# STOCK RETURN AND INFLATION IN KAZAKHSTAN, RUSSIA AND UKRAINE

**Razzaque H Bhatti**
Professor
KIMEP University

**Olga Pak**
KIMEP University

**Abstract**

This paper examines the relationship between stock returns and inflation rates in the context of the Fisher hypothesis in the three CIS countries – Kazakhstan, Russia and Ukraine – using monthly data on stock and goods prices over the period 2001M1-2012M10. Regression results indicate that although the estimated coefficients of current and expected inflation are correctly signed in all cases, the hypothesis holds precisely only in the case of Kazakhstan. Moreover, in the case of Kazakhstan the coefficients of both current and expected inflation are statistically significant and higher than unity. The results from cointegration tests do not confirm the existence of a long run relationship between stock and goods prices. However, a significant error correction representation exists for Russia showing that it takes less than 2 years to restore the equilibrium between stock and goods prices. An important finding that emerges from this study is that like stock markets in other countries the CIS stock markets do not tend to provide a good hedge against inflation.

**Key Words:** Stock return, inflation rate, Fisher hypothesis

**JEL Classification:** G12, G31, E43

## 1. INTRODUCTION

The sudden surge of inflation since the late 1960s has caused increasing concern among investors about a persistent rise in the general price level. It is argued that financial assets such as common stocks (representing claims against corporations' real assets) should provide a hedge against inflation. This proposition, which is embedded in the Fisher (1930) hypothesis (FH)[1], implies that if stock markets are efficient, then the one-period nominal stock return should reflect fully all available information about inflation expected to prevail over the holding period such that expected real stock return is constant and independent of expected inflation. If stock prices fail to move in line with goods prices and nominal stock returns with expected inflation, then common stocks are unlikely to provide a good hedge against inflation, thereby resulting in several implications[2]. First, lower stock prices indicate that firms perform poorly, since the movement in stock prices is viewed as a prime indicator of firms' current and future performance. Second, a fall in stock prices is likely to reduce consumption demand by households. Third, a downward trend in stock prices should discourage investment spending, since it is viewed as a signal that market places a low value on firms' capital stock, which in turn should encourage mergers rather than investment in new capital equipment and structures. Fourth, if a negative causation runs from goods prices to stock prices, inflation is likely to reduce the growth of the corporate capital stock, which will in turn exert a direct adverse effect on productivity and output. It is, therefore, of great interest for researchers to investigate whether common stocks provide any hedge against inflation.

Massive work has appeared on testing whether the FH has any relevance in Treasury-bills and stock markets. The earliest work carried out, among others, by Outdet (1973), Linter (1975), Jaffe and Mandelker (1976), Bodie (1976), Nelson (1976), and Fama and Schwert (1977) tested the relationship between stock returns and expected inflation for the United States.[3] The results of these studies

[1]Humphrey (1983; pp.2-6) argues that the proposition that the nominal interest rate equals the real interest rate plus expected inflation has a long history that can be traced back more than 240 years in the writings of William Douglass, Henry Thornton, John Stuart Mill, Jacob de Hass, Alfred Marshall and J B Clark. In fact, this notion was disproved by Fisher (1930) himself when he made it clear that he was by no means the first to present that analysis.

[2] See Pearce (1982; pp.3-4).

[3]The findings are mixed regarding Treasury-bill markets. For a detailed analysis see (Moosa and Bhatti, 1997; pp. 280-303).

show that the FH does not hold, and that the U.S. common stocks do not provide a good hedge either against anticipated inflation or unanticipated inflation. Moreover, unlike the Fisher proposition that nominal stock returns should move positively in a one-to-one proportionality with inflation, the findings of these studies indicate that nominal returns on the U.S. common stocks move negatively with inflation rates.

