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DIVIDEND YIELDS PREDICTABILITY OF STOCK RETURNS: CASE OF EMERGING MARKETS

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Key Words

Vector Autoregressive Approach; Dividend yields; Dividend yield shocks

Abstract

We investigate the cross-sectional pattern of stock returns for eight emerging markets using Vector Autoregressive Approach (VAR) to test whether dividend yields can predict stock returns through impulse response characteristics. Our results confirm that dividend yield shocks play an important role in driving fluctuation in stock returns and this relation is positive. These results reflect the fact that stock returns react positively to dividend changes either immediately or after short period of time. In some stock markets there is an immediate upward reaction by investors to dividend news like the case of Jordan, Morocco, Korea, and Malaysia. In some other markets like Egypt, Saudi Arabia, Philippines, and Thailand investors delay their investment strategies in the period immediately after dividend changes, to study the signal of dividend announcements.

Introduction

Efficient market theory (Fama, 1970) predicts that all assets are correctly priced with no arbitrage profits in the market, but in the late 1970's, less favorable evidence for asset pricing models began to appear in the so-called literature of financial anomalies.

Financial anomalies are empirical results that seem to be inconsistent with the maintained theories of the asset-pricing behavior (Schwert, 2003: 940), their existence indicates either a market's inefficiency, where prices do not absorb all available information in the market (profit opportunities), or a misspecification in the underlying asset-pricing model.

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Stock market anomalies in the literature can be categorized as calendar and price-related anomalies. Calendar anomalies focuses on finding a timely pattern in the stock market price in which investors can formulate profitable investment opportunities. Price related anomalies focuses on market fundamentals as the main predictors of stock returns.

Existing literature documents many calendar anomalies that prevails through time. Among those are the January effect (Keim ,1983 and Reinganum 1983), weekend effect (French, 1980), day-of-week effect (Keim and Stambaugh ,1984), and turn-of-the-month effect (Lakonishok and Smidt ,1988). Price related anomalies, on the other hand, include, among others, the dividend yield effect (Lewellen, 2002; Hodrick 1992; Fama and French ,1988), the earnings yield effect (Campbell and Shiller ,1988), the size effect (Banz ,1981), book-to-market effect (Reinganum, 1988) and many more.

In this paper we expand the empirical evidence by examining the cross-sectional behavior of stock market returns in a number of emerging markets using Vector Autoregressive Approach (*VAR*) to test whether dividend yields can predict stock returns through impulse response characteristics.

The sample is divided into two groups of emerging markets, each group share the same characteristics, either geographical and political, or economical. The first group is from the Middle East and North Africa (MENA) stock markets, and the second group is from the Southeast Asian stock markets.(1)

We examine the ability of dividend yields to predict stock returns using Vector Autoregressive (*VAR*) approach ,which was first developed by Sims (1980), and we employ two tools; Impulse Response Functions (IRF's), and Variance Decomposition (VD).

The advantages of using VAR over alternative test procedures are several; *VAR* provides more accurate forecasts, primarily used to determine the interrelationship between variables rather than the parameter estimates themselves. VAR can also determine the contemporaneous relationship captured by a model (Joiner, 2001).

We provide econometric evidence that dividend yield shocks play an important role in driving fluctuations in index returns and this relation is positive. Variance Decomposition

(1) Emerging markets differ from developed markets in four main features: average returns are high, correlations with developed markets return are low, returns are more predictable, and volatility is higher (Bekaert and Harvey, 1995).

supports the results of Impulse Response Functions.

The paper is organized as follows, Section 2, provides literature evidence. Section 3, describes the methodology and the nature of our data, Section 4, provides empirical results, and finally, Section 5 concludes the paper.

Summary of Literature

Table 1 summarizes the most sited journal articles on the subject of dividend predictability and their main findings; a detailed literature review is carried out to highlight past researches, there different results, and to derive the possible influence each variable has.

Table 1
Summary of Literature

Authors	Test	Main Results
Fama and French (1988)	Examine the ability of dividend yields to predict stock returns	They find that the degree of forecasting stock returns by dividend yield increases with return horizon; their tests confirm the evidence that the predictable component of return is a small fraction of short --horizon return variance.
Hodrick (1992)	Examine the ability of dividend yields to predict long-horizon stock returns.	Strong evidence for the predictive power of one month a head returns at least for the sample from 1952 to 1987 provided by the VAR test. The estimates and Monte Carlo results support the conclusion that changes in dividend yields forecast significant persistent changes in expected stock return.
Mei (1993)	Examine the ability of a multifactor model in explaining average return by using a simple autoregressive approach	Mei found that the model is capable of capturing the dividend yield effect.
Goetzmann, and Jorion (1993)	Use the bootstrap methodology to model the distribution of regression statistics under the null hypotheses that stock returns are independent and identical distribution, and not related to past dividends.	They fail to reject the null hypothesis that future returns are unrelated to the past dividend yields at conventional significance level; there is no forecasting ability of dividend yields.
Cochran, Define and Mills (1993)	Use the same methodology employed by Fama and French (1988).	They reach two main results: that the dividend yield has predictive power for stock returns in many of the world's major stock markets; and that the predictability rises as the return horizon lengthens from 1 month to 48 months.

