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Full Length Research Paper

Do industries predict the stock market due to slow diffusion of information?

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The slow diffusion of information hypothesis has emerged as a more convincing explanation for lead-lag patterns in assets returns compared to traditional explanations such as non-synchronous or thin trading, liquidity factor, or size factor, etc. We provide further support to slow diffusion of information hypothesis from an emerging market. We use a rich data set of weekly returns of 34 industries listed at the Karachi Stock Exchange over the period 1998 to 2011. In a separate regression for each industry, we regress KSE-100 Index current returns on the lagged industry returns and a set of control variables. Our results indicate that a large number of industries predict the market returns up to 3 weeks. The predictive power of industries decreases as we increase the prediction horizon. These findings are robust even after we control for known predictors of market return such as size of an industry, trading volume of an industry, and the lagged trading volume of the market. Our results support the slow diffusion of information hypothesis.

Key words: Lead-lag pattern, slow diffusion of information, Karachi stock exchange, industry returns, returns predictability, Pakistan.

INTRODUCTION

If systematic lead-lag relationship exists between returns of two groups of stocks, a portfolio manager can easily devise a strategy to predict movements in one group of stocks with the help of the other. He can thus follow a simple buy−winners and sell−losers strategy for earning above normal profits. However, the whole lead-lag thesis is contrary to the well−known random walk hypothesis, introduced by Louis Bachelier's (1900) in his thesis "*Theory of Speculation*". Since then, this area has attracted enormous research, with support to random walk hypothesis in a number of early studies (Cootner, 1964; Fama, 1965, 1970). Since stock prices unpredictability is the essential property of random walk hypothesis, evidence in support of stock returns predictability in recent studies have surprised the supporters of efficient market hypothesis. For this reason, this area is of considerable importance to financial economists.

The discussion on the existence of lead-lag relationship between stock returns goes back to Fisher (1966) who showed that nonsynchronous trading bring autocorrelation between stock returns. In subsequent studies, the lead-lag effects in portfolios sorted on different characteristics were explained with a wide range of factors. For example, Lo and Mackinlay (1990) and Cohen et al. (1986) argue that lead-lag effects are due to thin trading. Trading in small stocks is normally thinner. Trading in small stocks occur only when investors see enough evidence that prices of large stocks are adjusting to new information. This creates a lag in response of the market to adjust prices of small stocks, hence large stock lead the small stocks. Lo and Mackinlay (1990) attribute this size−associated lead-lag effects to the mechanism of dissemination of information between stocks. Chan

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(1993) highlighted the role of availability of information in explaining the lead-lag relationship. He observed that institutional investors focus more on large stocks; they produce more information and analysis about large stocks. Investors specializing in small stocks can rely on the price movement of large stocks and assume that these price movements indicate the quality information generated by institutional investors. The investors follow the trails of price movements in large stocks to predict movements in small stocks. However, Badrinath et al. (1995) objected to the view of Chan (1993). They contended that lead-lag effects are more related to institutional ownership than to size factor. Besides these, researchers have attributed the autocorrelation in portfolio returns to a number of other factors such as liquidity of the underlying stocks (Jegadeesh and Titman, 1995, Brennan et al., 1993; Badrinath et al., 1995), stock market overreaction hypothesis (Shefrin and Statman, 1985; Deboned and Thaler 1985, 1987; DeLong et al., 1989; Lehmann 1990) and slow diffusion of information.

In more recent times, researchers in this area have shifted the focus towards the behavioral explanations (Hong et al., 2007; Merton 1987; Hong and Stein, 1999). These researchers highlighted the importance of slow diffusion of information among different segments of the market due to limited ability of the human race to process all available information or pay equal attention to information originating in different segments of the market. The limited cognitive ability of the human race results lag of information reaching from one segment to the other segments, thus creating the phenomenon of lead-lag patterns in assets returns. One notable study in this regard is the study by Hong et al. (2007). Their main hypothesis was that the propensity of an industry to lead movement of the stock market index is linked with its ability to predict various economic indicators. They found evidence in support of their hypothesis, even after controlling for well−known stock market predictors.

Evidence concerning lead-lag relationship between different groups of stocks is well documented in developed economies (Hong et al., 2007; Lo and Mackinlay, 1990; Chan, 1993; Jegadeesh and Titman, 1995; Brennan et al., 1993; Badrinath et al., 1995). However, this area has not attracted due attention of researchers in Pakistan.