In contrast, Firth (1979) produced evidence supportive of the FH for the British stock market. The results show that the coefficients of the FH are significantly positive for the overall period (1955-1976) and the later sub-periods (1966-1976 and 1969-1976). In all but one period, the coefficients are greater than unity, thus indicating that investors are more than compensated for anticipated inflation. Results are, however, consistent with the findings of the earliest studies obtained, among others, by Gultekin (1983a), Cohn and Lessard (1981) and Solnik (1983) who tested the FH for a larger set of countries including the US and U.K. It is argued that the inability of stock prices to keep up with goods prices is not a phenomenon restricted to the U.S markets alone but has relevance for many other developed countries. Testing the FH for 26 countries, Gultekin (1983a) obtained results lending support to the findings reported by the earliest studies[4]. Cohn and Lessard (1981) argue that in reality the negative relationship between stock return and inflation is the characteristic of the most major industrial countries. Testing the relationship between stock returns and inflation rates using quarterly data on eight countries – Canada, France, Germany, Italy, Japan, the Netherlands, the U.K. and the U.S. – over the period 1971:1-1979:4, they produced results which are consistent with those of earlier studies that stock returns are negatively correlated with inflation in most cases including the U.S. Solnik (1983) tested the FH using monthly data on nine countries – Belgium, Canada, France, Germany, Japan, the Netherlands, Switzerland, the U.K. and the U.S. – over the period 1971:1-1980:12 and document results soundly rejecting the Fisher proposition that the real return is independent of expected inflation and that there is a positive relationship between nominal stock returns and expected inflation in all cases, except for Canada. There is, however, some support for the FH provided by

[4] In his subsequent paper, however, Gultekin (1983b) reported remarkably different results from those of the earliest studies using the Livingston survey data on inflation expectations, lending support to the proposition of a one-to-one positive correspondence between nominal stock return and expected inflation.

Barens et al (1999) who tested the FH for the stock markets of 25 countries over different sample periods. The results obtained show that in 16 of 25 countries the relationship between nominal stock return and inflation is negative. Only in 4 countries is the correlation between inflation and nominal stock return higher than 0.1. The coefficient on inflation rate is significantly positive in 4 cases when nominal equity returns are regressed on contemporaneous rates of inflation.

Boudoukh and Richardson (1993) argue that the studies reporting evidence rejecting the FH have focused almost exclusively on short-term asset returns with time horizons of one year or less. Using annual data on stock return and inflation over short- and long-holding periods covering the period 1802-1990, they produced evidence indicating that long-horizon nominal stock returns are positively related to both ex ante and ex post long-term inflation rates. These results are interpreted as somewhat robust with respect to particular sub-periods chosen over the past two centuries as well as to both the U.S. and the U.K. markets. Using 1-year and 5-year holding-period stock returns over the periods 1802-90, 1870-90 and 1914-90 and employing instrumental variable technique, they found results confirming a negative insignificant relationship between stock returns and inflation rates when 1-year holding period is used. The coefficients from the 5-year holding period are significantly positive and range from 0.38 to 2.12, with most values exceeding 1. Similar results were reported earlier by Jaffe and Mandelker (1976) who noted that while annual stock returns are positively correlated with annual concurrent inflation rates over the much longer periods of 1875-1970, they are not over the short periods. They also reported that the long-run inflation elasticity of stock return of 0.50 was not statistically different from unity over the period 1875-1970. Solnik and Solnik (1997) and Schotman and Schweitser (2000) also noted that stocks provide a hedge against inflation only in the long run. Testing the FH for eight countries, Solnik and Solnik (1997) pointed out that the coefficient of inflation tends to approach unity as the investment horizon increases. Schotman and Schweitser (2000) showed that investment in common stocks provides a hedge against inflation only over the long run when the investment horizon exceeds 15 years. Kim and Ryoo (2011) also confirm the positive relationship between the U.S. stock returns and inflation. Testing the long-run relationship between stock and goods prices using a century-long US data covering monthly observations over the period 1900:01-2009:06 and employing different holding periods (10, 20, 30 and 40 years), Kim and Ryoo (2011) produced results supporting the presence of a one-to-one correspondence

between stock and goods prices during the 1940s and the early 1950s. They, however, warned that these results must be taken with caution, since the corresponding data set covers a period of extremely volatile stock returns and inflation rates.

