Can Indian Stock Index return provide complete hedge against Inflation?

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Abstract

This study empirically assesses the relationship between inflation and real stock return in Indian market. The study has covered data from both pre and post reforms period of Indian economy. Again inflation has been decomposed to predicted and unpredicted phase. First it has tested Fisher hypothesis, which asserts the independence of real stock return and inflation. Second, Fama's proxy effect framework, which states that the negative real stock return and inflation is indirectly explained by a negative real economic activity-inflation and a positive real stock return-real economic activity relationship, has been tested. This study has showed that Fisher hypothesis is applicable in pre-reforms period of Indian economy but same is not applicable in both whole period data and post reforms period. Fama's proxy hypothesis is also applicable in whole period and post reforms period data. To avoid the inconsistency of Fama hypothesis the study adopts a two-step ordinary least square procedure.

Keywords: Inflation, Stock Return, Fisher hypothesis, Fama's Proxy effect hypothesis

Section-I Introduction: Stock market plays a vital role in any country's economic growth and development. A healthy and flourishing stock market has been considered relevant for national economic growth by channelizing capital toward investors and entrepreneurs. The security markets in India have made enormous progress by developing sophisticated instruments and modern market mechanisms. The key strengths of the Indian capital market include a fully integrated and automated trading system on all stock exchanges, a wide range of products, a nationwide network of trading and strong regulation system. Around five thousand companies commanded a total market capitalization of USD 1.06 trillion as of May 15, 2012 at Bombay Stock Exchange and became world's number one exchange in terms of listed members and fifth most active exchange in terms of number of transactions handled through its electronic trading system. National Stock Exchange (NSE) of India is the 16th largest stock exchange in the world by market capitalization and largest in India by daily turnover and number of trades, for both equities and derivative segments.

India after independence has had a more stable record of inflation, than most of other developing countries. Since 1950, the inflation in Indian economy had been in single digits for most of the years (two percent in1950-1960, Seven point two percent in 1960-1970, and eight point five percent in 1970-1980). During the current year, inflation remained stubbornly high at around 9-10 percent and was fairly broad-based. The rise in inflation started with food and later got generalized. Food inflation, which has remained persistently high, has become a major cause of concern. With the inflation remaining beyond the comfort level of Reserve Bank of India (RBI), the RBI continued to tighten its monetary policy through the year to arrest inflation, even in the face of a slowdown in economic growth. This inflation may eat out the future nominal cashflow of the companies and reduce their value. If a company is going to grow quickly in the future, investors will be willing to pay up for that growth. Paying up for growth means buying stock

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with high price/earnings ratios. Now, if inflation is going to erode the value of that growth then nobody will be willing to pay much for the growth because it will be worth less in a high inflationary environment. That implies fall in price/earnings ratios. Therefore, lower inflation may lead to higher price/earnings ratios and vice a versa. Inflation of India is now going to touch double digit number, hence this has motivated the authors to study whether the stock market investors need to be worried of it or not.

Therefore this study has been organized as follows. Section II reviews the published literature pertinent to the topic. Section III mentioned the required data and their sources, Section IV outlines the methodology used, section V provides the empirical results and analysis and finally concluding remarks are given in section VI.

Section – II Review of Literature:

Fisher (1930) hypothesis, in its most familiar version, states that "the expected nominal rate of return on stock is equal to expected inflation plus the real rate of return", where the expected real rate of return is independent of expected inflation. Fisher hypothesis, therefore, predicts a positive homogenous relationship between stock returns and inflation. In other words, Fisher hypothesis implies that stocks offer a hedge against inflation.