Two papers that touch upon this topic in Pakistan include Shah et al. (2011) and Rehman and Rehman (2010). The former uses monthly data only for three industries to predict stock market returns. And the later checks autocorrelations between portfolios of small and large stocks, using monthly observation from 2000 to 2009. The objective the present study is to provide extensive evidence on lead-lag relationship between industries returns and stock market index returns. For this purpose, we use a considerably large data set of 34 industries that includes weekly observations from 1998 to 2011.

Compared to the existing studies, our study has far richer data set. Study by Shah et al used only 90 observations for each of the three industries, whereas Rehman and Rehman (2010) used only 119 observations in their tests. In contrast, we used a minimum of 578 observations for each of the 34 industries. In this regard, our study fills an important empirical gap.

LITERATURE REVIEW

Here, we summarize the explanations and evidences from the extant literature on the existence of lead-lag relationship between stock returns. These explanations can be broadly categorized into stock market overreaction hypothesis, nonsynchronous and thin trading, institutional ownership effects, and slow diffusion of information hypothesis. These hypotheses are further discussed.

Stock market overreaction hypothesis

Supporter of stock market overreaction hypothesis argue that movements in stock market are driven by investors' excessive optimism or pessimism. Such waves take the stock prices away from their fair levels. When a group of investors become sufficiently optimistic, they start buying while other half−convinced investors join the rally gradually and slowly. The rally takes the form of momentum until a sufficiently large group of pessimistic investors dominate to reverse the rally. These rallies create patterns in stock prices movements, and hence make them predictable. Supporters of this view include DeBondt and Thaler (1985, 1987), Shefrin and Statman (1985), DeLong et al. (1989), Lehmann (1990), and Poterba and Summers (1988). However, as argued by Lo and Mackinlay (1990), this hypothesis is still far from being converted into a well−established theory.

Nonsynchronous and thin trading

Several empirical studies have reported that returns on large firms have the tendency to lead returns on small firms. Several theoretical explanations have been given for this observed behavior. Earlier studies attributed this phenomena to what is known as nonsynchronous trading or thin trading which is specifically related to small firms (Fisher, 1966; Cohen et al., 1986). However, this view did not receive enough empirical support. Studies such as Lo and MacKinlay (1990), Mech (1993), McQueen et al. (1996) and Chordia and Swaminathan (2000) concluded that nonsynchronous and thin trading cannot fully explain lead-lag patterns.

The institutional investors' effect

As pointed out previously, Chan (1993) argued that large stocks are favored stocks of institutional investors. Since institutional investors produce more information and analysis about large stocks, these stocks naturally have better ability to lead other stocks. However, Badrinath et al. (1995) objected to this view. They contended that lead-lag effects are more related to institutional ownership than to size factor. Such stocks are followed by more analysts or institutional investors and are thus more liquid.

Slow diffusion of information hypothesis

In more recent times, more convincing explanations for lead-lag relationship between stock returns were extended in the context of incomplete market framework and human behavioral aspects. The behaviorists argue that humans cannot process unlimited amount of information and investors are only boundedly rational (Shiller, 2000; Sims, 2001). Moreover, attention is precious cognitive resource which is not ubiquitous in nature. These features imply that stocks/portfolios that lack investors base or that generates less information about economic activity will react with a delay to information that is originated elsewhere (Hong et al., 2007).

Hong et al. (2007) applied the slow diffusion of information hypothesis to lead-lag patterns in industry and stock market returns. They developed and tested several hypotheses where industries with more information about macroeconomic fundamentals would lead the market. They argued that information from such industries would reach to investors who specialize their trading only in the broader market index with a delay. In their model, if an industry does not have information about the market, it will not lead the market whether or not information moves slowly.

The main objective of our paper is to test the slow diffusion of information hypothesis. In doing so, we primarily build upon the work of Hong et al. (2007) to test lead-lag relationship between industries and KSE-100 Index returns. Unlike Hong et al. (2001) who use monthly data, we use weekly data that makes our data set richer, allowing us to test lead-lag structure with more frequency.

DATA AND METHODOLOGY

Sample and data sources

The analysis covers 14 years of weekly data from January 1998 to September 2011 for KSE100 Index returns and returns of the 34 industries. The index and industries data were taken from www.khistocks.com. This was the maximum data available on this website. This decade long time period covers many long− and short−term trends in the Karachi Stock Exchange. The number of weekly observations ranged from 578 to 610 for different industries, depending upon availability of data and removal of extreme values.