Anari and Kolari (2001) note that the problem with testing the FH in the long run is that stock returns and inflation rates are calculated by differencing first stock and goods prices, which eliminates a long-run information contained in the level data. One approach to overcome this problem and capture the long-run information is to use returns and inflation rates over longer holding-periods and longer period data consisting of a century or so, as suggested by Jaffe and Mandelker (1976) and Boudoukh and Richardson (1993). The other approach is to test the FH in the long run using the level data on stock and goods prices, and then use stock returns and inflation rates to construct an error correction model incorporating the long-run information to capture the dynamics of the relationship in the short run. Employing the Johansen (1991) method of cointegration and using monthly data for six industrial countries (Canada, France, Germany, Japan, the U.S. and the U.K.) over the period 1953-1998, Anari and Kolari (2001) produced results which are supportive of the FH. The results also indicate that long-run elasticities of stock prices are generally greater than 1, ranging from 1.04 (for France) to 1.65 (for Japan) in all cases. The authors note that the coefficients of the FH (ranging from 1.04 to 1.65) are more consistent with those reported by Jaffe and Mandelker (1976), Boudoukh and Richardson (1993) and Hein and Mercer (1999). They also estimated error-correction models showing that the speed of adjustment lies between 0.01 and 0.03, implying that stock prices take a long time to return to their equilibrium level. Similar results were obtained by Al-Khazali and Pyun (2004) and Alagidede and Panagiotidis (2010) who tested the FH in the long run for Pacific-Basin and African countries respectively. Al-Khazali and Pyun (2004) tested the FH for nine Pacific Basin countries and produced results showing that the estimated coefficients of inflation range from 1.02 (for the Philippines) to 1.67 (for Hong Kong). Alagidede and Panagiotidis (2010) verified the FH for six African countries – Egypt, Kenya, Morocco, Nigeria, South Africa and Tunisia – and showed that the estimates of the elasticity of stock prices with respect to goods prices range from 0.015 (for Tunisia) to 2.264 (for South Africa).

This paper contributes to the studies focusing a short-run relationship between stock return and inflation, a long-run relationship between stock and goods prices and whether stocks provide a good hedge against inflation. This is done by testing the FH for the three countries of the Common Wealth of Independent States (CIS) – Kazakhstan, Russia and Ukraine – using monthly data on KASE, MICEX and PFTS and consumer prices over the period 2001:01-2012:10. One reason for picking up only stock markets of Kazakhstan, Russia and Ukraine is that sufficient data are not available on stock markets of the other CIS countries. The other reason is that the stock markets in Kazakhstan, Russia and Ukraine are relatively more developed and sophisticated than those in other CIS countries. The organization of the rest of the paper is as follows. Section 2 gives a brief description of how the FH is applied to stock markets, while Section 3 discusses the sample data, methodology and results. The final section concludes the results.

## 2. THE FISHER HYPOTHESIS AND THE STOCK MARKET

Fisher (1930) notes that if the Treasury-bills market is efficient, then the one-period equilibrium nominal interest rate on Treasury-bills should adjust fully to the corresponding inflation rate anticipated by market agents such that expected real return is constant and independent of expected inflation over time. This proposition that nominal return contains market assessment of expected inflation can be applied to all financial assets including stocks. Thus, if the stock market is efficient, then stock prices are set in the manner that reflect all available information, eventually forcing expected nominal returns on stocks to adjust fully to expected inflation and the corresponding real stock return to be constant over time. In an approximate form, this relationship is given by:

$$\Delta s_{t+1}^{e} = r_{t+1}^{e} + \Delta p_{t+1}^{e} \qquad (1)$$

where $\Delta s_{t+1}^{e}(\Delta p_{t+1}^{e})$ represents expected return on the market portfolio of commons stocks (the basket of consumer goods) and $r_{t+1}^{e}$ is the expected real stock return. The FH predicts that in an efficient stock market, expected nominal return rises by an amount equivalent to expected inflation, keeping expected real return to be constant over the holding period. If the expected real return, $r_{t+1}^{e}$, is equal to a constant value, *a*, over time and that it fluctuates over time by a random term, $u_t$, then the behavior of the expected real return can be modeled as follows:

$$r_{t+1}^{e} = a + u_t \tag{2}$$

Moreover, if market agents efficiently process all available information to predict future changes in stock and goods prices, then ex post changes in stock and goods prices realized from time *t* to *t+1* will differ from ex ante changes by a mean zero serially uncorrelated random terms ($E(\varepsilon_{1t+1}|\Omega_t)=0, E(\varepsilon_{2t+1}|\Omega_t)=0$; $E(\varepsilon_{1t+1}\varepsilon_{1t+1-i})=0\forall_i \neq 0$; $E(\varepsilon_{2t+1}\varepsilon_{2t+1-i})=0\forall_i \neq 0$). Formally

$$\Delta s_{t+1} = \Delta s_{t+1}^{e} + \varepsilon_{1t+1} \tag{3}$$

$$\Delta p_{t+1} = \Delta p_{t+1}^{e} + \varepsilon_{2t+1} \tag{4}$$

Substituting equation (1) into equations (2)-(4) and rewriting the resultant expression in a stochastic regression form we obtain

$$\Delta s_{t+1} = \beta_0 + \beta_1 \Delta p_{t+1} + \varepsilon_{t+1} \tag{5}$$

where $\beta_0 = a$ and $\varepsilon_{t+1} = u_t + v_t + \varepsilon_{1t+1} - \varepsilon_{2t+1}$ is the composite error term where $v_t$ is the error term representing the effect on stock market return unexplained by expected inflation. In a contemporaneous stochastic regression form, equation can be rewritten as follows:

$$\Delta s_t = \beta_0 + \beta_1 \Delta p_t + \varepsilon_t \tag{6}$$

For the FH to hold precisely and common stocks to provide a hedge against contemporaneous and expected inflation, the restriction $(\beta_0, \beta_1) = (0,1)$ should not be rejected and $\varepsilon_{t+1}(\varepsilon_t)$ should be white noise.

