MUTUAL FUNDS

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Abstract

The purpose of this research paper is to examine social Islamic mutual funds' financial performance. Since Islamic mutual funds have only been around for the past two decades, most of the research on this topic is fairly new. In this study we apply the single factor model of Schwert and Seguin (1990) to a sample of Islamic mutual funds. The Islamic mutual funds market is one of the fastest growing sectors within the Islamic financial system. Several studies have investigated the characteristics of individual Islamic mutual funds (see Elfakhani, et al (2006), Elfakhani ,et al (2005), and Hassan, et al (2005). We are not aware of any studies that have applied the Schwert and Seguin methodology to Islamic mutual funds. Such an application is important because it allows for studying the impact of market volatility on the time variation of monthly betas and the corresponding returns. Using the S&P 500 and the FTSE Global Islamic indices on sector structured Islamic mutual funds, our results suggest that the volatility of the market and that of the Islamic mutual funds portfolio behave differently with inter and intra market proxies. There is also evidence that the volatility persistence of each Islamic mutual fund portfolio and its systematic risk are significantly related. Hence, the systematic risks of different portfolios tend to move in a different direction during periods of increased market volatility. As a result, we gain an insight into the return dynamics and the process by which Islamic mutual funds prices are determined.

ملخص

تهدف ورقة البحث هذه إلى معرفة الأداء المالي لصناديق الاستثمار الاجتماعية الإسلامية، وحيـث أن تلـك النوعية من صناديق الاستثمار لم تظهر إلا في خلال العقدين الماضيين فإن معظم البحوث التي تتناولها تعتبر بحوثا جديدة إلى حد ما. في هذه الدراسة نقوم بتطبيق نموذج العامل الواحد لكـل مـن شـفيرت وسـيجون (1990) على عينة من صناديق الاستثمار الإسلامية. يعتبر سوق صناديق الاستثمار الإسلامية واحـد مـن أسرع القطاعات نموا داخل المنظومة المالية الإسلامية وقامت العديد من الدراسات ببحث خـواص صـناديق الاستثمار الخاصة بالأفراد (انظر فاحاني وآخرين (2006) فاحـاني وآخـرين (2005) وحـسن وآخـرين (2005) هذا ولم نعثر على أية دراسة قد طبقت منهجية شفيرت وسيجون على صناديق الاستثمار الإسلامية. يعتبر هذا التطبيق مهما حيث يتيح دراسة تأثير تقلبات السوق على المتغيرات الزمنية للمقياس الشهري لدرجة حساسية الأوراق المالية (بيتا) وكذلك العوائد المحققة باستخدام المؤشرات الإسلامية العالميـة S & P_500 وبورصة فايننشال تايمز في لندن (FTSE) وتطبيقها على قطاع الصناديق الاستثمارية الإسـلامية، نجـد أن النتائج تشير إلى تقلب السوق وكذا تقلبات محافظ صناديق الاستثمار الإسلامية تختلف أشكاله داخل الأسـواق وفيما بينها. كما نجد ما يدل على علاقة ذات بال بين استمرار تقلبات محافظ صناديق الاستثمار الإسلامية من ناحية والمخاطر التي تتعرض لها هذه الصناديق بطريقة منتظمة. ولذا فإن المخاطر المنتظمة لمختلف المحافظ تتجه إلى التحرك في اتجاه مختلف في أثناء الفترات التي تتزايد فيها تقلبات السوق. ونتيجـة لـذلك يمكننـا استبصار ديناميكية العوائد والطريقة التي تحدد بها أسعار صناديق الاستثمار الإسلامية.

I. Introduction

Cowton (2004) describes the concept of socially responsible investing (SRI), in broad terms, as a set of approaches which include social, ethical and religious goals and constraints in addition to more conventional financial criteria in decisions over whether to acquire, hold or dispose of a particular asset, particularly publicly traded shares. While the SRI concept is rooted in faith which stretches back centuries, Boasson et al (2006) found that Islamic mutual funds that adhere to standards of SRI are still in early stage of developments.