Measurement of variables

Dependent variable

To test the lead-lag relationship between industries and KSE-100 returns, dependent variable in our regression models is the stock market return calculated from the changes in the index points with weekly frequency. Holding period market return (R_m) was calculated as follows:

$$R_m = \frac{\text{Index points}_t - \text{Index points}_{t-1}}{\text{Index Points}_{t-1}}$$

Independent variables

Industry returns: The industry returns were measured in two steps. Since our source website does not provide index numbers for individual industries, we had to use market capitalization of each industry for calculating gross industry returns in the first step. In the second step, the gross industry returns were adjusted for changes in level of outstanding shareholdings of the industries.

Lagged market returns: The definition of lagged market returns (*RM*) is the same as the definition of market returns, except that the former is lagged up to four months in different specifications. The lagged market returns are included in the model to account for the autocorrelation in market own returns. This is in line with the argument of Boudoukh et al. (1994) who objected to the hypothesis of lead-lag relationship between portfolio returns on grounds of autocorrelations in the portfolios own returns.

Model specification

Following Hong et al. (2007), we test the ability of an industry to forecast the market returns with the following model:

$$R_{mt} = \alpha_i + \lambda_i R_{i,t-k} + A_i Z_{t-m} + e_{i,t} \quad (1)$$

A separate regression model is estimated for each of the 34 industries. R_{mt} is the market return, $R_{i,t-k}$ are the lagged industry returns upto k lagged terms. λ_i is the slope coefficient of a given industry which measure the extent to which an industry leads the market. For the gradual diffuseness of information hypothesis to hold, it is necessary that λ_i is significantly different from zero. The lag lengths of the explanatory variables range from one week up to 10 weeks. Z_{t-m} represent control variables such as lagged market returns, and lagged trading volume of market and the given industry. The lagged market returns are included so as to account for the autocorrelation in the market's own returns. Boudoukh et al. (1994) attributed lead-lag relationship between portfolio returns to the autocorrelation in the dependent variable own values. They argued that once this autocorrelations is accounted for, the lead-lag patterns would disappear. Following Chui and Kwok (1998), we also add lagged trading volumes in some set of regression. Chui and Kwok (1998) argued that lagged trading volume can proxy for slow diffusion of information. If trading activities transmits information, then volume can proxy information which is yet to be embedded in stock prices.

Table 1. Weekly summary statistics of 34 industries listed at KSE from 1998 to 2011.

Industry	Obs.	Mean (%)	Std. dev (%)	Industry	Obs.	Mean (%)	Std. dev (%)
Auto assembler	605	0.2	5.5	Modarabas	606	0.3	6.7
Automobile parts	608	0.4	7.9	Oil Exploration	606	0.7	7.5
Electrical goods	606	0.3	10.6	Oil Marketing	606	0.2	7.1
Cement	607	0.2	9.8	Paper and Board	605	0.4	6.7
Chemicals	607	0.4	7.3	Pharmaceuticals	606	0.1	5.0
Close mutual funds	608	−0.5	10.2	Power Generation	608	0.1	6.7
Commercial banks	607	0.0	7.9	Refinery	606	0.9	13.6
Engineering	593	1.4	9.7	Sugar	608	0.5	8.2
Fertilizer	607	0.6	7.7	Synthetic	607	0.2	7.1
Food	582	−0.9	10.8	Technology	600	−0.1	11.9
Glass and ceramics	606	0.4	8.9	Textile Composite	608	0.2	5.7
Insurance	610	0.2	9.0	Textile Spinning	608	0.2	5.0
Investment banks	578	−1.7	12.2	Textile Weaving	608	0.5	8.4
Jute	599	0.4	9.8	Tobacco	605	0.5	9.3
Leasing companies	606	0.0	4.9	Transport	607	0.2	10.5
Leather /tanneries	604	0.7	10.0	Vanaspati	607	0.6	9.2
Miscellaneous	605	0.4	7.7	Woolen	606	0.4	13.6
KSE−100 Index	608	0.5	7.00				

Obs.=Observe

The equation can also be estimated by including all industries in a single regression. However, Hong et al. (2007) suggested that industries coefficients in such a regression will be less precise as the standard errors of the coefficients would be high.

RESULTS AND DISCUSSION

Table 1 presents summary statistics for all of the 34 industries. These statistics have been calculated with weekly frequency from 1998 to 2011, after removing extreme values. The industry classification is adopted from the Karachi Stock Exchange that classifies all listed firms into 34 sectors plus one sector of open−end mutual funds. The first column shows the names of the industries, whereas the second and third columns show the mean and standard deviation of the weekly industry returns.