For a long-run relationship between stock and goods prices, equation (7) can be rewritten in a level form as follows:

$$s_t = \alpha + \beta p_t + \varepsilon_t \tag{7}$$

If the FH holds precisely, then not only should stock prices be cointegrated with goods prices in a one-to-one correspondence but also should nominal stock returns move in a one-to-one correspondence with inflation as represented by equations (5) and (6). If true, then a valid error-correction representation must exist between stock and goods prices of the form given by:

$$\Delta s_t = \alpha + \sum_{i=0}^{m} \beta_i \Delta p_{t-i} + \sum_{i=1}^{m} \gamma_i \Delta s_{t-i} + \theta \varepsilon_{t-1} + \upsilon_t \quad (8)$$

where the coefficient $\theta$, which measures the speed of adjustment to the long-run relationship, should be significantly negative.

## 3. SAMPLE DATA, METHODOLOGY AND EMPIRICAL RESULTS

The relationship between stock return and inflation is tested for the three CIS countries: Kazakhstan, Russia and Ukraine. The data covers monthly observations on stock market indexes such as KASE for Kazakhstan, MICEX for Russia and PFTS for Ukraine over the period 2001:01-2012:10. The data were obtained from Bloomberg.

Prior to testing the FH in the long run, the Dickey-Fuller (1979) and Phillips-Perron (1988) tests are used to test whether the variables underling equation (7) contain a unit root. The results, as reported in Table 1, indicate that goods and stock prices are I(1) in level but I(0) in first difference in all cases, except for Kazakhstan for which goods prices are I(0) in level based on the ADF test.

**Table 1: Testing for a Unit Root**

| Variable | ADF | | PP | |
|---|---|---|---|---|
| | Level | First Difference | Level | First Difference |
| **Russia** | | | | |
| $p_t$ | -2.423 | -6.891* | -1.883 | -6.952* |
| $s_t$ | -2.296 | -8.848* | -2.093 | -8.836* |
| **Ukraine** | | | | |
| $p_t$ | -1.290 | -11.087* | -1.389 | -6.910* |
| $s_t$ | -1.540 | -8.093* | -1.508 | -8.017* |
| **Kazakhstan** | | | | |
| $p_t$ | -3.289** | -5.144* | -2.265 | -4.123* |
| $s_t$ | -1.437 | -6.943* | -1.389 | -6.910* |

* Significant at the 5% level.

Thus, equations (5) and (6) representing the FH can be tested by employing regression analysis. Regression results, as reported in Table 2 and Table 3, indicate that coefficients of both contemporaneous and expected inflation are positive in all cases, ranging from 0.816 (for Russia) to 3.785 (for Kazakhstan), and that the proposition of a one-to-one correspondence between stock returns and inflation cannot be rejected in all cases. It must, however, be noted that these coefficients are insignificant in all cases, except for Kazakhstan in which case the FH holds precisely. However, these results are not reliable, since they do not pass all such diagnostic tests as serial correlation (SC), functional form (FF), normality (NT) and homoscedasticity (HT), except for Russia.

**Table 2: Regression Results** ( $\Delta s_{t+1} = \beta_0 + \beta_1 \Delta p_{t+1} + \varepsilon_{t+1}$ ; $\Delta s_t = \beta_0 + \beta_1 \Delta p_t + \varepsilon_t$ )