cont. Table 1
Summary of Literature

Authors	Test	Main Results
Nelson and Kim (1993)	Focus on one issue that the small sample bias could be playing an important role in the inference that the stock returns are predictable from financial fundamentals such as dividend yields.	Nelson and Kim reports that the t-values are subject to two small-sample biases that both work in the same direction indicating that the return are more predictable than they are in the fact. These two-sample biases are: (1) the regression coefficient is biased if the predictor is endogenous. (2) The standard error is biased in the case of overlapping periods.
Goetzmann and Jorion (1995)	Extend the analysis of dividend yield regressions	For both the US and UK data, they found little evidence of predictability of long-horizon returns via dividend yield over the whole sample period, they also argue that tests over long periods may be affected by survivorship simulations and show that regression statistics based on a sample drawn solely from surviving markets can be seriously biased toward finding predictability.
Michael Firth (1996)	Test whether dividend changes are associated with significant abnormal returns.	The results indicate there is some small positive information transfer caused by dividend signaling. The magnitude of information transfer is related to the degree of the dividend shock.
	Tests the linkage between dividend signaling and information transfer	Information transfer is found to affect earnings, and earnings growth estimates of the other firms causing them to adjust their expectations about stock prices.
Kothari and Shanken (1997)	Use the Bayesian-bootstrap simulation in estimating the likelihood of different slope values on the historical *OLS* estimates, they use univariate least square technique (*OLS*) to find the predictive power of dividend yield.	The results in both tests - the conventional and the bootstrap, confirm the existence of dividend yield predictability for the value- and equally-weighted return.
Claessens, Dasgupta, and Glen (1998)	Examine the effect of a number of risk factors in addition to dividend yield on asset return for nineteen emerging markets.	The results confirm some of the published evidence for developed markets, but contradictory findings are also brought to light, dividend yield plays an important explanatory role in seven from nineteen of the countries.
Ang and Bekaert (2001)	Re-examine the predictability of short and long- horizon sock returns.	Ang and Bekaert show that the standard predictability patterns are not statistically significant, not robust across countries or sample period. Moreover, they find no evidence of long-horizon predictability in any of the five countries they examine. Their results suggest that the predictability is mainly a short horizon.

cont. Table 1
Summary of Literature

Authors	Test	Main Results
Chen, Firth, Gao (2002)	This study focuses on the information content of annual earnings and both cash and stock dividend announcements made by listed Chinese companies concurrently. The researchers test the information usefulness and the interactions between these signals.	Chen, Firth, Gao find that unexpected earnings, proxied by earnings changes, are positively related to abnormal returns. They also show that stock dividends corroborate the earnings signal. If the sign of the unexpected stock dividend change is the same as the sign of the unexpected earnings, then the earnings signal is stronger. If the signs are opposite, the earnings signal is weaker. "Unexpected cash dividends have little impact on the earnings signal. Stock dividends }*per se*}have a small association with stock returns. In contrast, cash dividends have no discernible association with stock returns and this is consistent with dividend irrelevance arguments."
Lewellen (2002)	Focus on short-term horizon on regression returns on lagged dividend yield for the period extended from 1946 to 2000, to avoid overlapping in returns. Lewellen consider the same model of Stambaugh (1999), and, Nelson and Kim (1993) in estimating OLSregression for $NYSE$equal- and value-weighted returns on log *lagged dividends*.	He provides strong evidence of predictability for the whole period from 1946 to 2000, and for various sub-samples.
Campbell, and Yogo (2003)	Discuss that the conventional t-test suffers from weakness in the ability to predict due to the persistence of predictor variables which might leads to overestimate the predictive power using conventional critical value.	Campbell and Yogo find that the traditional T-test is highly misleading for the dividend --price ratio. However, they found the dividend-price ratio predicts returns only at annual frequencies.
Goyal and Welch (2003)	Regress the U.S stock market re-runs with lag dividend ratio for the period from 1926 to 2002. In order to evaluate the forecasting ability of dividend ratio they suggest a simple recursive residuals (out-of-sample) graphical approach.	They concluded that dividend yields had no forecasting power for one year a head returns, even prior to the 1990s.

cont. Table 1
Summary of Literature

Authors	Test	Main Results
Rapach and Wahar (2003)	Examine the predictability of dividend yield on stock returns	They find that price-dividend ratio has significant ability to predict real stock prices at long, but not short horizons in a linear framework.
Lewellen (2004)	Examine the predictability of aggregate stock return using the financial ratios such as dividend yield.	Lewellen finds that the dividend yield predicts market returns during the period 1946-2000, as will as in various sub samples.
Finally, Lyn and Zyowicsch (2004)	Examine the fundamental determinant of returns	Findings suggest that the fundamental determinant of returns for developed markets of Eastern Europe is the same as of an old emerging market, and they observe that the dividend yields are positively and significantly related to 12-months forward-looking returns that are consistent with what has been observed in more established emerging markets as well as in developing markets

Data and Methodology

Data:

Our study is limited to two groups of countries widely classified as emerging markets as defined by the Standard & Poors (*S&P*), and the International Finance Corporation (IFC) of the World Bank.

The first group covers four emerging markets from Middle East and North Africa (MENA) markets, namely, Egypt, Jordan, Morocco, and Saudi Arabia. The second group covers four markets from Southeast Asian markets; namely, Korea, Malaysia, Philippines, and Thailand.

Monthly data of the market index and dividend yield (in US dollars) for these markets came from S&P/IFC emerging markets data base. We obtain the value of the market index and dividend yield (in US dollars) for eight emerging markets and then compute the monthly rate of return. We first express the prices for indexes or companies in terms of dollars, and then we calculate the returns as percentage changes from month t-1 to month t. The sample period spans from December, 1997, to July 2002, a total of 56 months which is enough to ensure reliable results.

Methodology:

Our aim is to examine the short-run dynamic relationship between the stock return Index (*IR*) and their Dividend Yields (*Dy*) for eight emerging markets using Vector- Autoregressive

Approach (*VAR*) model. The reaction of expected stock returns to dividend shocks are to predict the dynamic relationship between these variables, and to give evidence about how stock returns react to dividend shocks.

Since Sim (1980) first introduced *VAR* model, it has become increasingly popular, which provides more accurate forecasts than the previously used structural equation model. A *VAR* model is a k-equation, *k-variable* linear model in which each variable is in turn explained by its own lagged values, and past values of the remaining variables (Kamps, 2004).

We follow the methodology of Hodrick (1992), and others like Campbell and Sheller (1988), Nelson and Kim (1993), Goetzman and Jorion (1995), by employing the Vector- Autoregressive Approach (*VAR*) to test the ability of dividend yield to predict stock market returns, and we extend further by focusing at the dynamic impact of dividend shocks on stock returns.

The *VAR* is commonly used for forecasting systems of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables (AL-Rjoub, 2004), from the *VAR* model we generate both *Impulse Response Function* (*IRF*) and *Variance Decomposition* (*VD*) to estimate the relative importance of the various shock and their directional influences on the variables that we are interested in.