Tables 2 and 3 present results of regressions corresponding to Equation 1. First column displays the names of the industries for which a separate regression was estimated. In column 1 (*Ri, t-1*) through 10 (*Ri, t-10*), we report values of the slope coefficient (the value of λi in equation 1) of a given industry. The column heading *Ri, t-1* denotes that current market returns were regressed on one week lagged industry returns and *Ri, t-2* denotes that current market returns were regressed on two weeks lagged industry returns, so on and so forth. All these specifications include four lagged terms of the market returns. Including lagged market terms is in accordance with the previous literature[1]. Since we have 34 industries and 10 regressions for each industry, we report only the coefficient values of the lagged industry returns in all tables and avoid reporting values of other control variables for the sake of parsimony. In all specifications, the F-test showed that the models were well-specified.

For the slow-diffusion of information hypothesis to hold, it is necessary that the coefficients of lagged industry returns are statistically significant. Tables 2 and 3 show that large number of industries lead the stock market. Specifically, Table 2 shows that 27 out of a total of 34 industries lead the stock market by one week time, at a significance level of 10%. The number of predictive industries falls to 23 when a two week time is considered. Similarly, as the prediction horizon increases, the number of predictive industries falls. The number of statistically significant coefficients of lagged industry returns are 21 with 3 weeks lags, 13 with 4 weeks lags, 13 with five weeks lags, 11 with six weeks lags, 8 with seven weeks lags, 7 with eight weeks lags, 5 with nine weeks lags, and 3 with 10 weeks lags of the industry returns. These findings are in line with the slow diffusion of information hypothesis which argues that Information originated in a specific industry is gradually incorporated in the broader market index with the passage of time.

These findings also have similarity with findings of

[1] Hou (2007), Brennan et al. (1993), Chordia and Swaminathan (2000)

Table 2. Regression results using lag lengths from one week up to five weeks of the industry returns.

Industry	$R_{i,t-1}$	$R_{i,t-2}$	$R_{i,t-3}$	$R_{i,t-4}$	$R_{i,t-5}$
Auto assembler	0.116*	−0.142*	0.103*	−0.013	−0.066*
Automobile parts	−0.135*	0.044	0.017	−0.022	0.024
Electrical goods	0.111*	−0.079*	0.057*	0.009	−0.017
Cement	0.225*	−0.16*	0.064**	−0.01	−0.033
Chemicals	0.007	0.041	−0.135*	0.037	−0.1***
Close mutual funds	−0.199*	0.148*	−0.133*	0.076***	−0.052
Commercial banks	0.149*	−0.079*	0.014	0.045	−0.097***
Engineering	0.119*	−0.125*	0.109*	−0.07**	0.052
Fertilizer	−0.102**	0.045	0.084***	−0.01	−0.022
Food	−0.154*	−0.023	0.006	−0.036	0.043
Glass and ceramics	0.135*	−0.124*	0.057***	−0.007	0.009
Insurance	0.124*	−0.144*	0.131*	−0.07*	0.05
Investment banks	−0.013	0.033	−0.021	−0.02	0.002
Jute	−0.025	0.027	−0.021	0.037	−0.049**
Leasing companies	0.065	0.073	0.03	−0.086	0.11*
Leather and tanneries	0.014	−0.059*	0.072*	−0.05***	0.069***
Miscellaneous	−0.068***	0.067***	−0.017	0.043	0.022
Modarabas	−0.178*	0.16*	−0.133*	0.091	0
Oil exploration	0.098*	−0.03	0.087**	0.052	−0.033
Oil marketing	0.239*	−0.149*	0.147*	−0.094*	−0.024
Paper and board	0.184*	−0.13*	0.104*	0.01	−0.036
Pharmaceuticals	0.194*	−0.274*	0.202*	−0.114**	0.122***
Power generation	0.199*	−0.088**	0.024	−0.077***	−0.04
Refinery	−0.127*	0.028	0.011	0.026	−0.008
Sugar	−0.195*	0.161*	−0.11*	0.115*	−0.048
Synthetic	−0.065	0.171*	−0.208*	0.134*	−0.233***
Technology	0.284*	−0.204*	0.172*	−0.166*	0.087***
Textile composite	0.148*	−0.01	0.048	0.075***	−0.096***
Textile spinning	−0.096**	0.182*	−0.066	0.128*	−0.116***
Textile weaving	0.033	0.059**	−0.063**	0.025	0.01
Tobacco	0.113*	−0.048***	−0.024	0.044	−0.072***
Transport	0.145*	−0.134*	0.062*	−0.012	−0.03
Vanaspati	−0.15*	0.026	−0.015	0.026	0.012
Woolen	−0.167*	0.14*	−0.098*	0.084*	−0.069***
Industry sig. at 10%	27	23	21	13	13

