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On the Segmentation of the Finnish Stock Market to Swedish and U.S. Stock Markets

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The main purpose of this study is to produce evidence on the level of segmentation of the Finnish stock markets to Swedish and U.S. stock markets. This is done by using an internationally extended market model for Finnish stocks. While in the traditional market model a security return is assumed to be dependent on a national stock market index return, in our model the return of a given Finnish asset is assumed to be dependend on the returns of Finnish, Swedish and US stock markets. This multi-market model of Finnish securities reveals that several Finnish stocks have significant Swedish risk components, while the inter-relation between Finnish and US markets is significantly lower. The cross-sectional variation of the estimated systematic risk components of this model is also investigated. It is shown that this cross-sectional variation in systematic risk components can largely be appointed to industry differences across firms.

key words: Finance, international asset pricing, segmentation, systematic risk

1. INTRODUCTION

1.1 Background

Practitioners and researchers world-wide have generally accepted the important role of equilibrium models in the field of modern finance. The most famous equilibrium model presented in finance literature, the Capital Asset Pricing Model (CAPM), developed by [18, 23, 25], is a simple and elegant model for pricing risky assets. The CAPM assumes that the expected return of a stock is linearly related to its systematic risk, where systematic risk of a security is defined to be the covariance of the asset return with the return of the market portfolio divided by the variance of the market portfolio return (for a presentation of the CAPM see, e.g., [9, 16]). Typically, in previous research the market portfolio has been approximated using a value-weighted general index for a given national stock market. In a fully efficient and integrated international capital market, buying the world market portfolio would be a natural strategy. However, since numerous constraints give competitive advantage to domestic investors, world's capital markets are not fully integrated or segmentated so far. The case of international diversification is thus very much an empirical question. This paper produces empirical results concerning the level of segmentation of the Finnish stock market to Swedish and U.S. stock markets.

International asset pricing and portfolio diversification have reached increasing attention during recent years. This is because the major national markets have experienced rapid deregulation and integration. In the context of the international CAPM, a typical approach has been to study the sensitivities of individual assets to a world-wide market portfolio (see also [28] on the studies using the consumption CAPM). As suggested by Solnik [31], the efficient way to test for market segmentation and integration would be to specify the type of imperfection which might create it, and to study its specific impact on portfolio optimality and asset pricing. Assuming this specific imperfection be due to inability of a group of investors to trade in a subset of securities as a result of portfolio restrictions imposed by some governments, Errunza and Losq [10] defined the conditional market risk based on return behaviour of different stock markets (see also [17, 29]). Some empirical evidence of mild segmentation of world's capital markets was reported. Their results were further extended by Bradfield [7] for South African markets. He found that a large proportion of shares in the Johannesburg Stock Exchange appeared to be influenced by the movements in the New York Stock Exchange, but only a small proportion of stocks were influenced by the UK and Japanese stock markets. In general, the proposed multi-market model seemed to provide useful information about the risk characteristics of individual South African stocks. However, the cross-sectional variation of these risk components was not researched. Together with proving information about the characteristics of the thin Finnish stock markets, this can be regarded as the main task of this study.

In addition to the international CAPM, the usefulness of the international Arbitrage Pricing Model by Solnik [27] has also been researched intensively. Cho, Eun and Senbet [8] studied the existence of international common factors in the Arbitrage Pricing Model using inter-battery factor analysis. Their results indicated that the number of common factors between a pair of countries ranged from one to five, depending on the level of their economic integration. Recently, Yli-Olli, Virtanen and Martikainen [32] investigated the common factors in Finnish and Swedish stock markets. They found that two or three stable factors generating stock returns in these two neighbouring countries could be found. Their results were further extended by Booth et al. [6]. They reported that two of these Scandinavian factors could be regarded as world-wide by nature, being important in U.S. markets as well.

Significant relationships between the returns of different stock markets have been reported in several studies. In their early paper Makridakis and Wheelwright [19] investigated the short-term stability of the relationships between 14 stock market indices and reported that the co-movements of international stock exchanges seem to be random processes. Similar kinds of conclusions have been drawn by Hillard [15]. However, other, more recent, studies provide results that suggest a higher level of stability in international stock markets co-movements (see e.g., 11, 13, 22, 24]). A general trend seems to be that stock prices in different countries have been tending to move more similarly in the 1980's than before. Concerning the Helsinki Stock Exchange, the behaviour of the Finnish stock market seems to be somewhat different of the world's leading stock markets [20]. Similarities between Finnish and Swedish markets can, however, be found [21, 30, 33]. Some studies have also tried to find leads and lags between national stock markets (see [28] for a review). However, no evidence of a systematic delayed relation of one national market to another has ever been found.