We consider two variables in estimating *VAR*, IR_t which refers to the country Index return, and Dy_t which refers to the dividend yields. The structure of first-order VAR model is as follow(2):

$$IR_t = b_{10} - b_{12}Dy_t + \gamma_{11}IR_{t-1} + \gamma_{12}Dy_{t-1} + \varepsilon_{IR_{tt}} \quad (1)$$

$$Dy_t = b_{20} - b_{21}IR_t + \gamma_{21}IR_{t-1} + \gamma_{22}Dy_{t-1} + \varepsilon_{Dy_t} \quad (2)$$

By the construction of the *VAR* the following criteria holds; (1) both IR_t and $Dy_t$are stationary (2) and $\varepsilon_{IR_t}$and $\varepsilon_{Dy_t}$are white-noise uncorrelated disturbances.

The numbers of lags of each variable to be included in the *VAR* are chosen using multivariate generalizations of Akaike's and Schwarz's Bayesian information criteria(3).

It appears from running a simple *VAR* with 2-lags length that the appropriate lag selection is 2 for all countries in the study, and the *VAR* construction is:

(2) For more details see Enders, Walter. 1995. Applied Econometric Time Series, John Wiley and Sons, Inc.: 249-580.

(3) The two criteria provide a forecast error variance, whether we use the *AIC* OR *SIC* criterion, from forecasting point of view, the smaller is the forecast error variance, the better is the model.

$$IR_t = b_{10} - b_{12}Dy_t + \gamma_{11}IR_{t-1} + \gamma_{12}Dy_{t-1} + \gamma_{13}IR_{i-2} + \gamma_{14}Dy_{i-2} + \varepsilon_{IR_{tt}}$$

$$Dy_t = b_{20} - b_{21}IR_t + \gamma_{21}IR_{t-1} + \gamma_{22}Dy_{t-1} + \gamma_{23}IR_{i-2} + \gamma_{24}Dy_{i-2} + \varepsilon_{Dy_t}$$

Empirical Results

Descriptive statistics for the eight emerging markets stock returns and dividend yields is calculated from December 1997 to July 2002. The results are reported in Tables (2) and (3).

In the first country group, Egypt return data shows that the mean of the stock price index is -3.22 with 7.24 standard deviation. The average dividend yields are about 6.13 with 1.65 standard deviations. Jarque-Bera test rejects the null hypotheses of normality for the stock return index, and accept normality of dividend yields.

For Jordan, the mean of the stock price index is -0.66 with 6.12 standard deviations. The average dividend is about 2.67 with 0.54 standard deviations. Table (1) shows that the Jarque-Bera test cannot reject the null hypotheses of normality for both Jordan stock market index, and dividend yields.

In the case of Morocco, the mean of stock market index returns is equal -2.14 with 9.23 standard deviations. The average dividend which is paid for the whole portfolio of the Moroccan market is about 2.79 with a 1.20 standard deviations. Jarque-Bera test can not reject the null hypotheses that the residuals of the regression are normally distributed, but in case of dividend yields Jarque-Bera test reject the null hypotheses, i.e. dividend yield is normally distributed.

For Saudi Arabia, the stock market index returns mean equal -0.38 with 4.68 standard deviations. The average dividend which paid for the whole portfolio of the Saudi Arabian market is about 3.32 with a 2.11 standard deviations. Test of normality as shown by the Jarque-Bera reject the null hypotheses that the residuals of the regression are normally distributed for the Saudi Arabian index return, and accept normality in the case of dividend yields.

In the second country group, Table (3) shows that the Korean market index returns mean is equal to 3.62 with 17.51 standard deviations. The average dividend which paid for the whole portfolio of the Korean market is about 1.454 with a 0.62 standard deviation. Jarque-Bera test reject the null hypotheses of normality and accept the null hypotheses of normality for dividend yields.

For Malaysia, the market index mean returns equal 1.33 with a 14.08 standard deviation. The average dividend which paid for the whole portfolio of the Malaysian market is about 2.74 with a 1.07 standard deviation. Jarque-Bera test rejects the null hypotheses of normality for the Malaysian index return, and accept the null hypotheses of normality for dividend yields.

In case of Thailand, the market index mean returns equal 1.66 with a 16.58 standard deviation. The average dividend which paid for the whole portfolio of the Thai market is about 1.68 with a 1.36 standard deviation. The Jarque-Bera test cannot reject the null hypotheses of normality for the Thai index return, but in case of dividend yields we can reject the null hypotheses.

For the last country, the Philippines, the market index mean returns is equal to -0.66 with a 12.14 standard deviation. The average dividend which paid for the whole portfolio of the Thai market is about 1.12 with a 0.30 standard deviation. Jarque-Bera test rejects the null hypotheses that the residuals of the regression are normally distributed for both the Philippines index return and dividend yields.

From all the above, while the Southeast markets register higher returns than the *MENA* markets, they also register larger drops (by looking at the maximum and minimum values of returns). The range is higher for the Southeast countries than for the MENA countries. The range of the returns for these markets reflects their volatile nature.

Moreover, seven from the eight markets exhibited positive skewness in the distribution of their returns, the Jarque-Bera test reject the null hypothesis of normality in five of the eight markets at the 95% level of confidence: those markets are Egypt, Saudi Arabia, Korea, Malaysia, and the Philippines.

Because of the distributional proprieties of returns, the traditional mean-variance analysis to allocate optimal investments becomes less suitable for investment decisions. Therefore, when constructing portfolios, investors must concentrate their efforts to analyze beyond the first two moments, namely the mean and the variance, to include higher moment in their analysis. Investors prefer those assets that show positive skewness (more chance of positive returns) (Davila. and Carlos, 2005). The results show that seven countries out of eight have positive skewness, and less fat-tailedness as measured by Kurtosis.

In what follows, we analyze the dynamic properties of the unrestricted *VAR* model for the examined countries with the help of the Impulse Response Functions.

Impulse Response Functions:

Impulse Response Functions (*IRF's*) traces the effect of a one standard deviation shock to one of the innovations on current and future values of the endogenous variables. Let us consider a simple bivariate *VAR* (1):

$$IR_t = a_{11} IR_{t-1} + a_{12} DY_{t-1} + \varepsilon_{1,t}$$

$$DY_t = a_{21} IR_{t-1} + a_{22} DY_{t-1} + \varepsilon_{2,t}$$

Under this construction, any changes in $\varepsilon_{1,t}$, will lead to an immediate change in the current value of *IR*, and also change the future value of *IR*, and *Dy*.