Statistical significance at 1, 5, and 10% are shown by *, **, and ***, respectively with each coefficient.

other studies such as Hong et al. (2007). Using a sample of US firms from 1946 to 2002, Hong et al. (2007) found that coefficients of 14 out of 34 industries were statistically significant in a set of regression where market returns were regressed on one-month lagged values of industry returns and other control variables. Further, they found that coefficients of only 9 industries were significant at 10% level when a lag term of 2 months was used for industry returns. The number of predictive industries further decreased to 4 when industries returns were lagged for 3-months.

In Table 4, we report results of regressions which include additional control variables. These variables include log of market capitalization of respective Industries to control for the size factor, log of trading volume of the given industry and log of trading volume of the market to control for the liquidity factor. These additional variables are lagged accordingly in each specification. Our interest in doing so is to see whether the ability of industries to lead the market is due to the size of the

Table 3. Regression results using lag lengths from six week up to 10 weeks of the industry returns.

Industry	**$R_{i,t-6}$**	**$R_{i,t-7}$**	**$R_{i,t-8}$**	**$R_{i,t-9}$**	**$R_{i,t-10}$**
Auto assembler	0.104***	0.016	0.082**	−0.02	0.026
Automobile parts	−0.024	0.004	−0.043	−0.02	−0.006
Electrical goods	0.044*	−0.046*	0.012	0.038	−0.043*
Cement	0.029	0.01	0.022	−0.008	0.003
Chemicals	0.083**	−0.014	0.005	−0.047	0.016
Close mutual funds	0.027	−0.022	−0.019	−0.004	0.021
Commercial banks	0.073***	−0.051*	0.046	−0.012	0.028
Engineering	−0.038	0.025	−0.03	0.054*	−0.018
Fertilizer	0.014	−0.043	−0.005	0.00	0.036
Food	0.05	−0.059	−0.004	−0.046	0.062
Glass and ceramics	0.004	0.039	−0.016	−0.008	0.002
Insurance	−0.024	0.003	−0.025	−0.004	0.005
Investment banks	−0.002	0	0.018	0.005	0.015
Jute	0.054***	−0.009	0.019	−0.019	0.032
Leasing companies	−0.074	0.1**	−0.047	−0.047	−0.014
Leather and tanneries	−0.083***	0.039	−0.052*	0.012	−0.003
Miscellaneous	−0.004	0.019	−0.01	−0.05	−0.005
Modarabas	−0.022	0.065	−0.052	0.042	0.044
Oil exploration	0.027	−0.07**	−0.018	−0.052	0.009
Oil marketing	−0.022	−0.007	0.008	−0.021	0.046
Paper and board	0.038	−0.002	0.031	−0.022	0.056
Pharmaceuticals	−0.037	0.01	−0.042	0.023	−0.054
Power generation	0.042	−0.055	0.02	−0.033	0.018
Refinery	0.028	−0.014	−0.017	−0.023	0.04**
Sugar	0.034	0.011	−0.014	−0.041	−0.023
Synthetic	0.144***	−0.144***	0.095***	−0.077**	0.013
Technology	−0.131***	0.096***	−0.071***	0.016	0.012
Textile composite	0.126***	−0.052	0.073*	−0.084*	0.005
Textile spinning	0.109**	−0.057	0.085*	−0.128***	−0.041
Textile weaving	0.035	−0.025	0.059**	0.005	0.1***
Tobacco	0.083***	−0.052*	0.028	−0.082***	−0.01
Transport	0.026	−0.03	0.012	0	0.024
Vanaspati	0.002	0.074***	−0.003	−0.039	0.016
Woolen	0.034	−0.02	0.026	−0.009	0.011
Industry sig. at 10%	11	8	7	5	3

Statistical significance at 1, 5, and 10% are shown by *, **, and ***, respectively with each coefficient.

industries, their trading volumes, or slow diffusion of information hypothesis. If the forecasting ability of an industry survives even after adding these variables, it will indicate that the lead-lag relationship between industries and market returns is due to slow diffusion of information. Similar control variables were used by Chui and Kwok (1998). We report only results of regressions where industries returns were lagged up to four months. Like Tables 2 and 3, we focus only on the coefficients of the industries lag returns in Table 4.

