Journal of Management and Information Technology

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(Under the Management of D.S.G.M.C.)

JOURNAL OF MANAGEMENT AND INFORMATION TECHNOLOGY

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Saving and Investment Behaviour in Select East Asian Countries (Korea, Malaysia, Thailand and Indonesia)

Dr. Rajni

ABSTRACT

The present study is focused on the savings and investment behaviour in East Asian countries. The broad trend in growth, saving and investment has been discussed in the study. Using the time series and pooled cross section data for a period of 36 years (1970-2006), investment function and saving function is tested with the help of OLS for East Asian countries namely Thailand, Indonesia, Korea and Malaysia. These models predict that a high real interest rate policy will stimulate savings and investment and promote economic growth. The results of the study indicate that real rate of interest and foreign saving ratio have exerted an adverse influence on the saving ratio and investment ratio indicating financial repression still exist in these economies apart from too much financial liberalization in these countries thereby implying crowding out rather than supplementing behavior of foreign saving. The results support continued financial liberalization with effective macro economic management.
Key Words: Financial Development, Economic Growth, Savings, Investment, Real Interest Rate.

Introduction

It is widely accepted idea that the financial sector matters for the process of economic development. In fact, this is the sector where a large part of an economy's savings is intermediated towards productive investment purposes. Since the rate of capital accumulation is a fundamental determinant of long-term growth, the efficiency of the financial sector (where the allocation of savings to investment projects occurs) is potentially important for the long-term performance of an economy. High saving and investment rates are important in view of their strong and positive association with the GDP growth rate as suggested by the endogenous growth theory. The empirical evidence also indicates that there exists a robust positive correlation between the investment rates and economic growth. Rapid GDP growth is needed to generate more employment, better living standards and also important for reducing poverty. Thus high saving and investment rates appear very desirable for improving national welfare. Therefore, in this paper we study the saving and investment behaviour in four regional Asian countries (Thailand, Indonesia, Malaysia and Korea).

There are different views on the relationship between savings, investment and economic growth. Economists (Gurley and Shaw (1955),

Goldsmith (1969), Patrick (1966), Thornton (1996), Demetriades and Luintel (1996), Berthlemy and Varoudakis (1998)) alleged that economic growth can be enhanced through increase in savings in the form of financial assets thereby increasing capital formation. McKinnon (1973) and Shaw (1973) developed studies about investment, saving and growth in developing countries and argue that financial liberalization in the form of appropriate rate of return on real cash balances is a vehicle of promoting economic growth. The essential tenet of this hypothesis is that a low or negative real interest rate will discourage saving and this reduce the availability of loanable fund for investment, which in turn will lower the rate of economic growth. Fry (1980) found that saving is affected positively by real deposit rate of interest and real money demand. Benecivenga and Smith (1991) specified that with the introduction of intermediaries, composition of savings shifts in favour of capital accumulation, which in turn, promotes growth. Levin (2000) gave a different view stating that the impact of financial development of growth acts mainly through total factor productivity rather than through capital accumulation or savings rates.

A large number of studies have analyzed the saving and investment behaviour. Savings and investment behaviour is important because of the close relation between savings, investment, economic growth and investment behaviour. Moreover, most of the previous studies relating to savings and investment behaviour have concentrated on specific regions like East Asia (Agrawal 2001; Fry 1995; Lahiri 1989), North Africa (Jbili et al. 1997), and Latin America (Melo and Tybout 1986). This study fills the gap by doing a systematic study on savings and investment behaviour. The central issue discussed in the present study is the high real interest rate policy will stimulate saving and investment and

promote economic growth. This view stands in sharp contrast with the neo-classical and Keynesian view which contends that lowering the interest rate will stimulate investment and economic growth. In the present study we have chosen to focus on the East Asian countries (Thailand, Indonesia, Korea and Malaysia) as they are increasingly being recognized as an important emerging markets and known as Asian Tigers. Further, some controversies still exist in the literature regarding the saving and investment behaviour, an example of which is the impact that the rising of interest rates will have on the saving rates. While some authors (Fry 1995) have found the effect to be positive, many other have found it to be insignificant (Giovannini, 1983, 1985). Saving and investment function has been used to study the above relationship. In the next section we are going to discuss the theoretical framework of the study.

Theoretical framework

McKinnon-Shaw argued that the investment performance succeeds or fails according to the (real) performance of monetary aggregates that represent money market activity. Where the traditional two-gaps viz; saving-investment gap and export-import gap approach expresses ex post investment as the sum of potential domestic savings and a fraction of the inflow of foreign capital, allowances for the liberalization approach requires the inclusion of a monetary aggregate as a determinant of the gap between potential and actual savings. Shaw on the other hand, asserted that the increase in intermediation leads to mobilization of saving and greater investment which finally leads to economic growth. McKinnon (1973) specified the determinants of investment ratio wherein author included return on physical capital and real lending rate as cost of funds as explanatory variables. Here lending rate is money market rate, therefore to introduce directly the intermediation process; he replaced

real lending rate with financial intermediation (M/Y). Financial intermediation is defined as real money stock as a proportion of GDP and it directly and positively affect the saving. In the investment function, investment ratio represents the complementarity between real balances and physical capital while real returns on real balances are given by real long-term interest rate. The investment to GDP ratio (I/Y) made a function of real per capita GDP (y), real interest rate (r-P*), financial intermediation ratio (M/Y) and foreign saving ratio (S_f/Y).

Then investment function is given as:

$$(I/Y)^* = f(y, r-P^*, M/Y, S_f/Y) \quad\text{...................}(1)$$

In the saving function we have chosen the Fry (1978, 1980, 1980a) model given as follows:

$$(S_d/Y) = f(g, y, R_d-P^*, S_f/Y, (S_d/Y)_{-1}) \quad\text{...............}(2)$$

Where S_d represents domestic saving, Y gross national product, R_d the nominal rate of interest on 12 month time deposits, P* the expected rate of inflation, and (S_f) foreign savings and g rate of growth of income, and y is the real GDP per capita. . In this saving function- real per capita income is used instead of real income as an independent variable, as this variable has been used in numerous studies of saving behavior. Theoretical justification range from static Keynesian consumption function analysis to risk avoidance as a luxury good, and rising incremental capital output ratios as the marginal efficiency of investment declines. This specification has the property of allowing both the marginal and average saving propensities to rise, first at an increasing and then at a decreasing rate, reaching an upper asymptote where the marginal and average propensities converge. Foreign Saving (S_f/Y) is included because it constitutes a substitute for domestic saving. Whether one chooses the relative income, permanent income, stock adjustment or life cycle

theories of saving, the reduced form saving function derived for estimation invariably include the rate of growth in income (g) and assuming stock dis-equilibrium, which make us to include the lagged saving ratio $(S_d/Y)_{-1}$ i.e. lagged dependent variable.

In the present study we have chosen to focus on the four regional economies of Asia, namely Indonesia, Korea, Thailand and Malaysia. All these countries are known as Asian Tigers. The period of the study is from 1970 to 2006. The required data for the analysis was collected from the published sources namely IFS, Penn World tables and Asian Economic Outlook. As the investment data is not available we have taken gross fixed capital formation in place of gross investment. In the next section, we are going to discuss the historical perspectives of financial development and economic growth in these countries.

Growth, Savings and Investment in East Asian countries

These economies were able to present relatively high growth rate 8-12% GDP during 1973-1995, and also display special features in the development of financial sector. The financial crisis of 1997-98 was an adverse shock of un-precedent magnitude for these countries as they were directly affected by the crisis. While Indonesia, Korea, Malaysia, and Thailand share the common denominator of the Asian crisis, they are nevertheless a heterogeneous group of countries in terms of income and economic structures. The GDP growth rate plunged sharply in 1998; real per capita GDP fell by 13% in Indonesia, 11% in Thailand and 7% in Korea and Malaysia. The initial sharp contraction of GDP in 1998 was largely caused by the collapse in investment. These countries suffered dramatic declines in growth in 1998 by greater than 10 % point.

Although rate of economic growth has partly rebounded since 1999, investment ratios have not recovered to pre-crisis level. This is partly the result of excessive investment prior to the crisis. The most important consequence of depressed investment is the widening of saving investment imbalances resulted in rising current account imbalances. The sharp declines in investment rates, while saving rates remained relatively stable resulted in dramatic improvement in current account balances after the financial crisis. Subsequent part of the changes in investment and current account balance over the period 1997 to 2004 are explained by the adverse shock to private investment.

In 1999-2000 economies recovered and the GDP growth rates were positive. The growth rate in 1999 was 9.5% in South Korea, 6.1% in Malaysia, 4.4% in Thailand, and 0.8% in Indonesia. The rapid recoveries in the year following the crisis did not lead to the return to previous pattern of growth. In fact the rebound of growth for 1999-2000 slowed down in subsequent period. However the subsequent downturn over the period 2001-2002 may have come from the global recession. Since 2003, growth rate rebounded. The annualized per capita growth over the period of 2003-2005 were 6% in Malaysia, 5.5% in Thailand, 5.3% in Indonesia and 3.8% in Korea. Despite the rebound of growth for 2003-05 the average growth rates are lower than the high growth rates of between 7-8% achieved in the decade before the crisis.

A.

Figure 1. Growth Rate of GDP in East Asia, 1990-2005
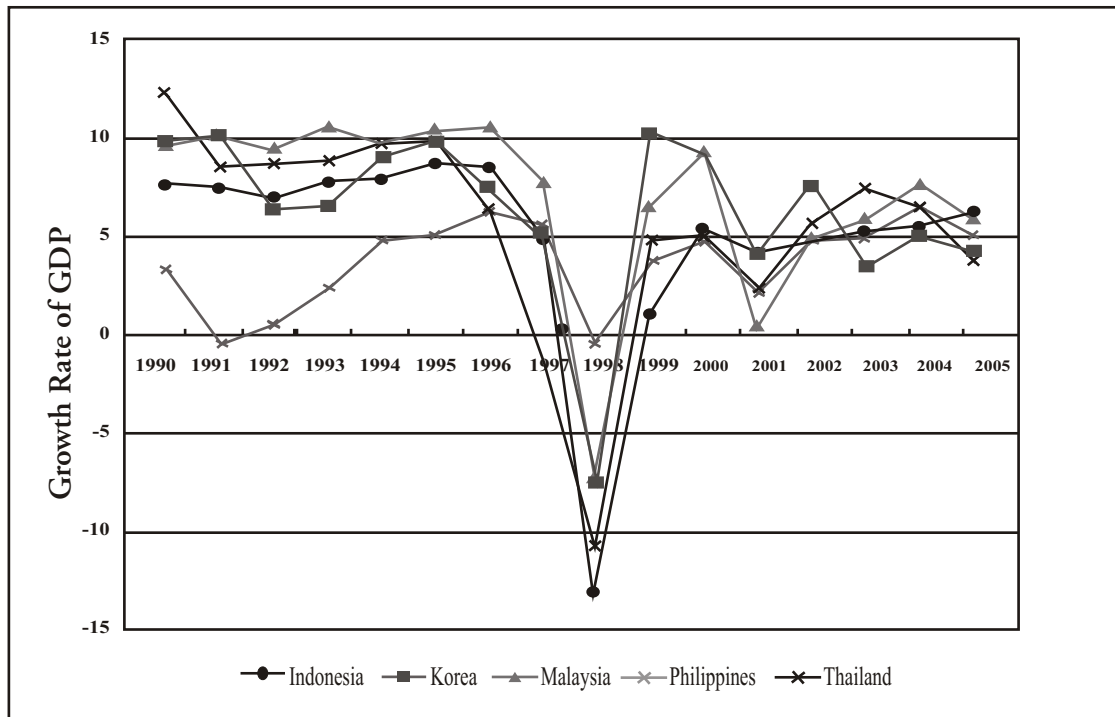
Savings and Investment