If the two innovations $\varepsilon_{1,t}, \varepsilon_{2,t}$ are uncorrelated, interpretation of the impulse response function is straightforward. $\varepsilon_{1,t}$ Is the innovation of *IR*, and $\varepsilon_{2,t}$ is the innovation of the *Dy*. The impulse response function for $\varepsilon_{2,t}$ measures the effect of a one standard deviation dividend shock on the current and future dividend yields.

However, the two innovations are usually correlated, so that they have a common component, which cannot be associated with a specific variable. A somewhat arbitrary but common method of dealing with this issue is to attribute all of the effects of any common component to the variable that comes first in the *VAR* system. In our study, the common component of $\varepsilon_{1,t}, \varepsilon_{2,t}$ is totally attribute to $\varepsilon_{1,t}$, because $\varepsilon_{1,t}$ proceeds $\varepsilon_{2,t}$.$\varepsilon_{1,t}$ is the innovation of *IR*, and $\varepsilon_{2,t}$ is the innovation of *Dy*.

More technically, the errors are orthognoalized (Hamilton, 1994) by Cholesky decomposition of matrices, so that the covariance of the resulting innovations is diagonal. While the Cholesky decomposition is widely used, it is a rather arbitrary method of attributing common effects. It is a sort of identification scheme, where the identification of the structural shock depends on variable ordering. We should examine whether or not the changing the order of the equations may dramatically change the impulse response (Al-Rjoub, 2004).

We present the results of *IRF* for eight emerging markets in both figure 1 and 2; four markets are from the Middle East and North Africa (*MENA*) countries, namely, Egypt, Jordan, Morocco, Saudi Arabia, and four other markets from Southeast Asia countries, namely, Korea, Malaysia, the Philippines, and Thailand. Figure 1 plots *IRF's* by finding the effect or impact of one standard deviation shock of Country Dividend Yields *(Dy)* on Country Index Returns (*IR*) for eight emerging markets.

Figure 1a shows that the dividend shock has an immediate negative effect on IR in Egypt in the first two months followed by an increase in return a month after, returns trough at about 1.6% then start to increase to peaks back at 1.9%. The reaction of returns to the dividend shock take the shape of a hump after which the degree of response depreciated slowly to hit the mean value after 14 months.

Figure 1b shows that the dividend shock has positive effect on *IR* in Jordan, returns peak at 2% after two months. The degree of increase depreciated sharply through the next two months, after which the degree of response depreciated slowly to hit the mean value after 25 months.

Figure 1c shows that the dividend shock has a positive effect on *IR* in Morocco. In the first two months returns peak at 1.7% then depreciate sharply after that. The impulse response functions show that dividend shock never converges back to the mean.

Figure 1d shows that, in the first two months, the dividend shock has a very small negative effect on *IR* in Saudi Arabia. After that *IR* responds positively to dividend shock and takes the shape of a hump to reach its highest level at about 1.5%. After which the degree of response slowly depreciates to hit the mean value after 11 months.

Figure 1e show that the reaction of *IR* to dividend shock in Korea is positive and takes the shape of a hump through the first 7 months, *IR* reaction peaks at 1% and dies out after seven months.

From Figure 1f we find that the *IR* reacts positively to dividend shock in Malaysia. The index return reaction to dividend shock starts after two months, where *IR* peaks at 0.70% in third month, and then depreciated slowly to die out after 14 months.

Figure 1g shows that the dividend shock has a U-shaped and negative effect on *IR* in the first tow months for the Philippines, and after the second month returns react positively to reach a peak at 2% level, and then depreciate back to the mean value to die out slowly after 17 months.

Finally, Figure 1h shows that the dividend shock has a small U-shaped and negative effect on *IR* in Thailand, returns trough at 2% in second month, after which the degree of response depreciate slowly to hit the mean value after 9 months.

Summarizing the above results IRF's provide an econometric evidence that the dividend yields shock play an important role in driving fluctuation in *IR*, and this relation is mostly positive. These results are in line with the findings of Fama and French (1988), Hodrick (1992), Mei (1993), Cochran, Define, and Mills (1993), Nelson and Kim (1993), Kothari and Shanken (1997), Claessens, and Stijn (1998) Rapach and Wahar (2002), Lewellen (2004), Lyn, and Zyowicsch (2004), all of them reported that dividend yields have a predictive power for stock returns in many of the world's major stock markets. Our findings confirm the previous findings of developed markets, that dividend yield plays an important role in driving fluctuation in stock returns.

Variance Decomposition:

The second tool derived from the *VAR* results is the Variance Decomposition (*VD*); it is a different method used to describe the dynamic relationship between the two variables *IR*, and *Dy*.

In contrast to *IRF*, *VD* decomposes variations in the two variables into component shock to the two variables in the *VAR*, Variance Decomposition of 24 period is run in order to get extra information about the relative importance of the random innovation.

Tables from 4 to 11 present the results of running *VD* of the two variables respectively *IR*, and *Dy*, for the eight emerging markets for different samples.

Table 4, presents the *VD* of *IR*, and the *Dy* for Egypt. Results show that *IR* explains 79.98% of its forecast error variance in a 24 month period, whereas the *Dy* explains 63.74% of its forecast error variance. *Dy* explains 20.01% of the forecast error variance of *IR*, whereas, *IR* explains only 36.25% of the forecast error variance of *Dy*.

Table 5, the *VD* of Jordan shows that *IR* explains 96.41% of its forecast error variance in a 24 month period, and, the *Dy* explains around 69% of its forecast error variance. *Dy* explains 3.58% of the forecast error variance of *IR*, but *IR* explains 30.98% of *Dy* variance.

For Morocco, Table 5 shows that IR explains 95.98% of its forecast error variance; while, the *Dy* explains 71.41% of its forecast error variance. *Dy* explains around 4.01% of *IR* variance, whereas, *IR* explains 28.58% of *DY* variance.

Table 7 shows that *IR* for Saudi Arabia explains 94.20% of its forecast error variance, while *Dy* explains 95.32% of its forecast error variance. *Dy* explains 5.76% of IR variance, whereas *IR* explains 4.67% of Dy variance.