Adam and Frimpong (2010) studied the relationship of stock price and inflation for Ghana for the sample period 1991:1-2007:12 where cointegration analysis was employed. The findings showed strong support for Fisher hypothesis. Spyrou (2001) and Floros (2004) examined stock returns-inflation relation in Greece, using the Johansen cointegration test. They found that there is no significant long-run relationship between inflation and stock returns in Greece. Al-Khazali and Pyun (2004) tried to see the relationship between stock prices and inflation for nine countries in the Asia Pacific Basin. Using the Johansen cointegration test they concluded that stock prices in Asia reflect a time-varying memory associated with inflation shocks that make stock portfolios a reasonably good hedge against inflation in the long run. Spyrou (2004) examined the Fisher hypothesis for 10 emerging countries, namely, Chile, Mexico, Brazil, Argentina, Thailand, South Korea, Malaysia, Hong Kong, Philippines and Turkey. They found little evidence to support this hypothesis in these countries. Kim and Francis (2005) studied the Fisher hypothesis based on a wavelet multi-scaling method for US, for the period from 1926:1 to 2000:12. Their findings revealed that there is a positive relationship between stock returns and inflation in the shorter period, while a negative relationship is found in longer period. In contrast to Fisherian hypothesis, Fama proposed proxy effect hypothesis. Fama (1981) argued that the negative relationship between stock returns and inflation has its basis in the money demand theory and the quantity theory. Fama's hypothesis states that rising inflation rates reduce real economic activity and demand for money. When economic activity dips, it negatively affects the future corporate profits and, hence stock prices. According to Fama, the statistical relationship between inflation and stock returns should disappear, once the effect of real output growth is controlled for.

Chatrath *et al.* (1997) have adopted Fama's (1981) model to explain the above relationship through a hypothesized chain of macroeconomic linkages that have their basis in the money-demand theory and the quantity theory of money. Hamburger and Zwick (1981), Geske and Roll (1983), Kaul (1987 and 1990), Marshall (1992), and Graham (1996) have explored the role of monetary sector in order to explain this perplexing negative relationship between stock returns and inflation. They found the relationship to vary over time in a systematic manner depending on the influence of money demand and supply factors. Ahmad and Mustafa (2005) studied the relationship for Pakistan, for the period from 1972 to 2002 using monthly and annual data. Full

Information Maximum Likelihood (FIML) method was employed. They divided the inflation into two parts – expected and unexpected. Results revealed that relationship between real returns and unexpected growth and unexpected inflation are negative and significant. Kim (2003) employed quarterly data of Germany for the period from 1971:1 to 1994:4. Symmetric and asymmetric Granger causality test was performed. Results demonstrated the negative correlation between stock returns and inflation and provide an indicative role of stock returns on real activity. Using the monthly data, Nelson (1976) studied the relationship for the US in the postwar period, (from 1953:1 to 1972:12). Box and Jenkins' ARIMA method was used to divide the inflation into expected and unexpected part and they found the stock returns were negatively related with both expected and unexpected inflation. Samarokoon (1996) and Jaffe and Mandelker (1976) used the same method on Sri Lanka and US data respectively and got the same result. Some of the studies had divided the study period into various zones and got various results. Kolluri and Wahab (2008) studied the relationship between stock returns and inflation through asymmetric test specification, which is capable to distinguish stock returns into high and low inflation period. The study period was from 1960:1 to 2004:12 and Findings of the study revealed that there was inverse relationship between stock returns and inflation during low inflation periods. On the contrary, positive relation is observed through high inflation periods. Lee (2008) analyzed the causal relationship in the UK. The sample period ranged from 1830 to 2000 and the sample period was further divided into two sub-periods, 1830-1969 and 1970-2000. The empirical findings of the study reported that there is a significant negative correlation between unpredictable stock returns and inflation for the subperiod 1970-2000. However, unpredictable stock returns were hardly correlated to unpredictable inflation during the same subperiod. Employing the wavelet methodology Durai and Bhaduri (2009) examined the relationship between stock returns, inflation for the post-liberalization period in India. The study employed monthly data from 1995:1 to 2006:7. The wavelet analysis helped to decompose the inflation into expected and unexpected components. In short run, the expected component of inflation was insignificant, while in the medium and long run, the expected component was found to be negatively significant with the real stock returns.

This study will investigate the following issues:

- Is Fisher hypothesis applicable on Indian stock market or is the stock market of the country provides a good hedge against inflation?
- Does Fama's proxy hypothesis explain the real stock returns-inflation relationship for the Indian stock market?

To find answers to the above questions, the study does the following:

- Examines the relationship between real stock returns and inflationary trends in the Indian stock market.
- Tests Fama's proxy hypothesis, which states that negative real stock returns-inflation relationship is indirectly explained by a negative inflation-real activity relationship and a positive real activity-stock returns relationship.
- Explores whether Fama's proxy effect is strong enough to explain the negative stock returns-inflation relationship.