Figure 2 depicts the investment ratios for the East Asian economies from 1990 to 2004. The ratios are for total capital formation (private plus public) relative to GDP. Four of the Asian-crisis countries Indonesia, South Korea, Malaysia, and Thailand showed dramatic declines in 1998, by well over ten percentage points. In these countries in which investment declined sharply, no substantial recoveries have occurred until 2004. The investment ratios in 2004 remained at 21.3 percent in Indonesia, 30.2 percent in South Korea, 22.5 percent in Malaysia, and 27.1 percent in Thailand. While both public and private investment declined in East Asia, the fall in private investment has been more dramatic. While the dramatic falls in the investment ratios in Indonesia, South Korea, Malaysia, and Thailand were specifically related to the Asian financial crisis, a situation occurred that permanently depressed private investment demand in East Asian economies. Investment demand in East Asia moderated in 2005 after a slight recovery in 2004. It is unlikely that East Asian economies will recover to pre-crisis levels. As GDP growth decelerated, private investment revealed a declining trend in these four countries. (IMF, 2005)

Domestic savings and investment is significantly higher in these countries, saving rates averaged about 35% of GDP in 1993. These countries were the only group of economies in which saving exceed investment, making them net exporters of capital. Saving rates till 1965 in these countries are lower than Latin American countries but by 1990 they succeeded Latin American saving rates by almost 20% points and investment rate nearly double the average for Latin American countries.

Figure 2 Investment Ratios as a % of GDP
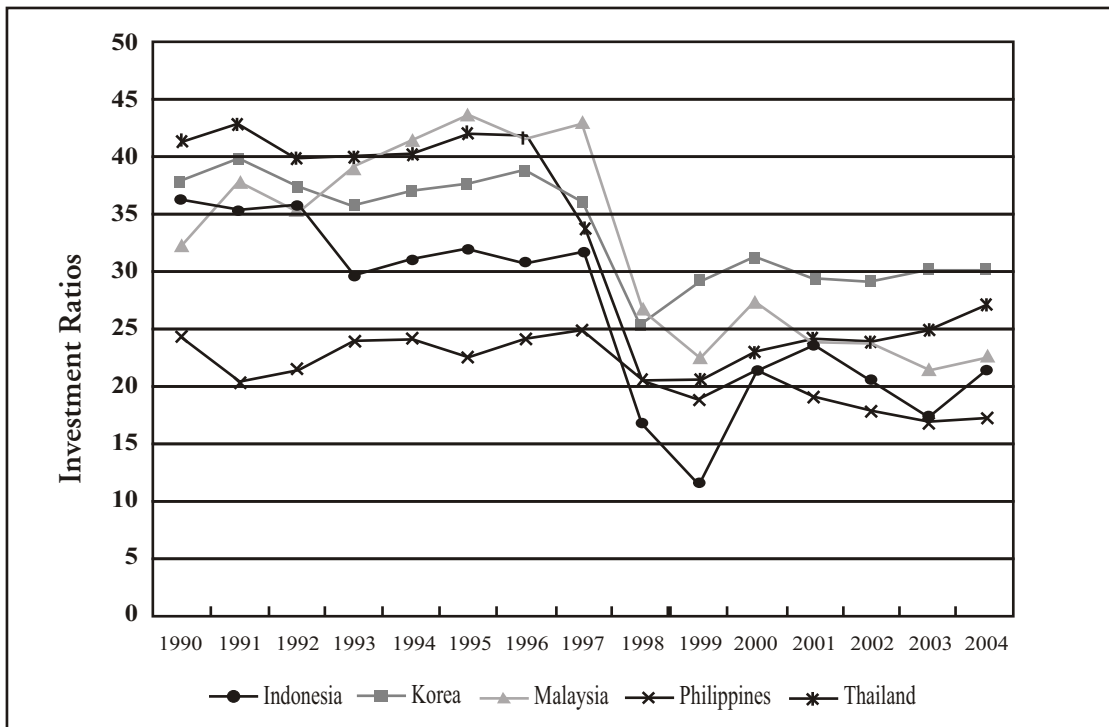
East Asian countries high saving rates have often been attributed to non-economic factors. These countries had pro saving policies that differentiated them from other developing countries. One was sound macroeconomic management that prevented inflation and hence negative or variables real rates of return on deposits. The other was relatively strong prudential regulation and supervision which enhanced deposit safety.

Figure 3- Savings Rates in select East Asian countries
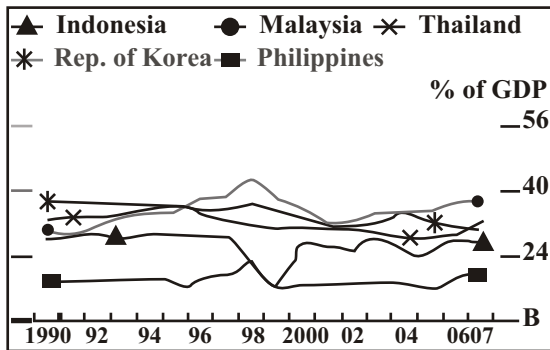
If we go through the aggregate savings data, we find interesting observations. Although, the overall trend of domestic savings continues to follow an upward trend, private savings appear to become stagnant in Indonesia, Malaysia and Thailand. The cause of private savings stagnation is a significant decline in household savings from the late 1980s. The only possible explanation is that during this period these economies experienced economic boom, which had depressing effect on household savings. In Indonesia, Malaysia and Thailand in the face of declining household savings, corporate savings contributed significantly to prevent private saving from declining. In Thailand and Malaysia corporate saving accounted for more than half of private savings. For Korea private savings after reaching a high level saving rate around 30 to 40% of GDP, private saving started showing the sign of leveling off. If we see the graph of savings

Figure 4-Saving and Investment rate of East Asian Countries
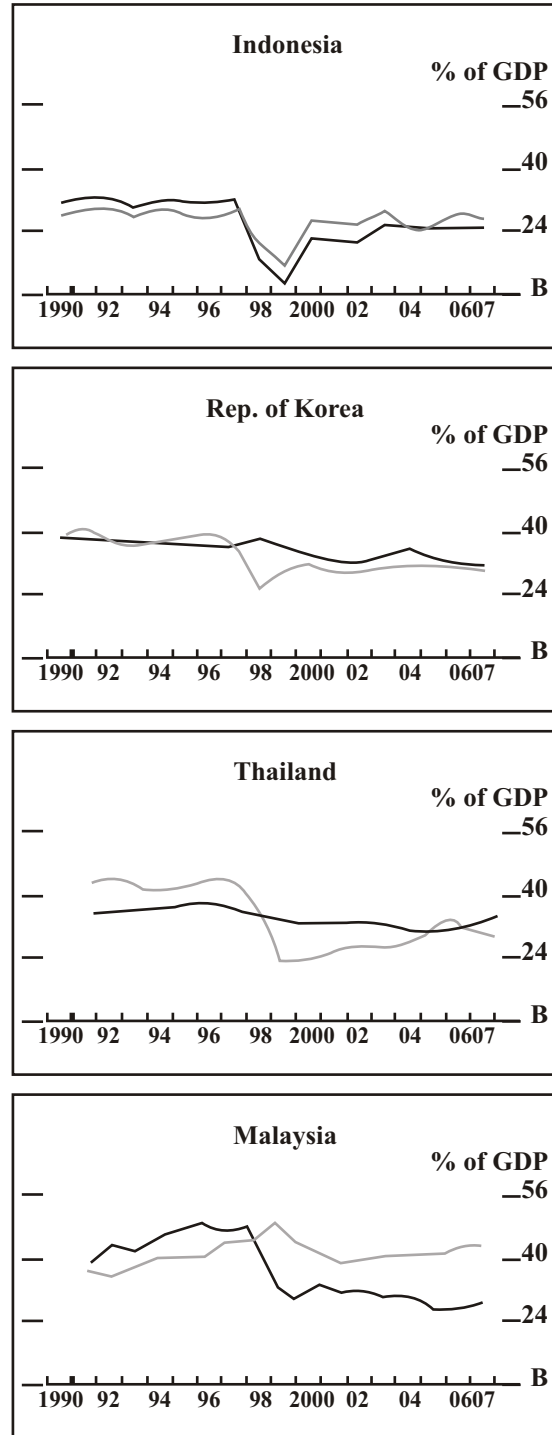
Saving-Investment Gap

Country	1990	1995	2000	2003	2007
Thailand	-7.1	-4.8	10.4	7.9	-2.2
Malaysia	2	-3.9	20	21.1	23.5
Korea	-0.5	-1.1	2.9	3.4	3.2
Indonesia	1.5	-1.3	9.5	5.5	4.1

rates, we find similar behaviour during the pre and post crisis period.

Mismatch in the savings and investment ratio created the global imbalances. On the balance sheet these imbalances were recorded as high foreign reserve level. Savings and investment imbalances mirror the overall trend in the current account. A systematic excess of savings over investment has begun to emerge since around 1990. If we focus on trends since the mid-1990s, both declined until about 2000 but have jumped sharply since then. Furthermore, since 2000 the saving investment gap also widened, and this has fueled the growth of the current account surplus. In Korea the savings investment imbalances emerged only after the Asian financial crisis. Before the crisis, Korea investment was generally larger than its savings resulting in current account deficit. Indeed in the 20 years before the crisis, the current account has surplus in only five years from 1986 to 89 and in 1993. In 2008, Korea current account once again turned negative. Korea and Thailand Investment rates fell sharply while saving rates remained stable. In post Asian crisis investment decline shifted the current account balance from deficit to surplus in these economies. Malaysia Savings investment gap was still favorable at the time of the crisis. Nevertheless, there was a significant advantage Malaysia enjoyed over the other crisis affected economies. Malaysia did not face a saving investment deficit and overall imbalances with international payment commitments. The bulk of short term foreign capital came through the banking system rather than borrowing. Hence despite growing current account deficits, Malaysia was not under immediate pressure to seek IMF resettlement.