In Table 8, the *VD* of Korea shows that *IR* explains 98.95% of its forecast error variance; while *Dy* explains around 65.16% of its forecast error variance. *Dy* explains around 1% IR variance, whereas *IR* explains 34.83% of *Dy* variance.

In Table 9, Malaysia *VD shows* that *IR* explains 99.22% of its forecast error variance, while, *Dy* explains 15.13% of its forecast error variance. This means that IR explains 84.86% of Dy variance, while Dy explains 0.77% of IR variance.

For the Philippines, Table 10 shows that *IR* explains 87.84% of its forecast error variance, whereas, *Dy* explains 46.84% of its forecast error variance. This means that *Dy* explains 12.15% of IR variance, and *IR* explains 53.15% of *Dy* variance.

Finally, Table 11 shows that *IR* explains 97.6% of its forecast error variance for Thailand, while, *Dy* explains 81.15% of its forecast error variance.

These findings support the results we report using *IRF's* that the dividend yields play an important role in explaining Index Returns movements.

Ordering of Variables:

The conventional orthogonalization procedure requires imposing a particular causal ordering of the *VAR* model variables. Normally the choice is arbitrary. This issue becomes serious when there is contemporaneous correlation among innovations, which when exists can make a significance difference for the Variance Decomposition. In order to examine the potential sensitivity of the innovation accounting result to ordering, another variable order is examined. The assumption here for the result to be conclusive, is that they must be robust to ordering (AL-Rjoub 2004).

The new order is that *DY* first with *IR* second. The results for the new ordering are presented in Table 12 through 19.

For Egypt, the result of Table 12 shows that *IR* explain 48.9% of its forecast error variance compared with 79.9% when *IR* ordering first, whereas, *Dy* explains 99.9% of its forecast error variance compared with 63.7% when IR ordering first.

Table 13 , shows that the results for Jordan is the same as those in Egypt when ordering is changed, *Dy* explains 99.8% of its forecast error variance compared with 63.64% when *IR* ordering first, whereas, *IR* explain 48.9% of its forecast error variance compared with 79.98% when *IR* ordering first.

For Morocco the results show that *IR* explain 81.62% of its forecast error variance compared with 95.98% when *IR* ordering first, whereas, *Dy* explains 97.62% of its forecast error variance compared with 71.41% when IR ordering first.

The results in Table 15 show that *Dy* explains 99.01% of its forecast error variance for Saudi Arabia, compared with 95.32% when *IR* ordering first, otherwise, *IR* explains 92.35% of its forecast error variance compared with 94.2% when *IR* ordering first.

For Korea, when ordering *Dy* first, the results shows that *IR* explains 72.82% of its forecast error variance compared with 98.95% when *IR* ordering first. Whereas, *Dy* explains 98.54% of its forecast error variance compared with 65.16% of its forecast error variance when *IR* ordering first.

Table 17 shows the results for Malaysia, which state that *IR* explains 25.82% of its forecast error variance compared with 99.22% when *IR* ordering first. On the other hand, *Dy* explains 97.25% of its forecast error variance compared with 15.13% when *IR* ordering first.

For the Philippines, Table 18 shows that *IR* explains 44.84% of its forecast error variance compared with 87.84% when *IR* ordering first. On the other hand, *Dy* explains 97.43% of its forecast error variance compared with 46.84% when *IR* ordering first.

Table 19, for Thailand shows that *IR* explains 89.29% of its forecast error variance compared with 97.63% when *IR* ordering first. On the other hand, *Dy* explains 96.53% of its forecast error variance compared with 81.15% when IR ordering first.

Overall, one can conclude that the results are sensitive to the variables ordering.

Conclusion

Voluminous empirical work suggests that a number of fundamentals help to explain the cross-sectional pattern of asset returns. In this research we expand that evidence by investigating the cross-sectional pattern of stock returns for eight emerging markets, and by employing Vector Autoregressive approach (*VAR*) in conducting inference about the ability of dividend yields to predict stock returns. We empirically examine the relationship between dividend yields and stock returns in eight emerging markets. The Impulse Response Functions (*IRF's*), and the Variance Decomposition (*VD*) is used to describe the behavior of stock index return around dividend shocks. The results of Impulse Response Functions postulate the effect or the impact of one standard deviation shock of Country Dividend Yields (*Dy*) on Country Index Returns (*IR*) for eight emerging markets.

Our main findings show that the dividend shock has an immediate positive effect on stock returns with a dampening pattern. This result is confirmed in Jordan, Morocco, Korea, and Malaysia. We also find that dividend shock has an immediate negative effect in Egypt, Saudi Arabia, Philippines, and Thailand followed by a positive effect after two months for all these countries.

These results reflect the fact that stock returns react positively to dividend changes either immediately or after a short period of time. In some stock markets there is an immediate upward reaction by investors to dividend news like in the case of Jordan, Morocco, Korea, and Malaysia. In some other markets like Egypt, Saudi Arabia, the Philippines, and Thailand, investors delay their investment strategies in the period immediately after dividend changes to study the signal of dividend announcements.

In summary, IRF's provide econometric evidence that the dividend yields shock play an important role in driving fluctuation in IR. Variance Decomposition results support the results of Impulse Response Functions.

Our findings confirm the past findings in the literature reached by Fama and French (1988), Hodrick (1992), Mei (1993), Cochran, Define, and Mills (1993), Nelson and Kim (1993), Kothari and Shanken (1997), Claessens, and Stijn (1998) Rapach and Wahar (2002), Lewellen (2004), Lyn, and Zyowicsch (2004), and contradict those of Goetzmann, and Jorion (1993), Ang and Bekaert (2001), and Goyal and Welch (2003).