Results reported in Table 4 show a close similarity with the results displayed in Table 2. Majority of the industries maintain their signs and statistical significance. These findings lend further support to the view that the propensity of an industry to lead the market is not fully explained by its size or trading volume. Slow diffusion of information plays an important role in this regard.

It is important to mention that our results are different from those reported by Shah et al. (2011). They took a sample of three large industries to forecast the market returns and did not find any evidence that the selected industries could predict the market. The discrepancy in

Table 4. Regression results where we control for the sizes of the industries and trading volumes of the industries and the market.

Industry	$R_{i,t-1}$	$R_{i,t-2}$	$R_{i,t-3}$	$R_{i,t-4}$
Auto assembler	0.114*	−0.145*	0.1*	−0.017
Automobile parts	−0.14*	0.051	0.017	−0.019
Electrical goods	0.109*	−0.079*	0.056*	0.006
Cement	0.227*	−0.165*	0.062**	−0.013
Chemicals	0.018	0.054	−0.125*	0.044
Close mutual funds	−0.202*	0.145*	−0.136*	0.073
Commercial banks	0.148*	−0.081*	0.011	0.043
Engineering	0.114*	−0.127*	0.102*	−0.074**
Fertilizer	−0.101**	0.047	0.085***	−0.008
Food	−0.15*	−0.02	0.01	−0.034
Glass and ceramics	0.134*	−0.123*	0.049	−0.01
Insurance	0.119*	−0.143*	0.129*	−0.07*
Investment banks	−0.016	0.029	−0.025	−0.027
Jute	−0.022	0.023	−0.022	0.032
Leasing companies	0.069	0.075	0.033	−0.081
Leather and tanneries	0.012	−0.058*	0.07*	−0.052***
Miscellaneous	−0.069***	0.083**	−0.038	0.047
Modarabas	−0.175*	0.156*	−0.137*	0.085
Oil exploration	0.091**	−0.039	0.082***	0.046
Oil marketing	0.251*	−0.162*	0.132*	−0.073***
Paper and board	0.177*	−0.132*	0.095*	0.009
Pharmaceuticals	0.186*	−0.283*	0.194*	−0.126*
Power generation	0.199*	−0.091**	0.023	−0.078***
Refinery	−0.129*	0.025	0.011	0.025
Sugar	−0.192*	0.165*	−0.1*	0.124*
Synthetic	−0.046	0.171*	−0.195*	0.136*
Technology	0.283*	−0.202*	0.17*	−0.165*
Textile composite	0.137*	−0.015	0.047	0.063
Textile spinning	−0.096**	0.197*	−0.042	0.139*
Textile weaving	0.034	0.06***	−0.067**	0.02
Tobacco	0.121*	−0.047	−0.024	0.039
Transport	0.146*	−0.134*	0.062*	−0.012
Vanaspati	−0.137*	0.014	−0.011	0.019
Woolen	−0.148*	0.124*	−0.073*	0.072*
Industry sig. at 10%	27	22	20	11

Statistical significance at 1, 5, and 10% are shown by *, **, and ***, respectively with each coefficient.

results of this study and theirs might lie in the frequency of the data. They used monthly data, whereas we have used weekly data. This shows that the lead-lag regressions are sensitive to data frequency in Pakistan.

Conclusion

The area of assets returns predictability and cross-autocorrelations is of interest to investors as well as financial economists. With considerable developments in behavioral finance in the last two decades, this area gained renewed attraction. Traditional explanations or explanation based on rationale expectations for lead-lag patterns in assets returns were not much supported by empirical tests. Alternatively, the behaviorists argued that investors do not have unlimited capacity to process information and that investors pay attention to stocks which they specialize in. Because of these two reasons, information moves at a slower pace from one market to another. In this paper, we tested this hypothesis (slow diffusion of information hypothesis) using a convincingly large data set of weekly returns of 34 industries listed at KSE from 1998 to 2011. Our results indicate that a considerably large number of industries lead the broader market index up to 3 weeks. The predictive power of industries decreases as we increase the prediction horizon. These findings are robust to even after we control for known predictors of market return such size of an industry, trading volume of an industry, and the lagged trading volume of the market. Our results support the slow diffusion of information hypothesis.

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