Current Account Balances

In an open economy with capital mobility, a saving-investment imbalance leads to the current account imbalance as the gap between domestic saving and investment is filled by net capital inflows. The Asian crisis-hit economies reversed the current account position from a deficit in the pre-crisis period to a surplus after a crisis. In 1997, the current account deficits were 5.9 percent of GDP for Malaysia, 2.1 for Thailand, and 1.6 percent for Indonesia and South Korea. All these countries have had substantial current account surpluses in the post-crisis period. In 1998, the surpluses were greater than 11 percent of GDP in Korea, Malaysia and Thailand, where investment ratios declined significantly. However, despite a dramatic decline in investment ratio, Indonesia had a smaller current account surplus, amounting to 3.8 percent of GDP. This reflects a substantial decline in private saving rates in Indonesia. These crisis-hit Asian economies continue to accumulate current account surpluses, but in 2005, Thailand is expected to exhibit current account deficits of approximately 2.5 percent of GDP. In these countries the current accounts continued to improve until reaching a level permanently above that of the pre-crisis period. This must be attributed to the Asian financial crisis, which resulted in currency collapses and investment depression. Saving rates in these countries were roughly similar during pre and post crisis period

Figure 5- Current Account Imbalances
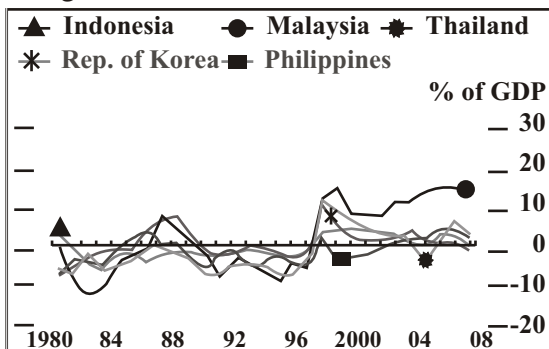
In the next section empirical methodology and results of the study are discussed.

Empirical Methodology

We used ordinary least square technique for the estimation of various relationships linear or log linear. First we performed the unit root test with the help of Augmented Dicky Fuller (ADF) and Phillips-Perron (PP) tests on all the series to find out the stationarity of time series data. The entire model has been estimated in the format provided in the literature. We have discussed two types of modeling; the naïve static form and the dynamic form. The dynamic form has been achieved either by adding the time series component into the model or by deriving the equation from partial adjustment framework. In the long run, multiple regression technique is used and the models are estimated through OLS. If the regression suffers from autocorrelation problem, ARI (Cochrane-Orcutt method) process is used in the case of naïve static models and if the equations contain lagged dependent variable, the model has to be estimated with the help of maximum likelihood procedure.

For panel data- unit root test, we used the Fisher ADF and Fisher PP tests. The fixed effect model and random effect model were used for the estimation of panel data. To check whether the random effect model or fixed effect model is used in the analysis, Hausman test is used. The test compares the coefficient estimate from random effect model to fixed effect model. In a large sample usually random effect and fixed effect should be similar. As all these economies suffer from banking crisis and currency crisis, two dummy variables (BC and CC) were used to study the impact of these crisis. These economies are also the example for successful liberalization, dummy (LIB) is used to see the impact of liberalization in these economies.

Results

Before estimating the regression equation, the time series properties of the various variables involved in the regressions were examined with the help of unit root tests using Augmented Dicky fuller (ADF) and Phillips Perron test (PP). The results of the unit root shows that order of integration of some variables are of the order I(0) and some are of I(1). The results of the unit root tests are given in the appendix. In the first model we tested the investment function as specified in equation 1. The results of the estimation are given in table-1

The results for East Asian countries (table-1) for investment function reveal that there are proper sign and significance of real GDP per capita (y) and real interest rate (R_d- P^e) except for Malaysia where real interest rate (R_d- P^e) has adverse sign and is insignificant. Foreign saving ratio and financial intermediation has adverse sign for all the countries except Korea where financial intermediation has expected sign. The adverse sign of financial intermediation shows the over expansion of the banking system. The adverse sign of foreign saving indicates that inflow of foreign capital resulted in inflation and rising interest rate consequently declining investment expenditure. The coefficients of dummies BC, CC and LIB (banking crisis, currency crisis and Liberalization) are significant for Thailand

Table-1 Regression results of East Asian Countries Dependent Variable: I/Y
Model: $(I/Y) = f(y, R_d - P^e, S_f/Y, M/Y)$

Independent Variable	Indonesia	Malaysia	Korea	Thailand
Constant	0.194330*	0.232696*	0.624234**	0.204258*
	(2.467762)	(4.027402)	(1.831094)	(9.696516)
Y	3.44E-06*	0.000734*	0.002981**	0.000191*
	(2.442529)	(2.356251)	(2.031573)	(3.511312)
$R_d - P^e$	0.001267***	-0.000224	0.002395**	0.005785*
	(1.730743)	(-0.085641)	(2.051578)	(4.313877)
S_f/Y	-0.000958	-0.005561*	-0.002384*	-0.006187*
	(-0.852697)	(-10.44092)	(-2.683169)	(-4.834437)
M/Y	-0.277847**	-0.043025	0.155750	-0.132224**
	(-1.970511)	(-1.553470)	(1.017921)	(-2.015736)
DumBC				0.023553**
				(2.016134)
Dum CC	-0.013022			-0.020865***
	(-1.284741)			(-1.759634)
Dum LIB	-0.043412*			0.088771*
	(-2.204810)			(5.117780)
$(I/Y)_{-1}$		0.229277*		
		(2.335967)		
Trend			-0.023997**	
			(-1.837725)	
R^2	0.938279	0.964907	0.891794	0.945449
$\check{R}^2$	0.922277	0.957108	0.868607	0.931307
D-Watson	2.011813	1.679092	1.808166	1.706586
F-Statistic	58.63603	123.7304	38.46111	66.85058
ρ	0.84	0.78	0.92	

Notes: *, ** and *** indicate 1%, 5% and 10% level of significance respectively

showing the positive impact of banking crisis and liberalization and adverse impact of currency crisis. The coefficient of dummy LIB (liberalization) is significant for Indonesia showing the adverse impact of liberalization. When the above equation is tested for panel data the result are given below:

$$(I/Y) = 0.0055495*C + 0.000678*y + 0.000391(R_d - p^e) - 0.002780 S_f/Y + 0.023070*(M/Y)$$

(16.28205) (11.64293) (1.423251) (-13.82465) (5.449550)

$$-0.000719*(y)_{-1} + 0.824407*(I/Y)_{-1} - 0.001526*(R_d - p^e)_{-1} + 0.013157*Dum LIB ....(3)$$

(-11.92204) (21.94897) (-5.622499) (5.915158)

$R^2 = 0.935208$ $\check{R}^2 = 0.933765$ D-Watson = 1.561430   F-Statistics = 648.3261

D-Watson=1.561430 F-Statistics =648.3261

In the case of South East Asian panel, the coefficient of real GDP per capita, real interest rate and financial intermediation variables have expected signs as per the theory and are significant. The coefficient of foreign saving has adverse and significant sign showing that the over flow of foreign capital retarded investment growth. Expectation variable of real GDP per capita and real deposit rate of interest have important influence on investment ratio.

Overall we say that complementarity exists between investment ratio and real interest rate for countries like Indonesia, Korea and Thailand. Foreign saving ratio has adverse sign for all the countries and panel data indicating that inflow of foreign capital resulted in inflation and rising interest rate consequently declining investment expenditure and crowding out of domestic savings. The results show that financial intermediation ratio has positively affected the growth of investment for the countries Korea only while for the other countries it showed the over expansion of the financial intermediation in the economies. The coefficient of financial intermediation has proper sign in panel data showing the increase in financial intermediation has lead to growth.

In the next model we estimate the saving function as given in the equation 4. The results of the estimation for Latin American countries are given below:

The results for East Asian Countries for the saving function are given below

The OLS estimate for East Asian countries (table 2) show that the coefficients of the variable growth rate of GDP (g) have adverse sign for all other countries except Indonesia. However the variable is found to be insignificant for all the countries. The coefficient of the variable real GDP per capita (y) has correct sign and is significant at 1% level of significance for all the countries. The coefficients of the variable nominal interest rate (R_d-P*) have adverse sign for all the countries indicating financial repression in these economies. However the variable is found to be significant for Indonesia and Malaysia. The coefficient of (S_f/Y) has adverse sign & is significant at 1% level of significance for all the countries indicating crowding out savings in these economies. The coefficient of lagged dependent variable of domestic saving ratio has correct sign and is significant for all the countries except Korea. The coefficient of dummy LIB (liberalization) has correct sign and is significant at 1% level of significance for Indonesian and Thailand showing the positive impact of liberalization on these economies.

Overall the results reveal that the real rate of interest has exerted an adverse influence on the ratio of domestic saving to GDP and this is inconsistent with the McKinnon's hypothesis. The results of saving function estimation for panel data are given below.

$$(S_d/Y) = 3.691250*C -0.004503g +0.105759 *y -0.138063*(R_d - P*)-0.209072*(S_f/Y)$$
$$(9.498832) \quad (-0.001803) \quad (14.74761) \quad (-5.975792) \quad (-11.03293)$$

$$+0.873369* (S_d/Y)_{-1} -0.785399* DumCC+0.766572* DumLIB \ldots\ldots\ldots\ldots\ldots\ldots(4)$$
$$(61.38242) \quad (-2.014597) \quad (3.324111)$$

$$R^2 =0.930973 \quad \check{R}^2 =0.929524 \quad D\text{-Watson}=1.803015 \quad F\text{-Statistics} =642.4779$$

**Table-2 Regression results for Fry's model for
East Asian Countries Dependent Variable: S_d/Y**

Model: $(S_d/Y) = f (g, y, R_d\text{-}P^*, \ S_f/Y, (S_d/Y)_{-1})$

Independent variable	Indonesia	Malaysia	Republic of Korea	Thailand
Constant	-149.9825*	-5.432600	7.707192	8.091666
	(-2.786154)	(-1.113735)	(0.913749)	(0.832724)
G	2.303278	-5.082163	-8.897861	-0.828666
	(0.453418)	(-0.576435)	(-1.291754)	(-0.120884)
Y	16.40044*	5.832676*	126.9525*	60.40314*
	(2.952223)	(4.495113)	(4.228975)	(2.986515)
$R_d\text{-}P^*$	-0.150482*	-0.466700***	-0.024213	-0.222306
	(-4.000418)	(-1.839267)	(-0.159157)	(-1.384056)
S_f/Y	-0.339635*	-0.567768*	-0.579533*	-0.841782*
	(-4.777187)	(-10.08460)	(-5.891133)	(-9.249194)
$(S_d/Y)_{-1}$	0.440406*	0.349400*	0.078753	0.207193*
	(3.961038)	(3.427267)	(0.580731)	(2.946395)
Dum LIB	2.961571*			3.299621*
	(3.531782)			(2.542527)
$(y)_{-1}$			-122.3024*	-58.61031*
			(-4.118080)	(-2.938990)
$(R_d\text{-}P^*)_{-1}$				0.273188**
				(1.929987)
Trend	-0.832976*			
	(-3.613089)			
R^2	0.960385	0.923505	0.914298	0.978766
R^2	0.948328	0.908206	0.885731	0.970676
D-Watson	2.126575	2.067556	1.778690	1.617673
F-Statistic	79.65512	60.36371	32.00516	120.9956
P- value			0.57	

Notes: *, ** and *** indicate 1%, 5% and 10% level of significance respectively

The results of panel data for East Asian countries show that the coefficients of real GDP per capita has correct sign where as growth rate of GDP (g), real rate of interest ($R_d\text{-}P^*$) and foreign saving to GDP (S_f/Y) has adverse sign. However the coefficients are significant for all the variables except the growth rate of GDP. The adverse sign of real interest rate has exerted an adverse influence of domestic saving to GDP ratio and this is inconsistent with the McKinnon's hypothesis. However it represents financial repression in these economies and the adverse sign of foreign saving ratio indicates the crowding out of domestic saving. The adverse sign of real interest rate indicates the presence of financial repression in these economies.