It should be clear as one seeks to evaluate the performance of SRI form purely profit motives of financial managers, that it is difficult to make objective comparisons with non-SRI investment vehicles. This is largely due to the broad definitions of SRI and the multitude of factors that can be considered when measuring performance. To offer just an example, mutual fund investors who look to SRI funds are often startled to learn that by investing in some specialized funds they may, in fact, be investing in companies that are notorious exploiters of natural and human resources, producers of weaponry or dangerous chemicals, etc. The reason is simple; as Manheim (2004) explains that " the pressure wrapped in a cloak of social responsibility and brought by those who own the largest portions of corporate shares is difficult to resist." In other words, while some of the largest and oldest SRI funds invest in companies deemed to have adopted socially responsible lines of business and business practices (Manheim, 2004), more recently, some fund managers have turned their considerable financial clout toward reforming companies whose practices they find reprehensible. Most analysts still group these activist funds under the SRI umbrella, but as might be imagined, a fund that is widely exposed to companies whose business practices are suspect and whose leaders are being pressured to drastically adjust their behavior might see wildly different levels of performance – and at different points in the market cycle – than would a fund with a portfolio of companies with longstanding reputations for social responsibility.

Hill et al. (2007) analyzed socially responsible investing from a global perspective. Their results indicate that the European and the United States portfolios consisting of SRI have outperformed their Asian counterparts, despite the fact that the Asian SRI portfolios' performance was better than expected.

An interesting study by Chong, et al (2006) examined the performance of two funds, namely the Domini fund which is by charter a socially responsible fund and the Vice Fund that is by charter designed to be socially irresponsible "deliberately investing in funds that are considered socially irresponsible." Most of the companies in the fund are involved in tobacco, casinos, gambling and lotteries, as well as alcohol and defense. Their advisors believe that although often considered politically incorrect, these and similar industries and products will always be supported and consumed and that companies in these industries, if managed correctly, will continue to experience significant capital appreciation during good and bad markets." Using the ARCH model to examine risk and performance for a three year time period, the Vice Fund outperformed the Domini Fund. This goes against all of the other research stating that there is no difference in financial performance between socially responsible mutual funds and traditional mutual funds.

The wider acceptance of socially responsible equity investments by Sharia scholars in the early 1990s cemented the way to launch mutual funds that operate in conformity with the ethical guidelines of the Islamic Law. According to the London-based Institute of Islamic Banking and Insurance, there are over 250 Islamic institutions in some 75 countries that are managing funds worth over USD $200 billion. There are now about 126 funds with approximately USD $4 billion in assets under management. Other than being a *halal*

(Approved in Islamic Sharia) investment alternative available for Muslim investors, the funds also respond to the specific need for more liquid investment tools.

Furthermore, the establishment of credible equity benchmarks by Dow Jones Islamic Market Index (DJMI) and FTSE Global Islamic Index Series, followed by the Malaysian Kuala Lumpur Syariah Index, has been a turning point for the industry, giving both Islamic and conventional investors something to compare to.

An Islamic mutual fund is similar to a "conventional" mutual fund in many ways; however, unlike its "conventional" counterpart, an Islamic mutual fund must conform to the *Sharia* (Islamic law) investment principles. The Sharia encourages the use of profit sharing and partnership schemes, and forbids *riba* (interest), *maysir* (gambling and pure games of chance), and *gharar* (selling something that is not owned or that cannot be described in accurate detail in terms of type, size, and amount) (El-Gamal 2000).

However, unlike conventional mutual fund managers, Islamic fund managers are not allowed to speculate. An Islamic economic unit is expected to assume risk after making a proper assessment of risk with the help of information. Only in the absence of information or under conditions of uncertainty is speculation akin to a game of chance and is reprehensible.

On another front, some scholars allow partially "contaminated" earning income to be cleansed or purified. For instance, contemporary scholars allow investment in stocks of companies with tolerable (kept at a minimum) amount of interest income or with tolerable revenues from unacceptable business activities if all "impure" earnings is "cleansed" by giving it away to charity. If, for example, the company has 8 percent interest-related income, then 8 percent of every dividend payment must be given away to "purify" the fund earnings. Cleansing capital gains, however, remains debatable as some scholars argue this is not necessary since the change in the stock price does not really reflect interest, while others suggest that it is safer and more equitable to purify earnings made from selling shares as well (Usmani, 2002). This purification process is done either by the fund manager before any distribution of income, or by reporting the necessary financial ratios for investors to purify their earnings on their own.

Another form of purification is Zakah. Zakah is a form of charity paid on personal wealth (exceeding a minimum amount called *nisa*b) held idle for one lunar year. The rate of *zakah* differs with the type of the asset, 2.5 percent being the rate on most forms of monetary wealth and earned income (Al-Qaradawi, 1999). *Zakah* calculation on investment profits, however, is still controversial (DeLorenzo, 2000).