Section-III Data: Some studies used Consumer Price Index (CPI) as inflation measure (Kumari 2011, Schwert 1989 and Alagidede 2009). Shanmugam and Mishra (2008) mentioned that there is not a single indicator of CPI in India. Four different variants of CPI are complied on monthly basis that are designed for specific group of population with specific objectives. Therefore this study has taken Wholesale Price Index (WPI) as inflation measure. Real activity in the economy

will be measured by Index of Industrial Production (IIP). Monthly data covering period from April 1982 to March 2011 of WPI, IIP and Sensex will be taken for analysis. This time period comprises of pre and post reforms phase of Indian Economy. Sensex data will be collected form Bomaby Stock Exchange of India. The Ministry of Industry, Government of India and Central Statistical Organisation (CSO) will be the sources for the WPI and the IIP respectively.

Section-IV Methodology: Auto-Regressive Integrated Moving Average (ARIMA) is not applicable on the inflation data because auto-correlation is not dying exponentially (Gujarati 1995). Hence Hodrick-Prescott (HP) filter is used to derive the expected and unexpected components of the inflation. This filter decomposes the inflation into its trend and unexpected deviations from the trend. As suggested in Hodrick and Prescott (1980) for monthly data, (ϕ =14400) have been used as the value of the smoothing pharameter.

Testing Fisher Hypothesis: Three econometric models were formulated to test the relationship of the real stock return with each type of inflations. The first model, presented in equation (1), tests the relation between stock returns and actual inflation, as in Graham (1996) and Chatrath *et al*. (1997).

$$r_t - I_t = \beta_0 + \beta_1 I_t + x_t \qquad \text{--------------- (1)}$$

where r_t and I_t are the sensex return and inflation of t th period. The difference between r_t and I_t represents the real stock return at t th period and x_t is the error term.

$$r = \log\left(\frac{P_t}{P_{t-1}}\right)$$ wherein P_t and P_{t-1} are the t and t-1 th months price of sensex.

$$I_t = \log\left(\frac{WPI_t}{WPI_{t-1}}\right)$$ wherein WPI_t and WPI_{t-1} are the wholesale price index of t and t-1 period.

The second model, presented in Equation (2), tests the relation between stock returns and the expected inflation, as in Gultekin (1983), Solnik (1983), Leonard and Solt (1986), Wahlroos and Berglund (1986), Kaul (1987), and Chatrath *et al.* (1997).

$$r_t - I_t = \beta_0 + \beta_2 E(I_t / \phi_{t-1}) + y_t \qquad \text{--------------- (2)}$$

EI_t is the expected inflation at the time t and ϕ_{t-1} is the information set available to investors at $t-1$.

The model given below tests the relationship between stock returns and unexpected inflations, as in Gultekin (1983a and 1983b) and Chatrath *et al.* (1997).

$$r_t - I_t = \beta_0 + \beta_3 \{I_t - E(I_t / \phi_{t-1})\} - z_t \qquad \text{----------------- (3a)}$$

However the equation in 3a may be rewrite as

$$r_t - I_t = \beta_0 + \beta_3 UEI_t - z_t \qquad \text{----------------- (3b)}$$

UEI_t represents unexpected inflation at time t.

For the first two Equations (1) (2) and (3b), if β_1, β_2 and β_3 equal to zero, then first proposition or Fisher hypothesis will be proved.

Testing Fama's Proxy Hypothesis:
The first proposition of Fama's proxy hypothesis states that there is a negative relationship between inflation and real economic activity and the second proposition of Fama's proxy

hypothesis that there is a positive association between real activity and stock returns can individually be tested by the models presented in the following equations:

$$I_t = \alpha_0 + \sum_{i=-k}^{k} \alpha_i RA_{t+i} + \varepsilon_{1t} \qquad \text{-----------------} \qquad (4)$$

Wherein RA is the real activity. $RA = \log\left(\dfrac{IIA_t}{IIA_{t-1}}\right)$, IIA_t, IIA_{t-1} is the index of industrial production for t and t-1 period.

$$EI_t = \alpha_0 + \sum_{i=-k}^{k} \alpha_i RA_{t+i} + \varepsilon_{2t} \qquad \text{-----------------} \qquad (5)$$

$$EUI_t = \alpha_0 + \sum_{i=-k}^{k} \alpha_i RA_{t+i} + \varepsilon_{3t} \qquad \text{-----------------} \qquad (6)$$

$$r_t - I_t = \delta_0 + \sum_{i=-k}^{k} \delta_i RA_{t+i} + v_t \qquad \text{-----------------} \qquad (7)$$

v_t represents the error term. Leading, contemporaneous and lagging variables of real activity has been used for analysis.