1.2 The purpose and structure of the study

The main purpose of this study is to investigate the level of segmentation of the Finnish stock market to Swedish and U.S. stock markets. This is carried out by investigating the appropriateness of the so-called multi-market model desribing the returns of individual stocks in the Finnish stock market. For this purpose, data from three stock markets, from the Helsinki, New York, and Stockholm Stock Exchanges were collected. Due to the rapid deregulation of Finnish stock markets, this is an important task to carry out. In Finland the relative importance of other stock markets in generating the risk characteristics of listed firms may be especially high because of the thin trading in the Helsinki Stock Exchange, and because of the considerably increased direct investments of Finnish companies abroad. As an open country which carries on foreign trade to a great extent, Finland is highly dependent on overseas establisment and macroeconomic conditions. On the other hand, the Finnish stock market has generally been regarded as being very different than the major exchanges of the United States, Japan and Western Europe. It is a very small market comprised of generally thinly-traded stocks. In addition, it has been suggested that efficiency of the Finnish stock market is not especially high (see e.g., [3, 5, 30]). This being the case, the return behaviour of the Finnish stock market may be very different from the more developed stock markets (see also the previous section).

Compared to previous studies, this paper aims to contribute to the financial economics literature where the international asset pricing is investigated. To be more specific, this paper extends the recent studies by Errunza and Losq [10] and Bradfield [7]. The extentions include considering the Finnish stock markets when investigating the so-called multi-market models, and especially by considering the cross-sectional variation in the parameters and explanatory power of these models.

The remainder of the paper is organized as follows. In Section 2, the multi-market models used in the study are presented. In the third section, the data used in this study are described. Section 4 contains the empirical results of the study. Finally, in Section 5 conclusions are drawn.

2. THE MULTI-MARKET MODEL

The traditional equilibrium model presented in finance literature, the Capital Asset Pricing Model (CAPM), assumes that the expected return of a stock is linearly related to its systematic risk, where the systematic risk of the security is defined to be the covariance of the asset return with the return of the market portfolio divided by the variance of the market portfolio return. Traditionally, betas have been measured using a simple bivariate regression, i.e. Sharpe's [25] market model.

(1) $$\underline{R}_i = \alpha_i + \beta_i \underline{R}_m + \underline{\varepsilon}_i ,$$

where random variables are denoted by underlying the symbols of the variables. In the above model, $\underline{R}_i$ represents the return of security i, α_i is the intercept term for a security i, β_i is the measure for systematic risk, beta, of a security i, $\underline{R}_m$ is a return of a national stock market index and $\underline{\varepsilon}_i$ is the idiosyncratic risk of security i (for a review of some beta estimation techniques see [4]). Thus, the model assumes that the return of an individual stock is a function of the return of the national stock market. To investigate the notion of segmentation/integration of world's stock markets and also the international risk components of securities, a multi-market model in the spirit of Errunza and Losq (1985) is used in this paper. In order to obtain tractable expressions for the risk components of individual assets (national market risk, international market risk and idiosyncratic risk), the vectors of returns of local and international markets are orthogonalised. In this case, this means removing the effect of an international index from the index describing the behaviour of the local stock market. This can be done by using the following simple bivariate regression:

(2) $$\underline{R}_m(\mathrm{LOC}) = \alpha + \beta \underline{R}_m(\mathrm{INT}) + \underline{\varepsilon} ,$$

where $\underline{R}_m$ (INT) represent the returns of the international markets, and $\underline{R}_m$ (LOC) the return of the local market. The residual term $\underline{\varepsilon}$ is the part of the local returns with international returns removed. In the following, let us note the residual term in (2) with $\underline{R}_m$ (LOC-INT). The multi-market model can now be expressed as

$$(3) \qquad \underline{R}_i = \alpha_i + \beta_{1i} \underline{R}_m \text{ (INT)} + \beta_{2i} \underline{R}_m \text{ (LOC-INT)} + \underline{\varepsilon}_i$$