Elfakhani et al (2006) reported that the Islamic mutual funds market is one of the fastest growing sectors within the Islamic financial system. Yet, when compared to the mutual fund industry at large, Islamic mutual funds are still in their infancy stage of growth and development; the majority having been around for less than a decade. Islamic funds are pretty diverse for a young industry. While the majority of the funds are equity funds (84 percent of the total 126 funds), balanced (*or secured funds*) represent 14 percent while the recently launched Islamic bond *(Suku*k) funds represent 2 percent. Moreover, among the equity funds, several sectors and geographical investment areas are featured. Out of the total 126 available Islamic funds, 35 are Global equity funds (28 percent), 10 are American equity funds (8 percent), 5 are European equity funds (4 percent), 5 are Asian equity funds (4 percent), 29 are Malaysian equity funds (23 percent), 13 are country funds – mostly Saudi Arabian, Egyptian and South African (10 percent), and 8 are technology and small cap equity funds (6 percent).

Elfakhani et al (2005) reported that Islamic equity funds have experienced excellent growth during the late 1990s as they benefited from the technology boom, most of them demonstrating high positive returns, even higher than their benchmarks. Their number increased from 8 funds prior to 1992, to 95 funds with USD $5 billion in assets in 2000, then dropped to about USD $4 billion by the end of 2001. Nevertheless, more funds were launched since 2002, with brighter market expectations and more lessons being learned.

Kabir et al (2005) stated that the drop in the industry's total assets that occurred in 2000-2001 can be attributed to the decline of world equity markets and investors' flight to safety. Islamic-based equity fund managers reacted accordingly by rebalancing their portfolios, with overweight in technology being shifted to the healthcare and energy sectors. In addition, the new funds coming to market tended to be more capital-protected or balanced funds. Of the 23 funds launched in 2000, nine were global equity funds and five were capital protected or balanced funds; whereas, of the 20 funds launched in 2001, five were capital protected or balanced and only three were global equity funds.

Given the theoretical support for Mean Variance Capital Asset Pricing Model (CAPM), we test the stochastic generating process that betas follow to determine their stationarity over time. Using data for sector structured Islamic Mutual funds we test stationarity of Islamic funds beta with two market proxies as a benchmark – the returns obtained from Failaka International Inc, and the Standard and Poor's 500 stock index.

II. Data

Using a sample of 46 Islamic mutual funds classified into eight sector-based categories, the performance of each fund and fund category is measured and compared to the performance of two market benchmarks, an Islamic index and a conventional one. The funds are: Global equity funds, American equity funds, European equity funds, Asian equity funds, Malaysian equity funds and emerging markets equity funds. This classification gives further insight with regards to sector performance.

The period covered in this study starts on January 1, 1997, and ends on August 31, 2002. The January 1, 1997, is chosen since a relatively good number of funds entered the market around that time. One feature of this period is that it covers a boom phase extending from 1997 till early 2000, and a recession phase starting mid- 2000. Hence, the total 68-month sampling period is further divided into two equal sub-periods of 34 months each reflecting a boom and a recession respectively. The first 34 months end on October 31, 1999.

We apply the single factor model of Schwert and Seguin (1990) – hereafter S&S – to a sample of Islamic Mutual funds portfolios. Unlike prior research, our study analyzes the behavior of Islamic mutual funds' systematic risk and returns. Several studies have investigated the characteristics of individual Islamic mutual funds [see Elfakhani, et al (2006), Elfakhani, et al (2005) and Hassan et al (2001)]. We are not aware of any studies that have applied the Schwert and Seguin (1990) methodology to Islamic mutual funds portfolios. Such an application is important because it allows for studying the impact of market volatility on the time variation of monthly betas and the corresponding returns. As a result, we gain an insight into the return dynamics and the process in which Islamic mutual funds prices are determined.