| Variable | Russia | | Ukraine | | Kazakhstan | |
|---|---|---|---|---|---|---|
| | $\Delta p$ | $\Delta p_{t+1}$ | $\Delta p$ | $\Delta p_{t+1}$ | $\Delta p$ | $\Delta p_{t+1}$ |
| $\beta_0$<br>*t* | 0.017<br>(2.182) | 0.017<br>(2.182) | 0.014<br>(1.273) | 0.014<br>(1.273) | 0.017<br>(1.847) | 0.017<br>(1.835) |
| $\beta_1$<br>*t* | 0.816<br>(0.603) | 0.816<br>(0.603) | 0.834<br>(1.014) | 0.834<br>(1.014) | 3.785*<br>(2.869) | 3.785*<br>(2.869) |
| $R^2$ | 0.003 | 0.003 | 0.007 | 0.007 | 0.056 | 0.056 |
| *F* | 0.208 | 0.364 | 1.028 | 1.029 | 8.234* | 8.084* |
| *DW* | 1.424 | 1.424 | 1.298 | 1.298 | 1.076 | 1.076 |
| $SC_{(12)}$ | 14.948 | 14.938 | 30.789* | 30.789* | 39.572* | 39.572* |
| $FF_{(1)}$ | 2.426 | 2.426 | 0.922 | 0.922 | 7.803* | 7.802* |
| $NT_{(2)}$ | 29.009* | 29.009* | 11.306 | 11.306* | 36.275* | 36.275* |
| $HT_{(1)}$ | 4.335* | 4.335* | 0.156 | 0.156 | 1.997 | 1.994 |
| **t** ($\beta_1$ =1) | -0.305 | -1.846 | -0.202 | -0.164 | 0.971 | 0.971 |

* Significant at the 5% level.

**Table 3: Regression Results Based on Cochrane-Orcutt Method**

| Variable | Ukraine | | Kazakhstan | |
|---|---|---|---|---|
| | $\Delta p$ | $\Delta p_{t+1}$ | $\Delta p$ | $\Delta p_{t+1}$ |
| $\beta_0$<br>*t* | 0.0129<br>(0.825) | 0.013<br>(10.825) | 0.0167<br>(1.120) | 0.017<br>(1.112) |
| $\beta_1$<br>*t* | 0.669<br>(0.890) | 0.669<br>(0.891) | 3.399*<br>(2.163) | 3.399*<br>(2.163) |
| *F* | 10.052 | 10.085 | 23.819* | 23.819* |
| $R^2$ | 0.128 | 0.128 | 0.258 | 0.258 |

| | | | | |
|---|---|---|---|---|
| ***DW*** | 1.905 | 1.905 | 1.929 | 1.929 |
| **t ($\beta_1$ =1)** | -0.372 | -0.371 | 1.109 | 1.109 |

* Significant at the 5% level.

Thus, equations (5) and (6) are estimated again by employing the Cochrane-Orcutt method to produce efficient estimates of the FH for Ukraine and Kazakhstan. The results, as presented in Table 3, show that the FH holds precisely only for Kazakhstan. Not only are the coefficients of contemporaneous and expected inflation correctly signed but the proposition that these coefficients are equal to unity cannot be rejected.

Tests are also conducted to examine if a long-run relationship exists between stock and goods prices in the CIS countries. Employing two residual based tests of cointegration, the Engle-Granger (1987) and Phillips-Ouliaris (1990), the results do not confirm the long-run relationship between stock and goods prices in all cases. However, a significant error-correction representation exists for Russia, implying that it takes less than 2 years to restore the equilibrium between stock and goods prices[5].

## 4. CONCLUSION

This paper has tested the Fisher relationship between stock returns and inflation for Kazakhstan, Russian and Ukrainian. The results reveal that the Fisher effect does not hold in the short-run in all cases, except for Kazakhstan. However, a weak form of the Fisher effect does exist in all cases in the sense that there is a positive relationship between stock returns and (expected and contemporaneous) inflation in all cases. This also implies that stocks markets in the three CIS countries do not provide a good hedge against inflation, except for Kazakhstan. The Fisher effect holds precisely in Kazakhstan, in which case not only are the coefficients of expected and contemporaneous inflation correctly signed but are also equal to unity.

[5]The results of cointegration tests and error-correction representation are not reported here. One can have an access to these results on request from the authors.

The results from cointegration tests do not confirm any long-run relationship between stock and goods prices in the three countries. However, there is some evidence supportive of the long-run relationship for Russia since a significant error-correction representation exists, showing that it takes less than two years to restore the Fisher relation.

## Bibliography

Alagidede, Paul and Panagotidis, Theodore (2010), "Can Common Stock Provide a Hedge against Inflation? Evidence from African Countries", *Review of Financial Economics*, Vol. 19, pp. 91-100.

Al-Khazali, Osamah and Pyun, Chong (2002), "Stock Prices and Inflation: New Evidence from the Pacific-Basin Countries", *Review of Quantitative Finance and Accounting*, Vol. 22, pp. 123– 140.