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Table 2
Descriptive Statistics for the Return and Dividend Yields for *MENA* Markets

Variables	Return Egypt	Return Jordan	Return Morocco	Return Saudi - Arabia	Dividend Egypt	Dividend Jordan	Dividend Morocco	Dividend Saudi - Arabia
Mean	-3.224364	-0.660727	-2.135091	-0.379455	6.129643	2.665357	2.792143	3.326607
Median	-3.87	-1.81	-2.39	-0.7	5.835	2.725	2.405	3.58
Maximum	20.88	18.22	19.8	7.48	9.66	3.73	5.41	8.58
Minimum	-16.11	-13.59	-18.32	-17.41	3.34	1.7	1.18	0
Std. Dev.	7.239925	6.118413	9.230972	4.680444	1.645042	0.535031	1.200761	2.111662
Skewness	0.948453	0.616061	0.432303	-0.694773	0.23564	-0.007829	0.683729	0.262073
Kurtosis	4.905969	3.640573	2.633439	4.74121	2.076522	2.176745	2.323089	3.678316
Jarque-Bera	16.57097	4.419384	2.021044	11.37274	2.508138	1.581986	5.432346	1.714628
Probability	0.000252	0.109734	0.364029	0.003392	0.285341	0.453394	0.066127	0.4243

Table 3
Descriptive Statistics for the Return and Dividend Yields for Southeast Asia Markets

Variables	Return Korea	Return Malaysia	Return Thailand	Return Philippines	Dividend Korea	Dividend Malaysia	Dividend Philippines	Dividend Thailand
Mean	3.61896	1.32635	1.657042	-0.660861	1.454286	2.739821	1.116964	1.682679
Median	-0.53650	-0.70890	0.621504	-3.376829	1.450000	2.785000	1.060000	1.475000
Maximum	68.4689	53.5948	46.88776	46.90811	3.020000	6.180000	2.250000	7.670000
Minimum	-23.2095	-26.8988	-28.20037	-27.29323	0.130000	1.210000	0.760000	0.320000
Std. Dev.	17.5131	14.0859	16.58836	12.14467	0.615074	1.073190	0.301770	1.360172
Skewness	1.12713	1.29066	0.539094	1.164498	0.151636	0.563365	1.502478	2.010453
Kurtosis	4.82784	6.00006	3.093796	6.177940	2.945117	3.401149	5.984591	8.725011
Jarque-Bera	19.3018	35.8983	2.684198	35.57475	0.221634	3.337694	41.85426	114.2013
Probability	0.00064	0.00000	0.261297	0.000000	0.895103	0.188464	0.000000	0.000000

Table 4
Ordering: Return-Egypt Dividend-Egypt
Variance Decomposition of Index Return Egypt

Period	S.E.	Return Egypt	Dividend Egypt
1	6.18	100	0
12	7.220482	80.0028	19.9972
24	7.221898	79.98811	20.01189

Variance Decomposition of Dividend Yields Egypt

Period	S.E.	Return Egypt	Dividend Egypt
1	0.929697	35.45901	64.54099
12	1.600836	36.25141	63.74859
24	1.600942	36.25234	63.74766

Table 5
Ordering: Return-Jordan Dividend-Jordan
Variance Decomposition of Index Return Jordan

Period	S.E.	Return Jordan	Dividend Jordan
1	6.016018	100	0
12	6.13972	96.66378	3.336215
24	6.151369	96.41062	3.589376

Variance Decomposition of Dividend Yields Jordan

Period	S.E.	Return Jordan	Dividend Jordan
1	0.231334	29.54192	70.45808
12	0.451277	31.13818	68.86182
24	0.478827	30.98428	69.01572

Table 6
Ordering: Return-Morocco Dividend-Morocco
Variance Decomposition of Index Return Morocco

Period	S.E.	Return Morocco	Dividend Morocco
1	8.970506	100	0
12	9.157852	96.58317	3.416834
24	9.198525	95.98865	4.011351

Variance Decomposition of Dividend yields Morocco

Period	S.E.	Return Morocco	Dividend Morocco
1	0.256901	16.08438	83.91562
12	0.76066	27.76721	72.23279
24	1.158633	28.58652	71.41348

Table 7
Ordering: Return-Saudi Dividend-Saudi
Variance Decomposition of Index Return Saudi Arabia

Period	S.E.	Return Saudi	Dividend Saudi
1	4.462935	100	0
12	4.604117	94.20472	5.795275
24	4.604143	94.20377	5.796233

Variance Decomposition of Dividend yields Saudi Arabia

Period	S.E.	Return Saudi	Dividend Saudi
1	1.283966	1.789009	98.21099
12	1.950552	4.676612	95.32339
24	1.950578	4.676723	95.32328

Table 8
Ordering: Return-Korea Dividend-Korea
Variance Decomposition of Index Return Korea

Period	S.E.	Return Korea	Dividend Korea
1	14.87275	100	0
12	15.13441	98.95567	1.044334
24	15.13441	98.95567	1.044334

Variance Decomposition of Dividend yields Korea

Period	S.E.	Return Korea	Dividend Korea
1	0.376971	26.67581	73.32419
12	0.583212	34.83927	65.16073
24	0.583212	34.83927	65.16073

Table 9
Ordering: Return-Malaysia Dividend-Malaysia
Variance Decomposition of Index Return Malaysia

Period	S.E.	Return Malaysia	Dividend Malaysia
1	11.78296	100	0
12	12.07681	99.24024	0.759763
24	12.08712	99.22539	0.774609

Variance Decomposition of Dividend yields Malaysia

Period	S.E.	Return Malaysia	Dividend Malaysia
1	0.419116	73.47546	26.52454
12	1.050867	84.8061	15.1939
24	1.056075	84.86327	15.13673

Table 10
Ordering: Return-Philippines Dividend-Philippines
Variance Decomposition of Index Return Philippines

Period	S.E.	Return Philippines	Dividend Philippines
1	10.62362	100	0
12	12.65853	88.45486	11.54514
24	12.77342	87.84622	12.15378

Variance Decomposition of Dividend yields Philippines

Period	S.E.	Return Philippines	Dividend Philippines
1	0.134745	37.93107	62.06893
12	0.435212	53.09735	46.90265
24	0.444601	53.15465	46.84535

Table 11
Ordering: Return-Thailand Dividend-Thailand
Variance Decomposition of Index Return Thailand

Period	S.E.	Return Thailand	Dividend Thailand
1	15.39346	100	0
12	15.64295	97.64001	2.359995
24	15.64319	97.6379	2.3621

Variance Decomposition of Dividend yields Thailand

Period	S.E.	Return Thailand	Dividend Thailand
1	0.285339	8.016663	91.98334
12	0.703238	18.77668	81.22332
24	0.7056	18.84452	81.15548

Table 12
Ordering: Dividend-Egypt Return-Egypt
Variance Decomposition of Dividend Yields Egypt