III. Methodology

Using S&S Market Model (1990) we test the stochastic generating process of time varying betas of Islamic and conventional Mutual funds over time.

$$R_{i,t} = \alpha_i + \beta_{i,t} R_{m,t} + e_{i,t} \qquad (1)$$

Where, $R_{i,t}$ denotes the monthly rate of return on Islamic mutual funds i; $R_{m,t}$ is the contemporaneous return on the Global Indices; and $\beta_{i,t}$ is given by:

$$\beta_{i,t} = \beta_i + \delta_i/\sigma^2_{m,t} \quad (2)$$

In equation (2), β_i is a constant, $\sigma^2_{m,t}$ is the aggregate stock market variance; and δ_i denotes the time-varying term. Thus, according to equation (2), the time-varying beta consists of a constant term and a time-varying component. A positive δ_i indicates an inverse relationship between beta and aggregate market volatility; whereas a negative δ_i indicates a positive relationship. Lee (2002) analyzed the UK real estate market using the time varying model of S&S and found that different real estate property types displayed differences in time variability. He also showed that low risk market segments (those with betas less than one) tend to produce negative δ_i, while high risk market segment (those with betas greater than one) generally to produce positive δ_i time-variability. Consequently safer and riskier market segments are affected differently by increase in market volatility.

Substituting (2) into (1) yields the S&S market model:

$$R_{i,t} = \alpha_i + \beta_{i,t}R_{m,t} + \delta_i \ \{ R_{m,t} / \sigma^2_{m,t} \} + e_{i,t} \quad (3)$$

To estimate conditional market volatility, $\sigma^2_{m,t}$, we use generalized auto regressive conditional heteroskedastic GARCH specification of the Global Index conditional volatility model. Numerous studies have shown that the GARCH (1,1) as a model of stock returns is robust (see Bollerslev, Chou, and Kroner (1992 and Glosten et al (1993)). Our GARCH relationship accounts for the observed asymmetric relationship between news and volatility. To model this observed asymmetry, we use the Glosten, Jagannathan and Runkle (1993) GJR-GARCH specification for the Global Index stock returns:

$$R_{m,t} = \mu + \varepsilon_{m,t} + \Theta\varepsilon_{m,t-1} \quad (4)$$

$$\varepsilon_{m,t} \mid \text{Info} \sim N(0, \sigma^2_{m,t}) \quad (5)$$

$$\sigma^2_{m,t} = a_m + (b_m + d_m I_{t-1})\, \varepsilon^2_{m,t-1} + c_m\, \sigma^2_{m,t-1} \quad (6)$$

Where I_{t-1} is a dummy variable taking on the value of 1 if $\varepsilon_{t-1} > 0$ and 0 otherwise. A moving-average term, $\Theta\varepsilon_{t-1,}$ is included in equation (4) to account for the first-order serial correlation in market returns, partly induced by non-synchronous trading [Scholes and Williams (1977)]. According to equation (6), the conditional variance, $\sigma^2_{m,t}$ is specified as time dependent and is an increasing function of the lagged squared errors. Hence, large errors tend to be followed by large errors, thereby capturing the observed volatility clustering in stock returns. Moreover, if $d_m > 0$, then the leverage effect raised by Black (1993) exists; that is, there is an asymmetric relationship between news (ε_t) and volatility. Consider the case where $\varepsilon_{t-1} > 0$. Then $I_{t-1} = 1$, and the conditional variance becomes $\sigma^2_{m,t} = a_m + (b_m + d_m)\, \varepsilon^2_{m,t-1} + c_m\, \sigma^2_{m,t-1.}$ In the case where $\varepsilon_{t-1} < 0$ and $I_{t-1} = 0$, the conditional variance becomes $\sigma^2_{m,t} = a_m + b_m\, \varepsilon^2_{m,t-1} + c_m\, \sigma^2_{m,t-1}$. Hence, negative news results in a variance level different from that associated with positive news. Engle and Ng (1993) demonstrated that, of the many GARCH specifications, the GJR asymmetric GARCH model provides the best forecasts of volatility.

IV. Empirical Evidence

Table I reports summary statistics of the daily returns on six sector based Islamic and none Islamic mutual fund portfolios.

Table 2 reports the estimates of Beta of the daily return on eight sectors based Islamic and none Islamic mutual fund portfolios computed using S&P500 and the FTSE Islamic Index as a market proxy.