The coefficients of dummies CC and LIB

(currency crisis and liberalization) are significant showing the adverse impact of currency crisis and positive impact of liberalization on these economies. The lagged coefficient of real GDP per capita is significant showing the expectation impact on the dependent variable.

Overall the results suggest that the adverse sign of growth rate of GDP is because its impact has been captured by real GDP per capita. The result specifies that real GDP per capita and deposit rate of interest has positive influence where as growth rate of output and foreign saving has adverse influence on the saving ratio.

Conclusion

This study evaluates the relationship between saving, investment and economic growth in selected East Asian (Malaysia, Indonesia, Korea and Thailand). In the saving function the sensitivity of the saving propensity to real deposit rate of interest and real output have been studied. The result of the saving function reveal that the real income has positive influence where as real rate of interest has exerted an adverse influence on the ratio of domestic saving to GDP. In panel data results of saving function, the estimated results indicate that real GDP per capita and real rate of interest have positive influence on the domestic saving ratio whereas foreign saving ratio and growth rate of output has an adverse influence on saving as foreign saving crowds out domestic saving and increasing growth rate, increased inflation and consumerism.

In the investment function, complementarity exists between investment ratio and real interest rate for the countries: Indonesia, Korea and Thailand; and as well as in panel data. Foreign saving ratio has adverse sign in all the countries and panel data indicating that inflows of foreign capital resulted in inflation and rising nominal interest rate declining real return on investment consequently declining investment expenditure and crowding out of domestic savings. Financial intermediation ratio has positively affected the growth of investment for the countries Korea only, while for the other countries it showed the over expansion of the financial intermediation. In panel data analysis, we found that increase in financial intermediation has lead to growth. Currency crisis and financial liberalization have also played a significant role in the determination of growth.

Appendix
Unit Root test for Indonesia

Variable	Level		First Difference		Order of Integration
	ADF	PP	ADF	PP	
I/Y	-3.087472	-2.664554	-3.158044	-4.179944	I(1)
R_d-P*	-4.199449	-4.734022	-7.829690	-9.504173	I(0)
S_d/Y	-2.341465	-2.721489	-4.716544	-6.766577	I(1)
S_f/Y	-3.380622	-3.422962	-4.962196	-7.194389	I(1)
Y	-0.335741	-0.166965	-4.219338	-4.609164	I(1)
G	-4.023919	-4.127309	-6.280603	-8.341565	I(0)
M/Y	-0.157187	-0.138308	-3.376550	-3.344145	I(1)

Unit Root test for Korea

Variable	Level		First Difference		Order of Integration
	ADF	PP	ADF	PP	
I/Y	-2.895996	-1.775530	-5.948785	-3.984759	I(1)
R_d-P*	-4.402393	-3.828058	-5.752164	-6.854551	I(0)
S_d/Y	-2.607743	-2.478920	-4.716623	-4.164937	I(1)
S_f/Y	-2.939707	-2.414669	-6.254993	-5.696422	I(1)
Y	-1.963693	-2.705001	-3.980699	-5.143347	I(1)
G	-4.018171	-5.157779	-6.549428	-11.28357	I(0)
M/Y	-0.788880	-0.904230	-3.030375	-4.779470	I(1)

McKinnon critical value for rejection of unit root: 1%-3.6353, 5%-2.9499, 10%-2.6133

Unit Root test for Malaysia

Variable	Level		First Difference		Order of Integration
	ADF	PP	ADF	PP	
I/Y	-2.237627	-2.063515	-3.677939	-4.152516	I(1)
R_d-P*	-3.639005	-3.415045	-6.635778	-6.576750	I(0)
S_d/Y	-1.560086	-1.327590	-6.159004	-6.641889	I(1)
S_f/Y	-1.887826	-1.814184	-4.425907	-5.492569	I(1)
Y	-0.508701	-0.671240	-4.539611	-5.161256	I(1)
G	-4.310295	-4.780198	-7.531243	-9.914105	I(0)
M/Y	-2.146561	-1.914054	-4.268754	-3.744094	I(1)

McKinnon critical value for rejection of unit root: 1%-3.6353, 5%-2.9499, 10%-2.6133

Unit Root test for Thailand

Variable	Level		First Difference		Order of Integration
	ADF	PP	ADF	PP	
I/Y	-2.491700	-1.795386	-3.204784	-3.259386	I(1)
R_d-P*	-3.217616	-3.140445	-4.088457	-6.218713	I(0)
S_d/Y	-1.276400	-1.328769	-5.970243	-5.631408	I(1)
S_f/Y	-1.975892	-1.754279	-6.311909	-5.132817	I(1)
Y	-0.375955	-0.803828	-4.375159	-3.228925	I(1)
G	-3.162410	-3.309815	-3.364368	-6.806052	I(0)
M/Y	-0.320809	-0.069894	-4.154701	-3.269809	I(1)

McKinnon critical value for rejection of unit root: 1%-3.6353, 5%-2.9499, 10%-2.6133

Unit Root test for South East Asian Countries (pooled)
(Using Fisher ADF and Fisher PP tests)

Variable	Level		First Difference		Order of Integration
	ADF	PP	ADF	PP	
I/Y	16.9902*	11.040*	47.9110*	45.1613*	I(0)
R_d-P*	20.3028*	54.08738	83.3197*	40.99378	I(0)
S_d/Y	3.55339	3.24391	79.7197*	80.5325*	I(1)
S_f/Y	9.853198	9.24817*	77.88336*	93.7553*	I(0)
Y	0.00000	2.4512	0.00149	22.2146*	I(0)
G	0.18267	0.26853	60.4535*	59.46188	I(1)
M/Y	26.66828	23.80268	86.6657*	49.9503*	I(0)

Notes: *, ** and *** indicate 1%, 5% and 10% level of significance respectively

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Impact of SHGs on Financial Inclusion - A Case Study in the District of Bankura

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ABSTRACT

The financial inclusion (exclusion) refers to a situation where people, in general, have (have no) basic formal financial habits. This study examines the impact of Self-Help Groups (SHGs) on financial inclusion (exclusion) of rural people in the district of Bankura. In this study the frequency of informal borrowing has been taken as a measure of financial exclusion whereas the financial inclusion is measured in terms of the access to formal credit. We have used a multiple regression model for estimating the financial exclusion and a binary logit model for estimating the access to formal credit. Our systematic analysis reveals that membership of SHG and duration of SHG membership significantly reduces the financial exclusion and accelerates the financial inclusion.

Key Words: Financial Inclusion, Self-Help Group

Introduction

A large segment of population, in India, lives on the outskirt of the benefits of the financial institutions. We find that 41% of our adult population has no bank account and only 14% of adult population has access to formal credit (RBI, Guwahati, 2008). In our country several reforms have been taken to inculcate the formal financial habit of the excluded people. Very recently the idea of financial inclusion has received a deep attention of financial regulators, the governments and the banking sectors in our country, like many other countries, as a policy of the development of financial market.

Financial inclusion is aimed at providing banking/ financial services to all people in a fair, transparent and equitable manner at an affordable cost, (RBI, Notice, 2007). In other words, financial inclusion emphasizes on bringing of the disadvantaged section of people under the ambit of formal financial institutions. Disadvantaged people are generally poor, especially women, marginal, small and landless farmer, petty traders, casual labour in unorganized sector and unemployed persons in our society who depend on informal sources for financial services. Financial inclusion refers to a situation where people, in general, have some

basic formal financial habits. Example includes holding savings bank account, credit account, insurance policy, credit card, debit card etc. On the contrary, we can say that persons who have no such formal financial habits are financially excluded. Financially included, an individual would have access to the basic formal financial services like formal savings, credit, payments, insurance, remittance etc. These, in brief, are the components of microfinance. On the other hand, financially excluded persons remain confined to the informal financial system and are deprived of microfinance facilities. Conroy (2008) rightly argued that financial inclusion is the policy goal and microfinance is its policy instrument of economic development. Besides, with good banking habits of people financial institutions can expand their activities by raising deposit fund, advancing more credit, making remittance at affordable cost etc.

Traditionally, informal moneylenders who charge high interest rate, dominate the rural credit markets. In past we saw that the fact was attributed to the monopoly power of the informal moneylenders. In order to curb such monopoly power of the informal moneylenders, during the 1970's, our governments took the policy of expansion of bank branches and cooperatives in the rural area. In the mid 1980's it was revealed that in spite of the existence of formal financial institutions, majority of the rural poor borrowers depend on informal moneylenders who charge exorbitantly high interest rate and perhaps still now it is true. This means that the expansion of bank branches in the rural areas has failed to curb the hegemony of the village moneylenders in the rural credit market. Problem of asymmetric information between lender and borrowers may be a plausible explanation of the situation. High rate of interest in the rural informal credit market

prevails due to three reasons, namely, (i) lack of information on the part of moneylenders about borrowers' ability and willingness to repay the loan, (ii) lack of information on the part of borrowers about the rules and conditions of the financial institutions and finally, the lack of collateral assets of the borrowers. According to Stiglitz (1990) the high interest rate arises mainly for the high cost of lender associated with screening the suitable borrower, providing incentives to use the loan in a project that makes repayment most likely and with enforcing repayment. These costs may be higher when borrowers fail to hypothecate seizable assets. Therefore, the lender's incomplete information about the poor borrowers and lack of eligible collateral of the poor borrowers are the major causes of the high rate of interest charged by the village moneylenders and this is a fact that results in financial exclusion. Against this backdrop, the group lending approach has been accepted world wide as a suitable mechanism for solving the problem of asymmetric information and collateral in the rural credit market. Now in India, several governmental and non-governmental organizations provide formal banking service following group-lending approach. The Indian group lending approach is known as Self-Help Group (SHG). The government of India has recognized the SHG approach as a well-known instrument of providing financial product to the poor unbanked population.

In order to implement the financial inclusion policy, in 2005, Reserve Bank of India has advised the commercial banks to facilitate 'no frills' savings bank account to all with negligible account balance. Since 2006, Reserve Bank of India has also been encouraging the SHG-Bank linkage in order to extend the financial inclusion policy. SHG is an association of 5-20 individuals,

with homogeneous socio-economic demographic traits, who regularly save equal amount of money recurrently and deposit their pooled savings to bank. After a continuous savings for six months by the group the bank advances loan to the group and then the group extends the loan to its members in accordance with its own rules and regulations. It ensures the freedom of the SHG members from the clutches of the moneylenders. In this study we would like to examine whether or not the SHGs help the financial inclusion of disadvantaged group of people.

This study is designed as follows. In section 2 we have outlined the measure of financial exclusion /inclusion. Section 3 highlights the contributions of SHGs in financial inclusion and objectives of our study. In section 4 determinants of financial exclusion /inclusion are explained and thereby we have formulated our hypotheses. Section 5 specifies the econometric model, data and methodology of estimation. The impact of SHG and other factors on the financial exclusion and inclusion are analyzed in section 6. Finally, section 7 recommends some policy prescriptions and concludes the paper.