First part of the second proposition of this study will be proved if some of α_i's are significantly negative in equation 4, 5 and 6 (Chatrath *et al.* 1997). Fama's second proposition or second part of second hypothesis of this study, will be proved if some δ_i's of equation 7 are significantly positive.

Since Fama's proxy effect explanation is based on an indirect relationship between real stock returns and inflation, a single equation treatment may yield inconsistent estimates (Johnston, 1984; Harvey, 1990; and Chatrath *et al.* 1997). To avoid this inconsistency this study adopts a two-step ordinary least square procedure followed by Chatrath *et al.* (1997). The models are presented in the following equations:

$$I_t = \mu_0 + \sum_{i=-k}^{k} \mu_i RA_{t+i} + \varepsilon_{4t} \qquad \text{--------------} \qquad (8)$$

$$r_t - I_t = \delta_0 + \delta_i \varepsilon_{4t} + \sum_{i=-k}^{k} \delta_i RA_{t+i} + v_t \qquad \text{--------------} \qquad (9)$$

$$EI_t = \mu_0 + \sum_{i=-k}^{k} \mu_i RA_{t+i} + \varepsilon_{5t} \qquad \text{--------------} \qquad (10)$$

$$r_t - EI_t = \delta_0 + \delta_i \varepsilon_{5t} + \sum_{i=-k}^{k} \delta_i RA_{t+i} + \gamma_t \qquad \text{--------------} \qquad (11)$$

$$UEI_t = \mu_0 + \sum_{i=-k}^{k} \mu_i RA_{t+i} + \varepsilon_{6t} \qquad \text{--------------} \qquad (12)$$

$$r_t - UEI_t = \delta_0 + \delta_i \varepsilon_{6t} + \sum_{i=-k}^{k} \delta_i RA_{t+i} + \varphi_t \qquad \text{--------------} \qquad (13)$$

For the Equations (8), (9), (10), (11), (12), and (13) inflation and real stock returns are regressed on the lagging, contemporaneous, and leading values of real economic activity. However, the

differences between Equations (8) and (9) is that the estimated residuals from Equation (8), ε_{4t} is included as an independent variable in Equation (9) to represent the inflation variable that is purged of the relationship between inflation and real economic activity. Same process has been followed between Equations 10 and 11 and 12 and 13. The zero coefficients of ε_{4t}, ε_{5t} and ε_{6t} in equation 9, 11 and 13 will ensure the Fama's proxy hypothesis that states real stock returns and inflation rates are independent once the impact of real economic activity on inflation was controlled for.

Section-V Empirical results: As noted earlier, the HP filter is employed to derive the expected and unexpected inflation. Then data has been separated between pre-reform and post-reform period.

The test of Stationarity of data:
Data needs to be stationary before using for regression analysis (Pankratz 1983, Harvey 1990 and Gujarati 1995). Table 1 shows the Dickey Fuller test result for inflation, real return of sensex, increase in index of industrial production, expected and unexpected inflation for three periods separately.

Table-1 Dickey Fuller Test result

Total Data				
	Log Level		1st difference	
Variable	Intercept	Trend and Intercept	Intercept	Trend and Intercept
Inflation	-8.268*	-8.408*	-13.836*	-13.816*
Real return of Sensex	-8.383*	-8.385*	-13.923*	-13.903*
Index of Industrial production	-10.375*	-10.368*	-14.314*	-14.293*
Expected Inflation	-0.474	-1.506	-2.019	-2.373
Unexpected inflation	-9.632*	-9.614*	-13.874*	-13.856*
Pre Reforms Period				
Inflation	-6.019*	-6.193*	-6.159*	-6.113*
Real return of Sensex	-4.176*	-4.138*	-7.526*	-7.462*
Index of Industrial production	-5.876*	-5.839*	-6.812*	-6.772*
Expected Inflation	-1.877	-3.276***	-1.652	-1.319
Unexpected inflation	-6.594*	-6.555*	-6.157*	-6.111*
Post Reforms Period				
Inflation	-6.925*	-6.991*	-11.503*	-11.479*
Real return of Sensex	-6.897*	-6.899*	-11.282*	-11.258*
Index of Industrial production	-8.254*	-8.277*	-12.361*	-12.334*
Expected Inflation	-0.665	-1.41	-1.754	-2.07
Unexpected inflation	-7.997*	-7.977*	-11.535*	-11.514*
* and *** Represents significance at 1% and 10% level.				