Beta coefficient estimated using S&P 500 as a market proxy is significantly greater than the beta coefficient estimates based on FTSE Islamic Index for all sectors except the Malaysian Equity Funds which appear to be more responsive to FTSE Islamic Index than S&P 500 stock index. This indicates that most of Islamic funds' volatility is derived from the S&P 500. For example, for the first three funds in our sample the Global equity funds, American equity funds, and the European equity funds, the estimated betas using S&P 500 index as a market proxy are respectively equal to .8, .90, and .61. These results are not surprising as these funds respond to the changes in the S&P 500 stock index. However, the same funds are far less responsive to the changes in the FTSE Islamic index with betas under .20.

The estimates of time varying betas of equation 3 are provided in Table 3. The conditional variance of the market index derived from the ARMA (1) GJR-GARCH (1, 1) model is used to estimate the market volatility ($\sigma^2_{m,t}$).

According to equation 3, the time-varying beta consists of a constant term and a time-varying component. A positive δ_i indicates an inverse relationship between beta and aggregate market volatility; whereas a negative δ_i indicates a positive relationship.

Using S&P 500 as a proxy for the market index the time-varying coefficient δ is positive and significant at the 10% level for Global Equity Funds, American Equity Funds, European Equity Funds and Asian Equity Funds. These results indicate that an increase in market volatility tends to lead to a fall in the systematic risk of the Islamic mutual funds portfolio. This is consistent with the findings reported by Schwert and Seguin (1990) for small-cap US stocks. However; suing the same S&P 500 market proxy, the time-varying coefficient δ is negative for Malaysian Equity Funds and the Emerging Market & Country Funds which is significant at the 10% level. This implies that as the volatility of the market increases the systematic risk of these two Islamic mutual fund portfolio increases. Employing S&P 500 as a proxy for market index, our results reveal that the systematic risk of some Islamic mutual funds tend to move in opposite directions in periods of increased market volatility. Our findings imply the existence of risk arbitrage opportunities among these Islamic mutual funds.

However, using FTSE Islamic index as a proxy for the market index, the estimates of the time-varying coefficient δ produces mix results. The time varying coefficients with both market proxies for Global Equity Funds and the European Equity Funds are consistently positive. On the other hand, time-varying coefficient δ is sensitive to the choice of market proxy turning negative or positive for the American Equity Funds, the Asian Equity Funds and the Malaysian Equity Funds with both market indices. The estimates of the time varying coefficients are negative for the Emerging Market & Country Funds with both indices. Our findings indicate that the systematic risk of these two Islamic mutual funds portfolios behaves differently with different market proxies. Our findings also support the existence of risk arbitrage among Islamic mutual funds.

The estimates of the GJR-GARCH regression for the six funds in our sample are provided in Table 4. The conditional variance is not an increasing function of the $\varepsilon^2_{m,t-1}$ as the coefficient changes sign to positive/ negative for different funds. For example, d_m, that is expected to capture the innovations in the market, is negative/positive for the Global equity funds but insignificant at 10 percent. Large errors are not followed by large errors, thereby reducing the leverage effect raised by Black (1993).

V. Conclusions and Implications

In this study, we applied the Schwert and Seguin (1990) market model to examine the time-varying betas for a sample of sector structured Islamic mutual funds portfolios during the periods of January 1, 1997, to August 31, 2002. Our results suggest that different sector Islamic mutual funds portfolios exhibits time varying volatility persistence overtime. There is also evidence that the volatility persistence of each portfolio and its systematic risk are significantly affected by the market proxy index utilized in computing the mutual fund systematic risk (the beta coefficient). Consequently, the systematic risks of different Islamic mutual funds portfolios tend to move in a different direction during periods of increased market volatility. This finding may shed some light on the possible existence of anomalies in sector structured Islamic mutual funds, which creates risk arbitrage opportunities among these funds. Our results reveal some interesting implications for the study of sector structured Islamic funds portfolios. First, the finding is very important for hedge funds and mutual funds as they pertain to the risk return profile of Islamic and conventional funds. Islamic mutual funds exhibit the same empirical tendencies as none Islamic mutual funds. Second, ignoring the observed time-variation in beta estimates may result in the underestimation (overestimation) of the systematic risk of these funds. Finally, our results suggest that future analysis of the time-series properties of individual mutual funds must account for the impact of the sector or country level of market liberalization. Future analysis of the time-series properties of newly developed Islamic Mutual funds must account for the impact of the time varying betas on the market volatility and the level of market liberalization policy.

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Table 1: Descriptive Statistics of Six Sector Based Islamic Mutual Funds Portfolios January 1, 1997, and ends on August 31, 2002.