Period	S.E.	Dividend Egypt	Return Egypt
1	0.929697	100	0
12	1.600836	99.92402	0.075984
24	1.600942	99.92394	0.076059

Variance Decomposition of Return Egypt:

Period	S.E.	Dividend Egypt	Return Egypt
1	6.181148	35.45901	64.54099
12	7.220482	51.07245	48.92755
24	7.221898	51.09143	48.90857

Table 13
Ordering: Dividend-Jordan Return-Jordan
Variance Decomposition of Dividend Yields Jordan

Period	S.E.	Dividend Jordan	Return Jordan
1	0.231334	100	0
12	0.451277	99.77531	0.224686
24	0.478827	99.80036	0.199639

Variance Decomposition of Return Jordan:

Period	S.E.	Dividend Jordan	Return Jordan
1	6.016018	29.54192	70.45808
12	6.13972	31.51481	68.48519
24	6.151369	31.77396	68.22604

Table 14
Ordering: Dividend-Morocco Return-Morocco
Variance Decomposition of Dividend Yields Morocco

Period	S.E.	Dividend Morocco	Return Morocco
1	0.256901	100	0
12	0.76066	97.77904	2.22096
24	1.158633	97.62898	2.371022

Variance Decomposition of Return Morocco:

Period	S.E.	Dividend Morocco	Return Morocco
1	8.970506	16.08438	83.91562
12	9.157852	17.66791	82.33209
24	9.198525	18.37247	81.62753

Table 15
Ordering: Dividend-Saudi Return-Saudi
Variance Decomposition of Dividend Yields Saudi Arabia

Period	S.E.	Dividend Saudi	Return Saudi
1	1.283966	100	0
12	1.950552	99.01842	0.981577
24	1.950578	99.01837	0.981625

Variance Decomposition of Return Saudi Arabia:

Period	S.E.	Dividend Saudi	Return Saudi
1	4.462935	1.789009	98.21099
12	4.604117	7.643311	92.35669
24	4.604143	7.644315	92.35568

Table 16
Ordering: Dividend-Korea Return-Korea
Variance Decomposition of Dividend Yields Korea

Period	S.E.	Dividend Korea	Return Korea
1	0.376971	100	0
12	0.583212	98.54041	1.459588
24	0.583212	98.54041	1.459588

Variance Decomposition of Return Korea:

Period	S.E.	Dividend Korea	Return Korea
1	14.87275	26.67581	73.32419
12	15.13441	27.1733	72.8267
24	15.13441	27.1733	72.8267

Table 17
Ordering: Dividend-Malaysia Return-Malaysia
Variance Decomposition of Dividend Yields Malaysia

Period	S.E.	Dividend Malaysia	Return Malaysia
1	0.419116	100	0
12	1.050867	97.27756	2.722445
24	1.056075	97.25334	2.746663

Variance Decomposition of Return Malaysia:

Period	S.E.	Dividend Malaysia	Return Malaysia
1	11.78296	73.47546	26.52454
12	12.07681	74.14377	25.85623
24	12.08712	74.17913	25.82087

Table 18
Ordering: Dividend-Philippines Return-Philippines
Variance Decomposition of Dividend Yields Philippines

Period	S.E.	Dividend Philippines	Return Philippines
1	0.134745	100	0
12	0.435212	97.43964	2.560361
24	0.444601	97.43166	2.568338

Variance Decomposition of Return Philippines:

Period	S.E.	Dividend Philippines	Return Philippines
1	10.62362	37.93107	62.06893
12	12.65853	54.3877	45.6123
24	12.77342	55.15527	44.84473

Table 19
Ordering: Dividend-Thailand Return Thailand
Variance Decomposition of Dividend Yields Thailand:

Period	S.E.	Dividend Thailand	Return Thailand
1	0.285339	100	0
12	0.703238	96.56119	3.43881
24	0.7056	96.53284	3.467157

Variance Decomposition of Return Thailand:

Period	S.E.	Dividend Thailand	Return Thailand
1	15.39346	8.016663	91.98334
12	15.64295	10.70306	89.29694
24	15.64319	10.70556	89.29444

Figures (1a,2a,1b,2b)

Figures 1a to 1h report the impact of one standard deviation shock of Country Dividend Yields (*Dy*) on Country Index Returns (*IR*) for the eight emerging markets, while figures 2a to 2h report the impact of one standard deviation shock of Country Index Returns (*IR*) on Country Dividend Yields (*Dy*).