Except expected inflation rest data are stationary in all periods. Hence expected inflation should not be used for regression.

Test of Fisher Hypothesis:
Table-2: Real stock return and inflationary trend:

Whole data						
Constant	Inflation	Expected inflation	Unexpected Inflation	R^2	F	Durbin~Watson d value
0.005513 (3.0608)*	-1.00558 (-21.556)*			0.3515	0.000	1.82**
0.00537 (2.394)**		-0.7125 (-1.42)		0.0058	0.1565	1.88**
0.005022 (2.789)*			-0.9901 (-13.674)*	0.35147	0.000	1.93**
Pre reforms period						
0.00696 (1.5211)	-1.0454 (-0.882)			0.007	0.3797	2.052**
0.0056 (0.3291)		-0.4968 (-0.0777)		0.0001	0.938	2.073**
0.004243 (1.2383)			-1.069335 (-0.88504)	0.0076	0.3782	2.052**
Post reforms period						
0.00496 (2.336)**	-0.969 (-13.849)*			0.4432	0.000	2.003**
0.00503 (1.7701)		-0.752 (-1.34)		0.007	0.1822	2.279**
0.0054 (2.524)**			- 0.989 (-13.84)*	0.4428	0.000	1.981**
*represents significance at 1% level, while ** and *** represents at 5% and 10% significance. Data in ( ) represents t values.						

In order to test the validity of the Fisher's hypothesis inflation, expected inflation and unexpected inflation has been regressed on real stock return. Table-2 represents the estimation results. Real return was negatively associated with inflation and unexpected inflation when whole period (April 1982 – March 2011) was considered, because t value is significant at 1% level. The same results have been observed for post-reform period also. But in pre-reform period Indian stock market was providing a complete hedge against Inflation. Whole period's data and post-reform period result supports the findings of Adam and Frimpong (2010) on Ghana stock market and Spyrou (2001) and Floros (2004) on Grecee stock market and this does not support Fisher Hypothesis. Whereas pre-reforms period result is in line with Gultekin (1983) on US, Australia, France, Norway, Peru and Sweden for the period from June 1947 to December 1979 and support Fisher Hypothesis.

All Durbin~Watson (D~W) d statistics in Table-2 are insignificant; hence null hypothesis of having no autocorrelation cannot be rejected. Another very interesting point is that in most of the cases R^2s are very low. It is in line with the previous studies of Bulmash (1991) and Majid (2010).

First proposition of Fama's proxy hypothesis : A Negative relationship between Inflation and real economic activity

Table 3 estimates the result of equation of 4, 5 and 6 i.e. regression result between inflation and real economic activity, which is being proxied by increase in index of industrial return. Seven leading, contemporaneous and lagging values of real activity have been considered. Inflation and real activity is significantly and negatively related in lag one but positively related at contemporaneous stage when whole period data has been considered.

Table 3: Regression result estimation of equation no. 4, 5 and 6

	Whole period			Pre reforms period			Post reforms period		
	I	EI	UEI	I	EI	UEI	I	EI	UEI
-7	0.004 (0.083)	-0.004 (-0.772)	0.008 (0.179)	0.13 (2.22)**	0.001 (0.215)	0.129 (2.22)*	-0.004 (-0.085)	-0.006 (-0.956)	0.002 (0.032)
-1	-0.09 (-1.92)**	-0.01 (-1.25)	-0.082 (-1.78)**	-0.013 (-0.15)	0.000 (0.003)	-0.013 (-0.15)	-0.121 (-2.15)**	-0.01 (-1.45)	-0.11 (-1.98)**
0	0.312 (6.731)*	-0.007 (-1.173)	0.318 (6.923)*	-0.0547 (-0.65)	-0.0003 (-0.063)	-0.054 (-0.65)	0.385 (6.83)*	-0.01 (-1.37)	0.394 (7.045)*
1	-0.08 (-1.736)	-0.006 (-1.132)	-0.074 (-1.602)	-0.028 (-0.332)	-0.000 (-0.07)	-0.027 (-0.33)	-0.109 (-1.93)	-0.009 (-1.334)	-0.1 (-1.8)***
7	-0.023 (-0.520)	-0.01 (-1.198)	-0.02 (-0.4451)	-0.04 (-0.638)	-0.000 (-0.13)	-0.036 (-0.633)	-0.036 (-0.68)	-0.01 (-0.86)	-0.03 (-0.578)
D~w	2.30**	2.02**	2.32**	1.49**	1.30**	1.52**	2.39**	2.01**	2.40**

"I" represents inflation, "EI" represents expected inflation, "UEI" represents unexpected inflation. Data in () is the t value. *, ** and *** represents the significance level at 1percent, 5 percent and 10 percent.