Measure of Financial Inclusion and Exclusion

In the recent times the importance of financial inclusion is widely accepted in developed and developing countries. But there is no widely accepted measure of financial inclusion (exclusion) in literature, at aggregate level as well as at individual level. At aggregate level, the common measure of financial inclusion refers to the percentage of adult population having savings bank account or number of bank branches per thousand population. Financial inclusion is usually measured, at the individual level, by the fact whether or not the individual has savings

bank account, or number of bank accounts held by the individual. The measure of financial inclusion based on the holding of savings bank account is not an effective measure of financial inclusion. This type of inclusion, confines the individuals only to the access to deposit facilities, withdrawal facilities and remittance service. However the financial inclusion policy is mainly adopted to bring the disadvantaged section of population under the umbrella of financial institution for improving their way of life. It is a fact that the disadvantaged section of population is resource poor. That is why they could not be able to enjoy the facilities of holding savings account. Rather, they are compelled to go for the informal borrowing at an exorbitant cost of borrowing for smoothing their daily life expenditure. Actually, they need to have access to formal credit at an affordable cost of borrowing, which helps them to generate resources. If it is possible it will ensure their access to the facilities of savings bank account automatically. Besides, financial inclusion is a multi-dimensional concept composed of access to savings bank account, access to credit account, access to remittance facility and so on. Holding a savings bank account is not sufficient to ensure the access to credit but the former is necessary for the later. Since the access to or the availability of formal credit should be considered as an indicator of financial inclusion, therefore the individuals who get bank loan for their desired purpose are said to be financially included. What this implies, is simply the fact that the access to formal credit is the realistic indicator of financial inclusion at the individual level. But it is not easy for the people in the disadvantaged group to have access to formal credit. Our field survey highlights that 84% of our sample persons have borrowed from village moneylenders frequently in the last year and

those who have access to formal credit also even borrow from informal sources of credit. Perhaps this picture is common in most of the rural area of our country. It focuses the face of financial exclusion. Therefore, before studying the financial inclusion we should study the nature of the financial exclusion of our sample members.

In view of the above, we have considered the frequency of informal borrowing in the last year (2007-2008) as a measure of financial exclusion under study. We can simply measure it by whole number. It is more likely that the frequency of informal borrowing would be lower for an effective member of SHG as it inculcates the financial habits of its members. On the other hand we define the financial inclusion in such a manner that if a person obtains formal credit he/she is considered as financially included, otherwise not. Access to formal credit by a person/household is dichotomous in nature indicating whether a person/household receives formal credit or not. We shall attach value 1 if the person has access to formal credit and we attach value zero if he/she has not. Now-a-days, the individuals can participate in SHGs that may alleviate the problem of financial exclusion and ensure the access to formal credit, broadly, financial inclusion. The evidences regarding the performances of SHGs in the financial inclusion are reviewed in the following section.

Contributions of SHGs in Financial Inclusion and Objectives of the Study

The concept of SHG was coined in 1992 through the pilot project conducted by NABARD, in order to integrate the informal lending mechanism with the formal financial system. Since then, SHG approach has been functioning as a means of providing microfinance to disadvantaged section of our country. There are several evidences regarding the contribution of SHGs in financial inclusion at different parts of India and abroad. Many studies revealed that SHGs inculcate the savings habits of unbanked section of the population in the country (Kaladhar, 1997, Kumaran, 2002, Khandkar, 2003, NABARD, 2005, Varman P, 2005). On the basis of NABARD's observation, Dasgupta (2001) indicated that NGOs and other promoting agencies play important role for satisfactory growth of SHGs in India. It has tremendous negative effect on informal moneylenders. Only seven percent of the SHG members in comparison to fifty four percent earlier continue to take loans from the moneylenders. That definitely implies that the SHGs accelerate financial inclusion. However, the study of Satish (2001) revealed that most of the poorest in the villages under study were excluded from SHG program and even they were not aware of the program operating in their villages, thereby, SHG program has failed to implement financial inclusion. Kumaran (2002) observed that wherever SHGs are already operating, "demonstration effect" has helped the poorer to form SHGs thereby including the poorer in the mainstream financial system. According to Meher (2007) the SHGs guarantee cent percent accessibility to formal credit at an affordable cost of borrowing. In the study by Onogwu et al. (2007) it has been showed that group based microfinance increases the access to formal agricultural credit and that farmer's age, annual income and asset holding have positive significant effect on credit received whereas education level, initial capital and family size have negative effect on the formal credit received. SHGs also help the migrant people developing their formal remittance habit through cooperatives at a minimum cost (Ghate, 2005).

However, none of these studies mentions the measurement of the access to formal credit, broadly, financial inclusion. Most of the studies fail to capture the change of financial habits due to change in its determinants at all. Therefore, it is a researchable issue that whether the SHG membership status of an individual changes the financial habits and if yes how much. With this end in view, we have put our concentration on the following particular objectives. In this paper we have planned to study two specific issues viz. the frequency of informal borrowing as a measure of financial exclusion and the accessibility to formal credit by rural poor as a measure of financial inclusion. We investigate and examine the following issues.

- The impact of several factors on the frequency of informal borrowing or financial exclusion.

- The estimation of the relationship between individual's membership in SHG along with some other socio-economic traits and the financial exclusion.

- The impact of the membership of SHG and other selected factors on the accessibility to formal credit or the financial inclusion.

- The estimation of the relationship between individual's membership in SHG along with some other socio-economic traits and the financial inclusion.

- The marginal impact of the membership of SHG and other selected factors on the probability of financial inclusion.

Determinants of the Financial Exclusion and Inclusion

Review of relevant studies and our field observation help us select some socio-economic traits as determinants of the financial exclusion and inclusion. Access to formal credit for population in disadvantaged group is very much limited and difficult. Recently it is expected that SHGs ease the problem. Let us now discuss how it can include the disadvantaged people in the zone of financial inclusion.

SHG Membership (SHGMEM): Our core attention is to evaluate the impact of SHG membership status of individual on the frequency of informal borrowing and on the accessibility to formal credit. Participating in SHG for at least six months, rural poor can easily get to access formal credit and then the member need not to take loan from informal lenders. Since the participation in SHG build the confidence for access to the formal institutions, peer monitoring among the group members solve the problem of collateral and problem of asymmetric information between lender and borrowers. It should be noted that members do not get loan from group before completion of six months of membership. So we need to consider a person, whose period of participation is not less than six months, as an effective participant of SHG. Therefore, we like to say that a person holds SHG membership if he/she has been participating in the SHG for at least six months. This specification will help us reduce the attrition bias due to dropout within six months. We can expect that SHG membership status can reduce the frequency of informal borrowing and increases the access to formal credit for the person. In other words, it is an important instrument of financial inclusion. SHG membership is a binary variable indicating whether the individual has been participating in SHG for at least six months or not.

Duration of SHG Membership (DURSHGM): It is fact that the SHG membership status could not control the variability of the period of association with the SHG. In order to capture the impact of the tenure of membership we consider

the duration of SHG membership status as a separate explanatory variable in the model of financial exclusion and inclusion. Duration of the SHG membership is measured by the period for which the person is associated with the group. A longer period of association with SHG not only increases the accessibility to formal credit but also helps the borrower to get larger amount of loan. So it is expected that longer the duration of SHG membership the lower will be the frequency of informal borrowing. We take month as measuring unit of the duration of SHG membership. In addition to the membership of SHG and duration of SHG membership, there are several socio-economic factors, which can influence the frequency of informal borrowing and access to formal credit. We now explain them briefly.

Level of Education (LEVEDU): Education level of an individual influences his/her financial habits. By education level we mean the formal education that an individual gathers through attending educational institutions, like, school, college, university etc. An educated person becomes free to access to formal financial institutions and avoid informal borrowing. He easily understands the terms and conditions, profit and loss, and independently establishes contacts with office staff and expresses his/her requirement of credit for a suitable project. So an educated person can avoid informal credit and get the accessibility to formal credit. However, in our study we have seen that most of the sample persons do not have secondary level of education. That is why we consider the education level up to primary school as the minimum education level to make it a dummy variable.

Occupational Status (OCCUS): Informal borrowing and accessibility to formal credit are definitely affected by the occupational status of individual. Occupation of an individual means the work that the individual does on the most of the time of a day in general. Formal financial institutions prefer the borrowers who have secured occupation. It is likely that a person who earns more amount of money on average per day or whose occupation is highly secure, can easily accede to the formal credit avoiding informal moneylenders. On the other hand, the person whose occupation is more risky could not easily have access to the formal credit. They depend on village moneylenders. However, the disadvantaged section of population is involved in agriculture and its allied activities or involved in petty off-farm jobs or serves in the unorganized sector. So it is reasonable to divide the occupation into two categories: farming and off farming. In our study occupational status is a dummy variable. We would like to demonstrate the impact of occupational status on the frequency of informal borrowing and on the accessibility to formal credit.

Household's Agricultural Land (AGRILAND): Agricultural land is a socio-economic status symbol of rural households. A person holding a reasonable size of agricultural land can obtain formal credit securitising the land as collateral. Consequently, they can bypass the exploitation of moneylenders. With this end in view, we can say that the larger the size of household's agricultural land the smaller will be the frequency of informal borrowing and the greater will be the probability of formal borrowing. Household's agricultural land is measured as the total size of land occupied by the household for cultivation. The unit of measurement of agricultural land is bigha (1 bigha=0.4 acre). This study has traced out the accessibility of the rural poor persons belonging to the same category of land holding to formal

credit. It should be pointed out that in the area under study agricultural land are fertile and accordingly productive as there is pumped irrigation facility in the area under this study. It implies that the change in the agricultural land really matters. It justifies the inclusion of the household's agricultural land holding as an explanatory variable.

Annual Per Capita Family Income (APCFIN) Nobody can deny that without money one can not participate in the financial market and will have no access to the services of formal financial institutions particularly. So, income is an important factor of the accessibility to formal credit and frequency of informal borrowing. Generally, poor people feel shortage of money frequently for meeting their daily life expenditures. To meet the shortage they frequently borrow from moneylenders. Due to unawareness and lack of ensured income they are diffident to approach formal financial institutions. Against this backdrop, we can expect that the higher the per capita family income the lower will be the frequency of informal borrowing and the higher will be the accessibility to formal credit. Annual per capita family income is approximated by the last year actual per capita family expenditure. It is measured by rupee as unit. At the time of approximation we were alert to avoid the conspicuous expenditure like excessive expenditure for health care, for marriage ceremony, for purchasing land etc., which are really uncorrelated with the last year income.

Caste (CASTE): In our society according to the backwardness in the standard of living there are four legal castes viz. general castes, other backward castes, scheduled caste and scheduled tribe. It is a trivial fact that scheduled caste and scheduled tribe people are deprived of facilities of the mainstream financial market. Obviously they need to approach village moneylenders. In the villages under study majority of the households belong to scheduled castes. In order to study the financial habits of these people we have incorporated the caste as a determinant of the frequency of informal borrowing and the access to formal credit. Particularly, we are interested to study the financial inclusion of scheduled caste community which is predominantly backward community in the area under study. We have treated caste as a dichotomous variable considering whether the individual belongs to scheduled caste or not. While collecting data for the study we have always consciously avoided the economically strong households of any caste.