The model (3) can similarly be extented to several markets as well. The components of risk for a security i can be obtained considering the expression for the variance of the returns of a security i:

$$(4) \qquad \text{Var}(\underline{R}_i) = \beta_{1i}{}^2 \text{ Var}(\underline{R}_m \text{ (INT)}) + \beta_{2i}{}^2 \text{ Var}(\underline{R}_m \text{ (LOC-INT)}) + \text{Var}(\underline{\varepsilon}_i)$$

The multi-market model makes it possible to investigate the level of segmentation across different stock markets in terms of individual securities. First, assume the local and international markets to be totally integrated. Then, second term in (3), i.e. $\beta_{2i} \underline{R}_m$ (LOC-INT) does not produce significant incremental information with respect to the first term, i.e. $\beta_{1i} \underline{R}_m$ (INT),when the returns of individual assets are investigated. Making an assumption concerning partly segmentation across the two investigated markets, both of the two terms should be significant in return-generating process of individual assets.

The approach applied herein offers an efficient way to study the level of segmentation between markets. However, it should be noted that there may be several underlying reasons for the potentially observed segmentation. The segmentation may arise from government policies or from market inefficiences. The observed segmentation may also be due to the unrealized underlying assumptions of either a universal logarithmic utility function [1], or purchasing power parity [12], or no correlation between exchange rate movements and stock returns as well as deterministic domestic consumption deflators [14, 26]. In any case, market segmentation has many practical implications in international portfolio diversification.

3. THE DATA

For analysis purposes, monthly stock returns from the Helsinki Stock Exhange for January 1980 to December 1986 are used. These individual asset returns are collected from a data base originally introduced by Berglund, Wahlroos and Grandell [2]. Our sample consists of 28 firms that have had their ordinary shares listed for the entire research period. The price indices used in the study are closing values for each month. The prices are corrected for splits, new issues etc. assuming that dividends are reinvested with zero transaction cost. The returns for each month are determined as first differences of the natural logarithms of these price indices. There are two main reasons for the use of logarithmic transformation in our study. First, there has occured significant changes in the levels of price indices during the period. By the use of logarithmic values we aim to reduce this problem which otherwise might invalidate the assumption of a constant relationship between dependent and independent variables. Second, the efficiency of the estimates is improved due to the reduce of heteroskedasticity in regression analysis.The general index in use for the Helsinki Stock Exchange is the value-weighted market index collected from the same data base. For Swedish returns, a general index published by a Swedish journal, Affarsvärlden, is in use. For U.S. market returns the Dow-Jones index is collected from the same journal. Also these indices are used in their logarithmic form.

4. EMPIRICAL RESULTS

To obtain some preliminary evidence on the relationships of the returns on the investigated stock markets, simple OLS regressions between the market returns were first run. Table 1 presents the results of these regression analyses. All of the three markets seem to be positively related to each other. The strongest relationship between the three markets is found in model (5a), i.e. between Finnish and Swedish stock markets when the returns are measured from the same month. Also between Swedish and U.S. markets there seems to exist some connection, especially when a lag of one month is applied in model (7b). However, the relationship between Finnish and U.S. markets is clearly lower by nature.

(insert Table 1 about here)

There is naturally a huge set of reasons why Finnish and Swedish stock markets tend to behave more homogeneously than Scandinavian and U.S. markets. First of all, the economies of Scandinavian countries are more integrated to each other. Secondly, the US investors apparently have psychological barriers to invest in Scandinavian stocks, due to risks associated with unfamiliarity of Scandinavian firms. The analyzing and transaction costs of foreign investment are apparently high for U.S. investors. Finally, the exchange risks must be taken into account.

To produce evidence on the appropriateness of the so-called multi-market model in Finland, a market-model extented to Swedish stock market was first tested. The non-diversifiable risk components of these models are presented in Table 2. The results on that table are based on model (8):

(8) $\underline{R}_i = \alpha_i + \beta_{1i} \underline{R}_m (SWE) + \beta_{2i} \underline{R}_m (FIN\text{-}SWE) + \underline{\varepsilon}_i$,

where $\underline{R}_m$ (SWE) represents the returns of the Swedish stock market, and $\underline{R}_m$ (FIN-SWE) the return of the Finnish market orthogonalised with respect to the returns of the Swedish market, i.e. the residual term from the regression $\underline{R}_m$ (FIN) = $\alpha + \beta \underline{R}_m$ (SWE) + $\underline{\varepsilon}$. In the following, this model is called as the Scandinavian market model for Finnish securities.