Number	Variable	N	Mean	Std Dev	Min	Max	Median	Range	Variance	Skewness	Kurtosis
1	Global Equity Funds	68	-0.001968	0.049697	-0.13	0.11	-0.003440	0.23	0.002470	-0.15	-0.47
2	American Equity Funds	68	0.004717	0.049852	-0.14	0.08	0.003254	0.22	0.002485	-0.49	-0.33
3	European Equity Funds	68	0.002450	0.043166	-0.10	0.11	0.005568	0.21	0.001863	0.06	0.39
4	Asian Equity Funds	68	-0.014179	0.071145	-0.24	0.17	-0.016300	0.41	0.005062	0.08	0.93
5	Malaysian Equity Funds	68	-0.005233	0.103310	-0.27	0.36	-0.007350	0.64	0.010673	0.41	2.36
6	Emerging Market & Country Funds	68	0.004611	0.054428	-0.17	0.10	0.007471	0.27	0.002962	-0.83	0.88
7	S&P500	68	0.004452	0.051501	-0.15	0.10	0.005509	0.24	0.002652	-0.42	-0.30
8	KLSE Composite Index	68	-0.002140	0.111670	-0.25	0.34	-0.013980	0.59	0.012470	0.68	1.22

Table 2: Betas Estimates with S&P 500 and FTSE Islamic Index as Market Proxies

$$R_{i,t} = \alpha_i + \beta_{i,t}R_{m,t} + e_{i,t}$$

Parameter	1&7	1&8	2&7	2&8	3&7	3&8	4&7	4&8	5&7	5&8	6&7	6&8
A	-0.01	0.00	0.00	0.01	0.00	0.00	-0.02	-0.01	-0.01	0.00	0.00	0.01
B	0.80	0.17	0.90	0.19	0.61	0.12	0.76	0.41	0.43	0.72	0.50	0.23
Adj. R^2	0.68	0.14	0.85	0.17	0.52	0.08	0.29	0.40	0.03	0.59	0.21	0.22
F-statistic	141.25	11.74	395.66	14.29	73.26	6.50	28.59	46.02	3.25	98.90	18.73	19.53

Student's t statistics are used to test the null hypotheses that the estimated betas with both market indices are equal for all funds. The null hypotheses are rejected for all funds with P- value of .007.

Table 3: Estimates of Time Varying Betas

$$\beta_{i,t} = \beta_i + \delta_i/\sigma^2_{m,t}$$

Parameter	1&7	1&8	2&7	2&8	3&7	3&8	4&7	4&8	5&7	5&8	6&7	6&8
β_i	-0.46	0.13	0.70	0.21	0.13	0.03	-0.13	0.51	0.83	0.64	1.44	0.36
δ_i	0.07	0.01	0.01	0.00	0.03	0.01	0.05	-0.01	-0.02	0.00		-0.02
Adj. R^2	0.62	0.27	0.20	-0.04	0.50	0.53	0.44	0.46	0.01	-0.03	0.43	0.31
F-statistic	48.84	11.94	8.34	0.00	29.92	33.42	23.84	26.15	1.39	0.07	22.76	14.13

Note: * Significant at the 0.01 level.

Table 4: Conditional Variance Estimates of GJR-GARCH Model

$$\sigma^2_{m,t} = a_m + (b_m + d_m I_{t-1})\,\varepsilon^2_{m,t-1} + c_m\,\sigma^2_{m,t-1}$$

Parameter	1&7	1&8	2&7	2&8	3&7	3&8	4&7	4&8	5&7	5&8	6&7	6&8
a_m	0.01	-0.01	0.01	-0.01	0.01	-0.01	0.01	-0.01	0.01	0.00	0.01	-0.01
b_m	0.05	-0.08	0.47	0.08	-0.73	-1.47	0.03	0.08	0.00	-0.04	0.12	-0.09
d_m	0.01	0.03	-0.04	0.00	0.03	0.03	0.00	0.00	0.00	-0.03	0.00	0.03
c_m	0.75	1.03	0.71	1.02	0.77	1.04	0.74	1.02	0.75	1.01	0.70	1.02
Adj. R^2	0.51	0.97	0.53	0.97	0.56	0.98	0.52	0.98	0.53	0.98	0.57	0.97
F-statistic	12.24	404.53	13.18	399.08	14.37	454.58	12.67	399.08	13.14	444.83	14.96	415.35