In view of the above, we can say that the frequency of informal borrowing and the accessibility to formal credit depend on SHG membership, duration of SHG membership, level of education, occupational status, household's agricultural land, annual per capita family income and caste of the person. The above explanation induces us to formulate the following econometric models.

Econometric Model, Data and Methodology of Estimation.

In order to study the impact of SHGs on the financial inclusion and exclusion we have planned to estimate two models. Model-1 relates to the estimation of financial exclusion measured by the frequency of informal borrowing whereas model-2 estimates financial inclusion measured by the accessibility to formal credit. We investigate, in addition to other explanatory variables, how the effective membership of SHG affects the financial exclusion as well as the financial inclusion.

$$FINBOR_i = \beta_0 + \beta_1 \, SHGMEM_i + \beta_2$$

DURSHGM$_i$ + β_3 LEVEDU$_i$ + β_4 OCCUS$_i$ + β_5 AGRILAND$_i$ + β_6 APCFIN$_i$ + β_7 CASTE$_i$ + U$_{1i}$ (Model-1)

FINBOR$_i$ = α_0 + α_1 SHGMEM$_i$ + α_2 DURSHGM$_i$ + α_3 LEVEDU$_i$ + α_4 OCCUS$_i$ + α_5 AGRILAND$_i$ + α_6 APCFIN$_i$ + α_7 CASTE$_i$ + U$_{2i}$ (Model-2)

where, FINBOR stands for frequency of informal borrowing in the year (2007-2008) and is considered as a dependent variable, in model-1.

SHGMEM stands for SHG Membership;

SHGMEM =1, if the individual has membership of SHG for at least six months and 0, if not.

DURSHGM = Stands for duration of SHG membership measured by month as unit of time.

LEVEDU indicates the level of education.

LEVEDU= 1, if the person has passed the fourth or higher-class examination and 0 if not.

OCCUS stands for the Occupational Status;

OCCUS = 1, if the individual is in farm activity and 0, if the individual is in off-farm activity.

AGRILAND stands for Household's Agricultural Landholding measured in bigha;

APCFIN indicates the Per Capita Family Income;

CASTE refers to the Caste of the individual;

CASTE =1, if the person belongs to scheduled caste and 0, if not.

AFCREDIT stands for Accessibility to or Availability of Formal Credit, which is the dummy dependent variable in the model-2, such that AFCREDIT = 1, if the person has access to formal credit and 0, if not.

U$_1$ and U$_2$ stand for random disturbance term in the model-1 and 2 respectively.

For empirical analysis of the financial inclusion we have used a primary data set collected during the month of October 2008 from a random sample of 75 households residing at four villages under Madanmohan Pur Gram Panchayat in Bankura District, West Bengal. Madanmohanpur Gram panchayat is an agriculturally developed but a most backward gram panchayat in terms of communication, health care, education and formal financial system. That is why we have selected the study area. The data are collected in three stage sampling procedure. First, we have chosen the Gram Panchayat purposively. Secondly we have randomly selected the four villages under study. Later on, our sample households have been selected using random number method. Number of sample household drawn from each village is not equal and it varies in accordance with their population size and socio economic conditions. Using the primary data, first of all, we describe the socio-economic-demographic status of our sample individuals. We have fitted a Linear Regression model and used the Ordinary Least Squares method to study the frequency of informal borrowing. As the access to formal credit is dichotomous by nature, we have formulated a Logit Model to estimate the log odds in favour of the access to formal credit applying logit maximum likelihood estimation method. The t-values of the estimated coefficients are considered for inference and prediction analysis. Let us now come to the next section where we explain the empirical results.

Empirical Results and Discussions

Table-1 A depicts the percentage distribution of categorical variables and table-1B depicts the descriptive statistics of other variables under study. Table-1 A shows that 45% of sample individuals have been totally excluded from access to formal credit. We see that 71% of our

Table-1A: Percentage Distribution of Categorical Variables in the Sample (N=75)

Categorical Variables	% of Sample Observations having values	
	0	1
ACCESS TO FORMAL CDEDIT (AFCREDIT)	45.33	54.67
SEX (1 = Women)	29.33	70.67
LEVEL OF EDUCATION (LEVEDU) (1 = Primary or Above)	50.67	49.33
OCCUPATIONAL STATUS (OCCUS) (1 = Farming)	32	68
RELIGION (1 = Hindu)	13.33	86.67
CASTE (1= Scheduled Caste)	44	56
FAMILY TYPE (FAMTYPE) (1 = Nuclear Family)	26.67	73.33
SHG- MEMBERSHIP (SHGMEM) (1 = Yes)	53.33	46.67
LEADERSHIP STATUS (LEADER)(1 = Leader)	68	32
EXISTANCE OF FINANCIAL INSTITUTION (EXFIN) (1= Exist Financial Institution within or Adjacent of the Village)	65.33	34.67

Source: Primary field survey, 2008

sample individuals are women and 29% are men. Among sample individuals 68% are engaged in farming or allied occupation. It has been seen that 51% of sample persons have no primary level education. Nearly 87 % of surveyed populations belong to Hindu religion. We note that 56% of our surveyed population who are most backward in the area in terms of livelihood belong to Scheduled caste community.

We have observed that 73% of the respondents

Table-1B: Descriptive Statistics of Quantitative Variables in the Sample (N= 75)

	N	Minimum	Maximum	Mean	Std. Deviation
DURSHGM (Month)	35	6	72	32.09	18.10
FINBOR (Number)	75	0	20	4.0933	4.23682
AGE (Year)	75	18	70	38.1333	10.95486
AGRILAND (Bigha)	75	0	20	2.0687	2.98877
EXISTANCE OF SHG PROGRAM IN VILLAGE (EXSHGIV) (Year)	75	0	6	3.8133	1.93610
APCFIN (Re)	75	1572.00	55000.00	6454.3600	7241.76176

Source: Primary field survey, 2008

are members of nuclear family. According to our definition of SHG membership nearly 47% of our sample persons have informed that they hold membership of SHG. We have got the information that 32% of our sample members possess leadership position of local organizations. Out of 75 sample members 65 % individuals have complained that there is no any formal financial institution within or adjacent villages.

If we look at the duration of the SHG membership of our sample SHG members we find that it varies from 6 months to 72 months. The average duration of the membership of the member of SHG is 32.09 months. Refer to table-1B, which shows that the average number of borrowing from the informal sources during the last financial year (2007-2008) is four. The age of our sample individuals varies from 18 to 70 years, with the average of 38 years. Most of the sample individuals are landless, marginal and small farmer with 2-bighas of average agricultural lands. We have chosen four villages for study among which one is beyond the microfinance program. One village has maximum experience

of the microfinance program for the period of six years. The average years of experience of the microfinance program for all the villages are 3.8 years. The average per capita family income of our sample household is reported as Rs.6454.00.

Table-2A & 2B presents the correlation matrix to understand the nature and magnitude of association between all possible pairs of variables under consideration. From the table 2B we find that there exists a strong positive significant correlation between access to formal credit and membership of SHG and between the access to formal credit and duration of SHG membership. Another significant result is that SHG membership status of individual is negatively correlated with the frequency of informal borrowing. Though the degree of association between frequency of informal borrowing and duration of SHG membership is insignificant but it is negative as we expect. These results indicate the significant role of SHGs in the financial inclusion.

In addition to these, the matrix shows that the correlation coefficients are satisfying logically

Table- 2A: Pearson Correlation

	AFCREDIT	FINBOR	SEX	AGE	LEVEDU	OCCUS	CASTE	RELI GION
AFCREDIT	1.00	-.27*	-.06	.13	.20	.18	.11	.27*
FINBOR		1.00	.01	-.11	-.17	.25*	.01	-.24*
SEX			1.00	-.37**	-.36**	-.25*	.08	.09
AGE				1.00	.03	.25*	.19	.07
LEVEDU					1.00	.11	-.04	.23*
OCCUS						1.00	.08	.15
CASTE							1.00	.44**
RELIGION								1.00

Source: Authors' own calculation based on primary data. *Correlation is significant at 5% level and **Correlation is significant at 1% level.

	FAMTYPE	AGRI LAND	SHGMEM	LEADER	EXFIN	EXSHGIV	APCFIN	DURSHGM
AFCREDIT	-.19	-.08	.64**	.45**	.16	.18	-.12	.48*
FINBOR	.15	-.14	-.27*	-.18	.04	-.19	-.21	-.21
SEX	.08	-.19	.07	-.31**	-.02	.27*	.07	.12
AGE	-.14	.13	-.02	.34**	-.01	-.30**	-.06	.03
LEVEDU	-.07	.20	.20	.24*	.18	.07	.09	.24*
OCCUS	.10	-.01	.18	-.08	.14	-.10	-.11	.09
CASTE	-.23*	-.22	.13	-.08	-.31**	.31**	-.12	.01
RELIGION	-.24*	-.042	.29*	.02	.29*	.37**	.10	.28*
FAMTYPE	1.00	-.18	-.10	-.04	.06	-.06	.03	-.13
AGRILAND		1.00	-.05	.08	-.05	-.03	.68**	.14
SHGMEM			1.00	.29	.22	.33**	.09	.81*
LEADER				1.00	.28*	-.13	.01	.27
EXFIN					1.00	-.10	.09	.29*
EXSHGIV						1.00	.11	.24*
APCFIN							1.00	.26*
DURSHGM								1.00

Source: Authors' own calculation based on primary data. *Correlation is significant at 5% level and **Correlation is significant at 1% level.

expected signs and magnitudes in most of the cases. The correlation matrix helps us to select the important determinants of the frequency of informal borrowing and access to formal credit; it also ensures that there is no problem of multicollinearity in the estimation of the specified econometric models.

The findings of the linear regression analysis are depicted in Table 3. Table 4 and 5 show the results of estimated Logit model. The Table 3 reveals that membership of SHG reduces the frequency of informal borrowing and table 4 reveals that it increases the accessibility to formal credit of our sample populations. The coefficient of the SHG membership in model-1 shows that if a person joins the SHG he/she needs almost four times of lesser informal borrowing than the person who did not join the SHG. In model-2 it indicates that members of SHG are more likely to have access to formal credit. Our estimated coefficient of the SHG membership is 0.57, which indicates that odds ratio in favour of receiving formal credit increases by [{exp (0.57) 1}x 100 =] 77 % for SHG members compared to that for non-members of SHG. From table 5 we have found that other things remaining unchanged, the probability of the access to formal credit increases by 0.68, if a person holds membership of SHG. These results are statistically significant at the 99% level of confidence.

The intuitive logic behind the result is as follows. First, the participation in SHG creates a group identity of the person, which helps the bank or

cooperatives to be aware of the capability of the person regarding the utilization and repayment of the loan. Second, in the SHG group system members save recurrently with the group and group with the bank or cooperatives, which act as collateral for loan. Third, the peer monitoring within the group ensures the proper utilization of the loan and peer pressure ensures the repayment of the loan. These facts solve the asymmetric information problem arise in the loan transaction on part of the lenders. Further, SHGs ensure frequent loan, if needed, to its members. SHGs extend loan to its members without collateral. A member of SHG is confident to approach bank or cooperative and understand the advantages of the

formal credit relative to the informal credit. These factors reduce the asymmetric information problem on the part of borrowers. Thus SHGs actually bridge the information gap between the lender and borrowers and solve collateral problem Therefore, our result that the SHG membership status curbs the frequency of informal borrowing and ensures the accessibility to formal credit for the rural poor is very much logical.