(insert Table 2 about here)

The first column in Table 2 presents the systematic risk components of securities (in percentage of the total risk associated with the variability of the returns of a security in question) appointed to the Swedish market index. It can be seen that for 12 securities the estimeted beta coefficient for Swedish markets has been statistically significantly different from zero. Only in one case, i.e. in the context of Schauman, the beta has been negative. Thus, the results clearly support the segmentation hypothesis of Finnish and Swedish security markets. Swedish risk components seem to be important in the return generating process of Finnish stocks.

The second column in Table 2 contains information about the part of total risk associated with the general return of the Finnish market after first controlling for the behaviour of the Swedish market. All of the estimated betas have expected positive signs, and almost all of them are statistically different from zero. These results give support to the so-called mild segmentation hypothesis. There seems to exist significant incremental information in Finnish market returns after removing the part associated with Swedish market returns.

Next, the segmentation of Finnish and U.S. markets was investigated. This was done similarly as in the context of Swedish market. Thus, regression analysis estimates for the following model were now produced:

(9) $\underline{R}_i = \alpha_i + \beta_{1i} \underline{R}_m (USA) + \beta_{2i} \underline{R}_m (FIN\text{-}USA) + \underline{\varepsilon}_i$,

where $\underline{R}_m$ (USA) represents the returns of the Swedish stock market, and $\underline{R}_m$ (FIN-USA) the return of the Finnish market orthogonalised with respect to the returns of the U.S. market, i.e. the residual term from the regression $\underline{R}_m$ (FIN) = $\alpha + \beta \underline{R}_m$ (USA) + $\underline{\varepsilon}$. In the following, this model is called as the world-wide market model for Finnish securities. The results concerning the proportions of systematic risk of this model are given in Table 3.

(insert Table 3 about here)

The results in Table 3 do not give support to the importance of the U.S. market in generating individual assets returns in Finland. The betas differ from zero only for three stocks. In addition, it should be emphasized that for 10 stocks the beta coefficient is negative. Thus, the created world-wide market model does not give support the world-wide segmentation of the Finnish stock market. This finding is very much consistent with the recent findings by Malkamäki, Martikainen and Perttunen [20] using a somewhat different approach. In their study on aggregate level, the market model of Finnish returns as an dependent variable and the returns of the world-wide market portfolio as an independent variable did not reach significant explanatory power. In addition, tests of the international APM indicated that the behaviour of the Finnish stock market is typically very different from the major stock markets of the world. The results show that the use of the most typical approach in international asset pricing and portfolio diversification, where the sensitivities of individual assets to a world-wide market portfolio are investigated may not be very well-specified for Finnish stocks.

Reasons for the low level of world-wide segmentation of the Finnish stock market are apparently many. First of all, the thin trading in the Finnish stock market has obviously made the transactions of foreign investors very difficult in the Finnish stock market. In addition, it should be noted that Finnish shares are divided into restricted and non-restricted shares. Only non-restricted shares can be bought by foreigners. In addition, the knowledge about Finnish firms has been quite low globally. Due to the complicated accounting system used in Finland, the foreigner investors' investment analysis is made complex and the comparability of Finnish firms well-being to overseas companies very difficult indeed. These explanations are naturally more or less speculative by nature, but apparently among the reasons for the low level of world-wide segmentation of Finnish stock markets.

Thus, our world-wide market model did not reach significant empirical support. In the following, we concentrate on the Scandinavian market model (8) only. As described earlier, one of the main purposes of this study is to discover whether it is possible to explain the cross-sectional variation on systematic risk components across firms. For this purpose, we explained the increase in explanatory power between the Scandinavian multi-market model and the traditional single-market model. This increase was then explained by the industrial differences across firms. For this purpose, three industrial dunmmies representing trade, forest and metal industries were created. Thus the following regression analysis (10) was performed:

$$(10)\quad \underline{INC} = \lambda_0 + \lambda_1 \underline{D}_1 + \lambda_2 \underline{D}_2 + \lambda_3 \underline{D}_3 + \underline{\varepsilon},$$

where $\underline{INC}$ is the increase of explanatory power in the Scandinavian multi-market model with respect to traditional single-market model, $\lambda_0, \lambda_1, \lambda_2, \lambda_3$ are regression coefficients, $\underline{D}_1$ is a dummy variable with a value of one for trade firms and zero otherwise, $\underline{D}_2$ is a dummy variable with a value of one for forest industry firms and zero otherwise, $\underline{D}_3$ is a dummy variable with a value of one for metal industry firms and zero otherwise, and $\underline{\varepsilon}$ is the error term with zero mean and constant variance. The results of regression (10) are given in Table 4.