Figure 1a

Egypt

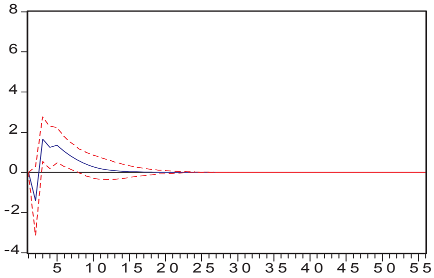


Figure 2a

Egypt

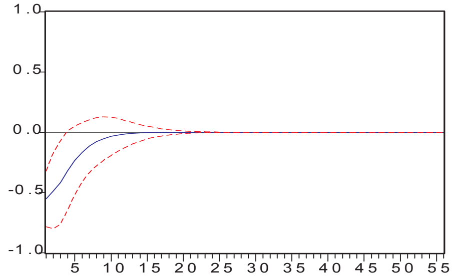


figure 1b

Jordan

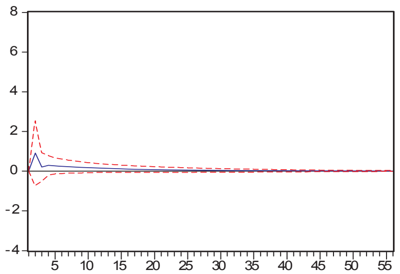


figure 2b

Jordan

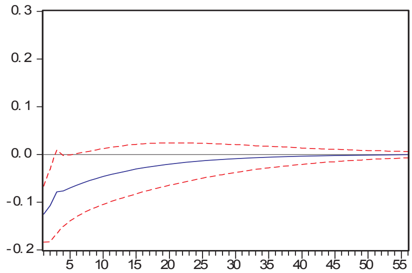


figure 1c

Morocco

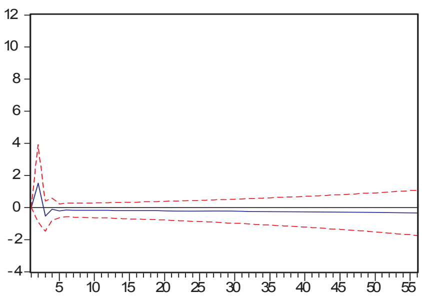


figure 2c

Morocco

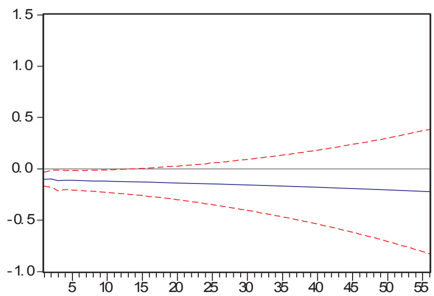


figure 1d

Saudi Arabia

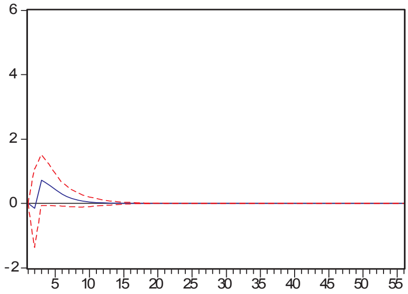


figure 2d

Saudi Arabia

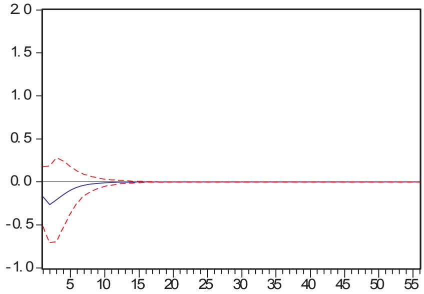


figure 1e

Korea

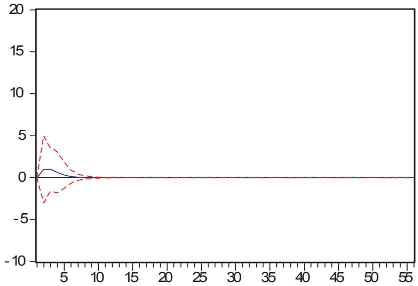


figure 2e

Korea

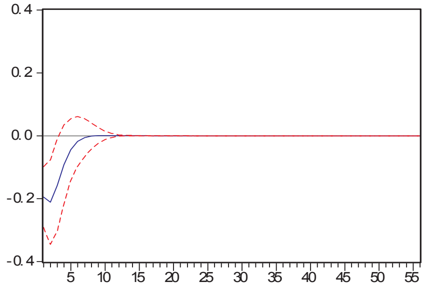


figure 1f

Malaysia

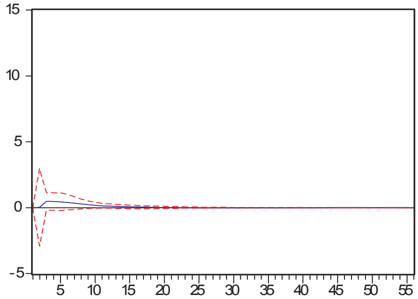


figure 2f

Malaysia

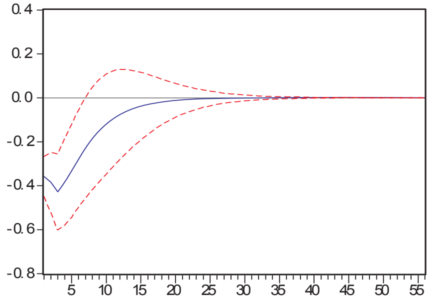


figure 1g

Philipeness

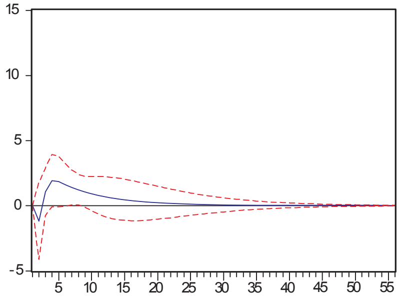


figure 2g

Philipeness

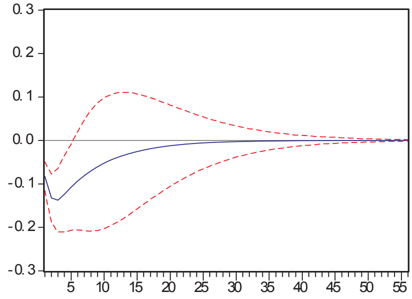


figure 1h

Thailand

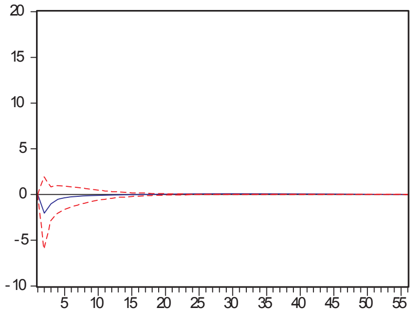
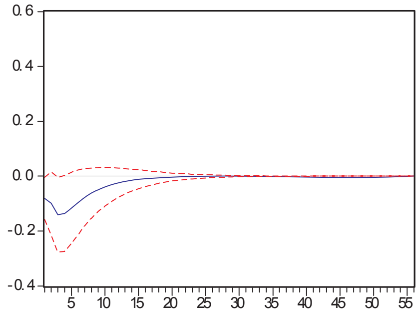


figure 2h

Thailand



الملخص

دور عوائد التوزيعات في توقع عوائد الأسهم: حالة من الأسواق الناشئة

سامر عبدالمهدي الرجوب
الجامعة الهاشمية

عزالدين نايف عنانزه
جامعة فيلادلفيا

يقوم هذا البحث بفحص نمط المقطع العرضي لعوائد الأسهم لثماني أسواق مالية ناشئة باستخدام أسلوب Vector Autoregressive Approach (VAR)؛ للوقوف على دور أثر عوائد توزيعات الأرباح في توقع عوائد الأسهم من خلال استخدام خصائص Impulse response Function. وقد دلت نتائج الدراسة على أن التغير في عوائد توزيعات الأرباح يقوم بدور أساسي في إحداث تغيرات في عوائد السهم، وهو تأثير إيجابي.

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