We observe that coefficient of the duration of SHG membership status, in model-1, is negative and significant. It indicates that as duration of the membership status increases, the frequency of informal borrowing decreases, holding other things the same. In logit model, the coefficient of

Table-3: Regression Estimates of Financial Exclusion (FINBOR)

Dependent Variable: Finbor (frequency Of Informal Borrowing)				
Method: Least Squares				
Sample: 1 To 75				
Included Observations: 75				
Variable	Coefficient	Std. Error	T-statistic	Prob.
Constant	4.621	1.143	4.042*	0.000
Shgmem	-3.952	1.632	-2.422*	0.018
Durshgm	-0.076	0.041	-1.855***	0.065
Levedu	-1.182	0.960	-1.231	0.223
Occus	2.904	1.013	2.867*	0.006
Agrilnd	-0.124	0.224	-0.552	0.583
Apcfin	0.000	0.000	-0.775	0.441
Caste	0.145	0.079	1.829***	0.064
		Summary Statistics		
R-Squared	0.42	Mean Dependent Variable		4.093
Adjusted R-squared	0.36	S.D. Dependent Variable		4.237
S.E. of Regression	3.924554	Akaike Info Criterion		5.673
Sum Squared Resid	1031.943	Schwarz Criterion		5.920
Log Likelihood	-204.735	F-statistic		6.997
Durbin-watson Statistic	2.177	Prob(F-statistic)		0.000

Source: Authors' own calculation based on primary data * significant at 1% level; ** significant at 5% level and *** significant at 10% level.

the duration of SHG membership status, which is statistically significant, indicates that the log odds that the persons have access to formal credit increases as duration of membership status increases with a given set of other variables. The table-5 depicts that other things being the same, if the duration of SHG membership status increases by one month the probability of getting access to formal credit increases by 2.1 percent. Therefore, the duration of SHG membership status has some favourable impact on the financial exclusion and inclusion.

Our estimated coefficient of occupational status in model-1 is 2.9 and in model-2 it is 0.17, which are statistically significant. The result for model-1 implies that the peasant families are borrowing from informal source three times extra per year than the families under off-farm occupation. Therefore, we can say that shift from farm to off-farm occupation reduces the frequency of informal borrowing. However, in the model-2 we see that farmers are also more likely to have access to formal credit than others. The coefficient in model-2 indicates that odds ratio in favour of getting formal credit is [{exp (0.17) 1}x 100 =] 18.5 % higher for farmers than that for persons of other occupation. The table 5 shows that, keeping other factors unchanged, the probability of getting formal credit is higher by 3.6% for farmer in contrast to the persons engaged in other occupation. As farmers have agricultural land they can get access to formal credit hypothecating their land as collateral so it is expected that the probability of getting formal credit would be higher for farmers in contrast to the non-farmers. In the course of our field survey we have observed that farmers frequently borrow money or material like fertilizer, pesticides or seeds for cultivation but availability of formal credit is not sufficient for this purpose. So it is not confusing

that farmers, compared to non-farmers, borrow more frequently from informal source of credit though they are more likely to get access to formal credit.

It has been seen that, assuming other things being the same, the frequency of informal borrowing decreases if the person has at least primary level of education. On the other hand, the level of education has a positive effect on the log odds in favour getting access to formal credit. But the empirical analysis suggests that the education level of individual is not statistically significant determinant of the frequency of informal borrowing and the access to formal credit. However, if we look at the marginal change of the probability of getting access to formal credit we get it negligible due to change in education dummy, other things being the same. It is statistically significant at 10% level of significance.

The coefficient of caste in model-1 reveals that scheduled caste persons are borrowing from informal source more frequently in a year than that of the people of other castes. The result is statistically significant at 10% level of significance. In model-2 the coefficient of caste is 0.122 which is insignificant. This indicates that persons belonging to scheduled caste community are more likely to get access to formal credit in contrast to the persons belonging to the other castes. It may happen due to the fact that in the area under study SHG program mainly serve the persons under scheduled caste community. However, other things remaining the same, the probability of getting access to formal credit is lower by nearly 3% for persons belonging to scheduled caste community in contrast to the persons belonging to the other castes. This result establishes that scheduled caste community is financially excluded with reference to the other

Table-4: Empirical Estimates of Financial Inclusion (AFCREDIT)

Variable	Coefficient	Std. Error	T-statistic	Prob.
Dependent Variable: Afcredit (access To Formal Credit)				
Method: Ml - Binary Logit (quadratic Hill Climbing)				
Sample: 1 To 75				
Included Observations: 75				
Convergence Achieved After 5 Iterations				
Covariance Matrix Computed Using Second Derivatives				
Variable	Coefficient	Std. Error	T-statistic	Prob.
Constant	-1.209	0.791	-1.528	0.127
Shgmem	0.575	0.231	2.492*	0.006
Durshgm	0.134	0.035	3.813*	0.001
Levedu	0.504	0.654	0.771	0.441
Occus	0.170	0.080	2.129**	0.004
Agrilnd	0.299	0.157	1.899***	0.066
Apcfin	-0.015	0.008	-1.897***	0.059
Caste	0.122	0.655	0.186	0.852
		Summary Statistics		
Mean Dependent Variable	0.547	S.D. Dependent Variable		0.501
S.E. of Regression	0.385	Akaike Info Criterion		1.059
Sum Squared Resid	9.936	Schwarz Criterion		1.306
Log Likelihood	-31.696	Hannan-quinn Criterion		1.157
Restr. Log Likelihood	-51.659	Avg. Log Likelihood		-0.423
Lr Statistic (7 d.f.)	39.926	Mcfadden R-squared		0.386
Probability(lr Stat.)	0.000			
Observations With Dep=0	34	Total Observations		75
Observations With Dep=1	41			

Source: Authors' own calculation based on primary data * significant at 1% level; ** significant at 5% level and *** significant at 10% level.

caste communities in the area under study.

Another finding of our study is that the higher the size of household's agricultural land the lower will be the frequency of informal borrowing. The estimated coefficient of the household agricultural land holding in model-2 suggests that for one bigha increase in household agricultural land the odds in favour of the receiving formal credit increases by [{exp (0.30) 1}x 100 =] 35 percent. The result is statistically significant at 10% level of significance. From Table 5 we see that if household agricultural land holding goes up by one bigha, holding other things the same, the probability of receiving formal credit goes up only about 0.07. It is also accepted at 99% level of confidence. Therefore, household's agricultural land holding has an

Table- 5 Marginal Change in Probability of Financial Inclusion (AFCREDIT)

Dependent Variable: AFCREDIT (Access to Formal Credit)				
Method: Least Squares				
Sample: 1 to 75				
Included observations: 75				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONSTANT	0.251	0.018	14.037*	0.000
SHGMEM	0.677	0.025	26.581*	0.000
DURSHGM	0.021	0.003	6.077*	0.000
LEVEDU	-0.001	0.001	-1.707***	0.090
OCCUS	0.036	0.018	1.953***	0.071
AGRILND	0.072	0.015	4.779*	0.000
APCFIN	0.024	0.015	1.633	0.107
CASTE	-0.028	0.012	-2.292*	0.000
		Summary Statistics		
R-squared	0.971	Mean dependent variable		0.547
Adjusted R-squared	0.968	S.D. dependent variable		0.342
S.E. of regression	0.061	Akaike info criterion		-2.645
Sum squared residual	0.252	Schwarz criterion		-2.398
Log likelihood	107.205	F-statistic		319.980
Durbin-Watson statistic	1.507	Prob(F-statistic)		0.000

Source: Authors' own calculation based on primary data * significant at 1% level; ** significant at 5% level and *** significant at 10% level.

The Table 3 shows that annual per capita family income has a negligible and insignificant effect on the frequency of informal borrowing. The coefficient of the per capita family income in model-2 indicates that the odds in favour of obtaining formal credit decreases by [{1- exp (-0.015)}x 100 =] 1.5 percent due to one unit increase in per capita family income. The effect of annual per capita family income on the probability of obtaining formal credit is also insignificant. It implies that annual per capita is a negligible factor of the financial inclusion and exclusion.

Policy Prescriptions and Conclusion

The correlation matrix indicates that the membership of SHG and duration of SHG membership are the most significant determinant of the financial inclusion. In other words, the SHG movement makes a smooth path of financial inclusion in the study area. Therefore, in order to accelerate the financial inclusion through curbing the hegemony of village moneylenders we suggest for implementing the SHG-Bank/Cooperative Linkage more intensively in rural areas under study. If the SHG program actively works in the villages it will help the poor people to make formal savings habit initially followed by the generation of resources from the facilities of microfinance.

Although we find the level of education is an insignificant factor of financial inclusion it has an effect on the financial inclusion as everybody expects. Actually, the sample persons do not have the level of education that helps the persons to have access to the facilities of formal financial institutions. Therefore, the government has to take extra incentives to extend the educational facilities in order to make the financial inclusion policy successful.

This study suggests that occupational status of individual is a critical factor of the financial inclusion. We need to create an environment that helps people to move from farm to off-farm occupation in order to reduce the hegemony of village moneylenders. Our study highlights that the persons of scheduled caste community have lower probability of getting access to formal credit than that of other person and have dependence on informal source of credit. So bank should provide some relaxation to scheduled caste community in terms and conditions for having access to formal credit.

We see that land holding has a negative effect on the frequency of informal borrowing and positive significant effect on the accessibility to formal credit. This indicates that we should take necessary steps towards equal distribution of land as a solution for the financial exclusion problem in the area under study. After all, the implementation of any policy for financial inclusion would not be effective until the terms and conditions for providing loan to the disadvantaged group of people become loanee friendly.

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An Empirical Study on Personality Variation and Investment Choice of Retail Investors

Dr. Neha Parashar

ABSTRACT

Demographic profile and investor personality can be the two determinants for making perception about the investor psychology, which if scientifically studied could help the Wealth Management professionals to advice their clients better. This paper makes an attempt to find out the effect of personality traits on Investment choices made by individual investors.

Everyone has different needs and goals when it comes to their investments and when someone is planning to invest their hard-earned money, he/she naturally would want to minimize the risks while maximizing the potential returns. Perception plays an important role in deciding the investment avenues. The paper focuses on personality and its effect on risk taking capacity of an individual.

Keywords: Personality, Investment, Risk, Trade-Off.

Introduction

Researchers across the past several decades have analyzed the behavior of investors and have attempted to enhance our understanding of why people manage investments in different ways. Today an extensive body of literature exists that seeks to explain how personal characteristics influence the behavior of investors. If a common theme is present in this literature, it is that personal characteristics influence investors' perception of risk and their willingness to assume risks. In turn the perception of risk determines investing behavior.

In this context, Behavioral finance is a nascent but growing discipline, which studies investor's psychology while making financial decisions. Demographic profile and investor personality can be the two determinants for making perception about the investor psychology, which if scientifically studied could help the Wealth Management professionals to advice their clients better. For example, a study by Hershey and Schoemaker in 1980 titled "Risk Taking and Problem Context in the Domain of Losses: An Expected Utility Analysis" suggests that women may be more risk averse towards gamble. Carducci and Wong (1998) found that persons with a Type A personality are more

willing to take higher levels of risk in all financial matters, though this may be correlated to Type A persons tending to have higher levels of income (Thoresen and Low, 1990) than Type B individuals. There is also evidence (Wong and Carducci, 1991) of a desire for "sensation seeking" by some persons in terms of their financial management.