(insert Table 4 about here)

The results in Table 4 indeed give support to industry differences as an important determinant of the cross-sectional variation of the importance of multi-market models. Firms from different industries apparently differ from many imortant aspects in this context. First of all, their level of internationalisation is apparently different. Secondly, they are differently dependent on the exchange risks and development in the international economy.

5. SUMMARY AND CONCLUSIONS

This study focused on the level of segmentation of the Finnish stock markets to Swedish and U.S. stock markets. This was carried out by exploiting an internationally extended market model for Finnish stocks. This multi-market model of Finnish securities revealed that several Finnish stocks have significant Swedish risk components, while the inter-relation between Finnish and U.S. markets is significantly lower. The cross-sectional variation of the estimated systematic risk components of this model was also investigated. It was shown that this cross-sectional variation in systematic risk components can be appointed to industry differences in firms.

Our results do not give support the world-wide segmentation of Finnish stock markets. This finding is very much consistent with some of recent findings indicating that the return behaviour of the Finnish stock market is typically very different from the major stock markets of the world. The results show that the use of the most typical model in international asset pricing and portfolio diversification, where the sensitivities of individual assets to a world-wide market portfolio are investigated may not be very well-specified for Finnish stocks. This may be, for example, due to the thin trading in the Finnish stock markets making the transactions of foreign investors very difficult, Finnish shares being divided into restricted and non-restricted shares, relatively poor global knowledge of Finnish firms, and the complicated Finnish accounting system making foreigner investors' investment analysis complex. Thus, our results indicate that the forthcoming deregulation in international capital markets may well have drastic effects especially on thin security security markets, such as the Finnish stock market.

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Table 1. Regression analysis estimates.
(t-values in parentheses)

(5a) $R_{mt}\,(FIN) = \alpha + \beta R_{mt}\,(SWE) + \varepsilon_t$

(5b) $R_{mt}\,(FIN) = \alpha + \beta R_{mt-1}\,(SWE) + \varepsilon_t$

(6a) $R_{mt}\,(FIN) = \alpha + \beta R_{mt}\,(USA) + \varepsilon_t$

(6b) $R_{mt}\,(FIN) = \alpha + \beta R_{mt-1}\,(USA) + \varepsilon_t$

(7a) $R_{mt}\,(SWE) = \alpha + \beta R_{mt}\,(USA) + \varepsilon_t$

(7b) $R_{mt}\,(SWE) = \alpha + \beta R_{mt-1}\,(USA) + \varepsilon_t$

Model	Constant	Coefficients of	R^2	F	
(5a)	0.0156 (3.530)***	0.2250 (2.864)**	0.0919	8.200**	N=83
(5b)	0.0167 (3.667)***	0.1852 (2.304)*	0.0622	5.307*	N=82
(6a)	0.0205 (4.690)***	0.0303 (0.264)	0.0009	0.070	N=83
(6b)	0.0196 (4.491)***	0.1648 (1.432)	0.0250	2.049	N=82
(7a)	0.0210 (3.602)***	0.2197 (1.439)	0.0249	2.070	N=83
(7b)	0.0209 (3.587)***	0.2819 (1.831)+	0.0402	3.353+	N=82

+ significant at 0.10 level *significant at 0.05 level **significant at 0.01 level *** significant at 0.001 level

Table 2. Results of the Scandinavian market model (8) and traditional national market model (1) for Finnish stocks.

Systematic risk measures obtained by
β_{1i}^2 Var ($\underline{R}_m$ (SWE)) and
β_{2i}^2 Var ($\underline{R}_m$ (FIN-SWE)).