Anari, Ali and Kolari, James (2001), "Stock Prices and Inflation", *Journal of Financial Research*, Vol. 24, No. 4, pp. 587–602.

Barnes, Michelle, Boyd, John and Smith. Bruce (1999), "Inflation and Asset Returns", *European Economic Review*, Vol. 43, pp. 737-754.

Bodie, Zvi (1976), "Common Stocks as a Hedge Against Inflation, "Journal of Finance, Vol. 31, no. 2, pp. 459-470.

Boudoukh, Jacob and Richardson, Matthew (1993), "Stock Returns and Inflation: a Long-Horizon Perspective", *American Economic Review*, Vol. 83, No. 5, pp. 1346-1355.

Cohn, Richard and Lessard, Donald (1981), "The Effect of Inflation on Stock Prices: International Evidence" *Journal of Finance*, Vol. 36, No. 2, pp. 277-289.

Dickey, David and Fuller, Wayne (1979), "Distribution of the Estimators for Autoregressive Time Series with a Unit Root" *Journal of American Statistical Association"*, Vol. 74, No. 366, pp. 427-431.

Engle, Robert and Granger, William (1987), "Co-integration and Error Correction Representation, Estimation and Testing", *Econometrica,* Vol. 55, pp. 251 – 276.

Fama, Eugene and Schwert, William (1977), "Asset Returns and Inflation", *Journal of Financial Economics*, Vol. 5, No. 2, pp. 115-146.

Firth, Michael (1979), "The Relationships Between Stock Market Returns and Rates of Inflation", *Journal of Finance*, Vol. 34, No. 3, pp. 743-749.

Fisher, Irving (1930), The Theory of Interest, New York: Macmillan.

Gultekin, Bulent (1983a), "Stock Market Returns and Inflation: Evidence from Other Countries", *Journal of Finance*, Vol. 38, No. 3, pp. 663-673.

Gultekin, Bulent (1983b), "Stock Market Returns and Inflation Forecasts" *Journal of Finance*, Vol. 38, No. 1, pp. 49-65.

Hein, Scott and Mercer, Jeffrey (1999), "Co-movements of Stock Prices and Consumer Goods Prices", *Working Paper Presented at the 1999 Southern Finance Association Conference*.

Humphrey, Thomas (1983), "The Early History of the Real/Nominal Interest Rate Relationship", *Federal Reserve Bank of Richmond Economic Review*, Vol. 69, No. 3, pp. 2-10.

Jaffe, Jeffrey and Mandelker, Gershon (1976), "The Fisher Effect for Risky Assets: An Empirical Investigation," *Journal of Finance*, Vol. 31, No. 2, pp. 447-458.

Johansen, Soren (1991), "Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models", *Econometrica*, Vol. 59, No. 6, pp. 1551–1580.

Kim, Jae and Ryoo, Heajin (2011), "Common Stocks as a Hedge Against Inflation: Evidence from Century-Long US Data", *Economic Letters*, Vol. 113, pp. 168-171.

Lintner, John (1975), "Inflation and Security Returns", *Journal of Finance*, Vol. 30, No. 2, pp. 259-280.

Moosa, Imad and Bhatti, Razzaque (1997) International Parity Conditions: Theory, Econometric Testing and Empirical Evidence, published simultaneously by Macmillan Press Ltd. (U.K) and St. Martin's Press, INC. (USA).

Nelson, Charles (1976), "Inflation and Rates of Return on Common Stocks" *Journal of Finance*, Vol. 31, No. 2, pp. 471-483.

Oudet, Bruno (1973), "The Variation of the Returns on Common Stocks", *Journal of Financial and Quantitative Analysis*, Vol. 8, No. 2, pp. 247-58.

Pearce, Douglas (1982), "The Impact of Inflation on Stock Prices", *Economic Review Federal Reserve Bank of Kansas City*, March, pp. 3-18.

Schotman, Peter and Schweitzer, Mark (2000), "Horizon Sensitivity of the Inflation Hedge of Stocks", *Journal of Empirical Finance,* Vol. 7, pp. 301-315.

Solnik, Bruno and Solnik, Vincent (1997), "A Multi-Country Test of the Fisher Model for Stock Returns" *Journal of International Financial Markets, Institutions and Money*, Vol. 7, No. 4, pp. 289-301.

Solnik, Bruno (1983), "The Relation between Stock Prices and Inflationary Expectations: The International Evidence, *Journal of Finance*, Vol. 38, No. 1, pp. 35-48.