The same result also has been observed at post reforms period. This result is inconsistent with the Phillips curve. But in pre-reforms period the both inflation and unexpected inflation is positively related to index of industrial production at seventh lag. Fama's first proposition is not applicable to pre-reforms period but it is valid for both whole and post reforms period.

Second proposition of Fama's proxy hypothesis: A positive relationship between real stock return and Real economic activity Again seven lead and seven lag and contemporaneous values of index of industrial production has been considered as independent variable and result of equation 7 has been estimated. Table 4 shows the regression result. At one lag of IIP the data is positively and significantly related to real return when whole period's and post reform's period data have been considered. As expected no significance relation is observed in pre-reforms period. Therefore second proposition of Fama's proxy hypothesis is valid for whole period data and post-reforms period data but it is not valid at pre-reforms period data.

Table-5 : Regression result between Real return and real economic activity

Lag/Lead	Whole period	Pre-Reforms Period	Post-Reforms Period
-1	0.110038 (1.65)***	0.259635 (0.605)	0.140929 (1.91)***
0	0.097378 (1.457)	0.309575 (0.733)	-0.37029 (-5.02)*
1	-0.00384 (-0.058)	0.214914 (0.513)	0.151432 (2.45)**
	D~W = 2.14**	D~W=2.100**	D~W=2.06**

Relationship between real return and real activity when error term has been included:
Table 6 shows the estimated result of equations 9, 11 and 13. First the series of three error terms were defined by equation 8, 10 and 12 i.e. $\varepsilon_{4t}, \varepsilon_{54t}, \varepsilon_{6t}$. Again seven lag, seven lead and contemporaneous values of IIP have been considered as independent variable. Then these error terms have been purged by taking this as independent variable as defined in equation 9, 11 and 13. Table 6 shows the coefficient of these error terms.

Table-6 Estimated result of equation 9, 11 and 13

	Error term	Whole Period	Pre-reforms Period	Post-reforms Period
Inflation	ε_{4t}	-0.050306 (-0.9655) D~W=1.69	-2.004 (-3.716)* D~W=2.106	0.0164 (0.3226) D~W=2.02
Expected inflation	ε_{5t}	-3.693 (-0.661) D~W=2.145	-8.458 (0.8441) D~W=-2.418	-0.5389 (-0.734) D~W=2.066
Unexpected inflation	ε_{6t}	-0.04736 (-0.9661) D~W=1.69	-1.994 (3.6733)* D~W=2.1001	0.0175 (0.3323) D~W=1.72

These error terms are not significant when whole data and post reforms period data has been considered. At pre-reforms period the coefficients of ε_{4t} and ε_{6t} are significant. This implies that Fama's proxy hypothesis is applicable at both whole period data and post-reforms period data of India.

Section-VI: Conclusion
In order to test the efficiency and strength at which inflation is related to real stock returns, the study has decomposed the inflation into expected and unexpected components using HP filter, because expected inflation can be predicted and the investor's job will be easier. Again the whole study period has been decomposed into pre and post reforms period of Indian economy. This has helped to see the effect of both Fisher and Fama hypothesis on both long and short time horizon. Fisher hypothesis is not applicable in long time period i.e. inflation and real stock return are negatively related. Same result has been observed in post-reforms period also. But the study has proved that at pre-reforms period a complete hedge exist in real return against inflation. Fama's both first and second propositions are also applicable both in whole period and post-reforms period and this is because of unexpected part of inflation. This is also in line with other research works in this area. But this again contradicts with the conventional macroeconomic Philip's curve theory. The consistency of Fama's proxy hypothesis was then tested by introducing a two-

step estimation that controlled for the inflation and real economic activity relationship. This is also proved to be true for both whole time period and post-reforms period. Structural changes in Indian economy since 1991 onwards do not help the investors to save their money from inflation. In present situation inflation of India is going to touch double digit number. Therefore stock market investors need to be very careful about their hard earned money.

Many researchers have used many other modern econometric tools to prove the validity of Fischer hypothesis on various markets. More research works on Indian data may provide full idea on this.

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