Firm	Sweden	Finland	Total	Traditional Market Model
Effoa	0.0011	0.0504	0.0515	0.0415**
Kesko	0.0674**	0.2081***	0.2755	0.2636***
Ford	0.0043	0.1137**	0.1180	0.0909***
Stockmann	0.0648*	0.1501***	0.2149	0.1992***
Talouskauppa	0.0036	0.0650*	0.0686	0.0682***
Tamro	0.0614*	0.0206	0.0819	0.0449**
Enso	0.0130	0.0614*	0.0743	0.0732***
Fiskars	0.0020	0.1768***	0.1787	0.1499***
Huhtamäki	0.0625**	0.3697***	0.4322	0.4293***
Instru	0.0352+	0.2208***	0.2560	0.2547***
Kajaani	0.0790**	0.1992***	0.2783	0.2607***
Kemi	0.0042	0.0625*	0.0667	0.0666***
Kymi	0.0145	0.3031***	0.3176	0.3149***
Lassila	0.0209	0.0689*	0.0898	0.0864***
Lohja	0.0363*	0.4707***	0.5070	0.5063***
Nokia	0.0688**	0.4218***	0.4906	0.4878***
Otava	0.0016	0.0169	0.0184	0.0125
Partek	0.0656**	0.3346***	0.4002	0.3955***
Rauma	0.0203	0.3322***	0.3525	0.3510***
Rosenlew	0.0040	0.0809***	0.0849	0.0843***
Schauman	0.0270(-)	0.0653*	0.0923	0.0375*
Serla	0.0011	0.1791***	0.1802	0.1707***
Sokeri	0.0152+	0.2277***	0.2549	0.2547***
Trikoo	0.0116	0.0550*	0.0667	0.0657***
Tamfelt	0.0049	0.0965**	0.1014	0.1007***
Tampella	0.0190	0.0487*	0.0677	0.0635***
Wärtsilä	0.1102***	0.3078***	0.4180	0.3961***
Yhtyneet	0.0927***	0.3159***	0.4086	0.3943***

underlying betas

+ significant at 0.10 level *significant at 0.05 level ** significant at 0.01 level *** significant at 0.001 level
(-) negative

Table 3. Results of the world-wide market model (9) for Finnish stocks.

Systematic risk measures obtained by
$\beta_{1i}{}^2$ Var (R_{mt} (USA)) and
$\beta_{2i}{}^2$ Var (R_{mt} (FIN-USA)).

Firm	USA	Finland	Total
Effoa	0.0073(-)	0.0426+	0.0499
Kesko	0.0291+	0.2587***	0.2878
Ford	0.0125(-)	0.0930**	0.1054
Stockmann	0.0032	0.1979***	0.2011
Talouskauppa	0.0065	0.0671*	0.0736
Tamro	0.0136	0.0435+	0.0570
Enso	0.0053(-)	0.0744+	0.0797
Fiskars	0.0000	0.1500***	0.1500
Huhtamäki	0.0086(-)	0.4322***	0.4418
Instru	0.0006(-)	0.2556***	0.2563
Kajaani	0.0473*	0.2544***	0.3018
Kemi	0.0000	0.0665*	0.0666
Kymi	0.0011	0.3141***	0.3151
Lassila	0.0025	0.0856**	0.0882
Lohja	0.0134	0.5116***	0.5250
Nokia	0.0001(-)	0.4887***	0.4888
Otava	0.0053(-)	0.0130	0.0183
Partek	0.0125(-)	0.3977***	0.4001
Rauma	0.0000	0.3512***	0.3512
Rosenlew	0.0077	0.0828**	0.0906
Schauman	0.0548(-)	0.0403+	0.0951
Serla	0.0019	0.1698***	0.1717
Sokeri	0.0193	0.2509***	0.2702
Trikoo	0.0020	0.0664*	0.0684
Tamfelt	0.0041(-)	0.1020**	0.1061
Tampella	0.0000	0.0637*	0.0677
Wärtsilä	0.0033	0.3943***	0.3976
Yhtyneet	0.0000	0.3944***	0.3944

underlying betas

+ significant at 0.10 level *significant at 0.05 level ** significant at 0.01 level

*** significant at 0.001 level

(-) negative

Table 4. Regression analysis estimates of (10).
(t-values in parentheses). N=28.

λ_0	λ_1	λ_2	λ_3	R^2	F
0.0029	0.0156	0.0080	0.0220	0.292	3.306*
(0.798)	(2.343)*	(1.545)	(2.468)*		

+ significant at 0.10 level *significant at 0.05 level **significant at 0.01 level *** significant at 0.001 level