Empirical evidence suggests that factors such as age, education, income, gender and marital status affect an individual's investment decision such as risk tolerance (Riley and Chow, 1992; and Schooley and Worden, 1999), aversion to realized losses, investor's confusion between good companies and good stocks (Fama and French, 1992; Shefrin and Statman, 1995; and Filbeck et al., 2005). Many researchers have tried to classify the investors on the basis of their relative risk taking capacity and the type of investment they make. Such a classification is very useful for the financial advisers to understand the risk bearing capacity of their clients and then recommending them the classes of security consistent with their investing personality. An attempt has also been made to investigate the relationship between the investment personality and demographic variables on the risk tolerance and the choice of investment avenues.

Personality and Investment: A Relationship

Everyone has different needs and goals when it comes to their investments and when someone is planning to invest their hard-earned money, he/she naturally would want to minimize the risks while maximizing the potential returns. Although the global weaknesses have affected the investor's sentiments, the analysts predict that the world economies will recover in a year or so. Investors today have started parking their funds in less risky instruments like bonds, T-bills etc and have refrained themselves from the volatile

markets. The stock market crash has eroded the wealth of various investors which is why they are now more attracted towards the derivatives market i.e. futures and options.

Investors have certain cognitive and emotional weaknesses which come in the way of their investment decisions. Over the past few years, behavioral finance researchers have scientifically shown that investors do not always act rationally. They have behavioral biases that lead to systematic errors in the way they process information for investment decision. Many researchers have tried to classify the investors on the basis of their relative risk taking capacity and the type of investment they make. Empirical evidence also suggest that factors such as age, income, education and marital status affect an individual's investment decision. This paper classifies Indian investors into different personality types and explores the relationship between various demographic factors and the investment personality exhibited by the investors.

Literature Review

Researchers across the past several decades have analyzed the behavior of investors and have attempted to enhance our understanding of why people manage investments in different ways. Today an extensive body of literature exists that seeks to explain how personal characteristics influence the behavior of investors. The nature of risk and how individuals approach risk has been a developing discussion. Among what we describe as demographic studies, the implications of gender are most often perceived by researchers as being important in explaining investor behavior.

Meenu Verma, 2008 *in her study Wealth Management and Behavioral Finance: The Effect of Demographics and Personality on Investment Choice among Indian Investors says that* Wealth Management involves understanding the clients'

The 9 personality traits:

Achievers	Entrepreuners	High Rollers
These are the second-highest income earners, usually college graduates and mostly married. They feel work; diligence and effort will pay off better than anything else. They are conservative and not interested in risking assets they have worked hard to accumulate. Protection is a primary consideration. Being take-charge types, they have a strong need to control their money.	The most male-dominated profile, driven by a passion for excellence and commitment, which helps them achieve their goals. They enjoy the power and prestige money brings. They are proud and reward themselves with the best cars, homes, wines, etc. Investing in the stock market is their favored strategy.	Money presents infinite possibilities. They are thrill seekers who enjoy the ride of financial risk but are only mildly interested in where it takes them. They seek power. Money brings them instant power and recognition. They prefer to risk their assets rather than sit back bored by financial security. If they do not learn how to manage their styles, they end up with low pride and contentment.
Hunters	**Perfectionist**	**Producers**
Usually highly educated, with a live-for-today financial style. They are often women and average- to above-average income earners who make purchasing decisions with their hearts, not with their heads. They attribute success to luck rather than ability and judgment. Once they understand their traits, they can make dramatic financial progress.	They are so afraid of making a mistake that they often avoid making a decision. They forever try harder, but lack self-esteem, especially about their money. They have the least pride in handling financial matters. They have tunnel vision, consider every angle and find fault with the potential of practically any risk venture. Finding suitable investments is difficult for them.	They rank high in work ethic but lower in earned income due to lack of self confidence in money management skills. Financial investment/ education can be very rewarding since they often don't understand how the money system works. They do not evaluate risks carefully and rarely profit from them. They lack confidence in making financial decisions.
Money Masters	**Optimists**	**Safety Players**
They balance their finances with the degree of contentment and security they derive from their money. They are the No. 1 wealth accumulators even though they don't necessarily earn the most. They rank first in degree of desired involvement with their money and enjoy participation. They trust the recommendations of others and act on sound advice. Pure luck has little chance here. Success through determination is their philosophy.	These are the people to whom money has brought peace of mind. They are the least reflective, and their money decisions are somewhat impulsive but not risk-oriented. Often in or near retirement, they are more interested in enjoying their money than making it grow. They are not highly involved with their money, taxes or investments, which could cause them stress and impinge on their enjoyment.	They score the lowest in self determination. They are average earners, and most of their money goes into safe and secure investments. They lack the confidence and motivation to reap more growth by taking more calculated risk (even though well educated). They take the path of least resistance, feel they are doing just fine, and repeat whatever investment strategies seemed to work for them before.

financial and investment requirements and accordingly providing financial planning and portfolio management services. Demographic profile and investor personality can be the two determinants for making perception about the investor psychology, which if scientifically studied could help the Wealth Management professionals to advice their clients better.

Manish Mittal and R K Vyas, 2007 in *Personality Type and Investment Choice:An Empirical Study says that* Investors have certain cognitive and emotional weaknesses which come in the way of their investment decisions. Over the past few years, behavioral finance researchers have scientifically shown that investors do not always act rationally. They have behavioral biases that lead to systematic errors in the way they process information for investment decision. Many researchers have tried to classify the investors on the basis of their relative risk taking capacity and the type of investment they make. Empirical evidence also suggest that factors such as age, income, education and marital status affect an individual's investment decision. This paper classifies Indian investors into different personality types and explores the relationship between various demographic factors and the investment personality exhibited by the investors. The results of this study reveal that the Indian investors can be classified into four dominant investment personalitiescasual, technical, informed and cautious.
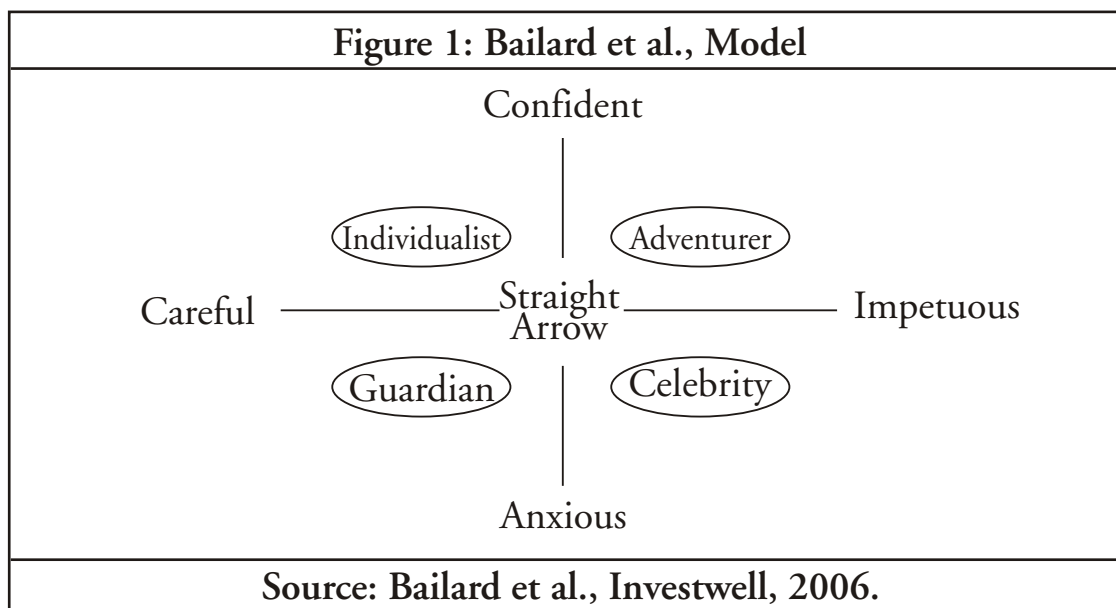
Mayfield, Cliff,Perdue, Grady,Wooten, Kevin, October 2008, *Investment management and personality type* examine several psychological antecedents to both short-term and long-term investment intentions, with specific focus on the Big Five personality taxonomy. The effects of specific personality traits are evaluated using structural equation modeling (SEM). Our results indicate that individuals who are more extraverted intend to engage in short-term investing, while those who are higher in neuroticism and/or risk aversion avoid this activity. Risk adverse individuals also do not engage in long-term investing. Individuals who are more open to experience are inclined to engage in long-term investing; however, openness did not predict short-term investing.

Barnwell, 1987 *Investment Psychology: investor classification systems* classified investors as either 'passive' or 'active'. Passive investors are characterized as individuals who have become wealthy passively by inheriting, by a professional career, or by risking the money of others rather than their own money. In addition, certain classes of occupation are more likely to contain passive investors. They are more risk conscious and their low propensity to risk may keep them out of potentially lucrative opportunities. Active investors are those who have achieved significant wealth, or earned well, during their own lifetime. They are more likely to take risks in investing because they already have the experience of taking risks in their past wealth creation process

Bailard, 1990 *The Successful Investment Journey* classifies investors according to two personality traits: level of confidence and the method of action. Level of confidence is reflected in how much an investor may worry about a certain course of action or decision. Investors may range from confident to anxious. Method of action is reflected in how methodical investors are, as well as how analytical and intuitive they are. This can range from careful to impetuous. Within these ranges, the model defines five personalities:

1) Individualist: Careful, confident and often takes a do-it-yourself approach

2) Adventurer: Volatile, entrepreneurial and strong-willed

3) Celebrity: Follower of the latest investment fad

Figure 1: Bailard et al., Model

Confident

Individualist   Adventurer

Careful ——————— Straight ——————— Impetuous
                    Arrow

Guardian   Celebrity

Anxious

Source: Bailard et al., Investwell, 2006.

4) Guardian: Highly risk averse and wealth preserver and

5) Straight arrow: Shares the characteristics of all the above equally

RESEARCH METHODOLOGY

Research objective:

• To determine the extent to which demographic variables and investor personality affect investment choice.

The paper is based on primary data collected by communicating with the respondents with the help of a structured questionnaire. The questionnaire will be divided into three parts. The first part will carry questions which would help in determining the 'investor personality'. All the questions will be close ended and the responses will be collected on a Likert scale. The second part of the questionnaire will be designed to study the investor's risk tolerance and investment decisions that individuals take when faced with alternative choices. The third part of the questionnaire will aim at collecting the demographic details of the investors. Through this part, the information regarding gender, age, educational qualifications, occupation and yearly income of the respondents will be gathered.

The investors will be classified into different investor personalities using the cluster analysis. Correspondence analysis will be done to study the association between various demographic factors and the investment personalities. To study whether the investors with different investment personalities and demographic characteristics differ in their choice of investment avenues, Kruskal-Wallis test will be carried out.

The respondents were asked to rank the investment alternatives in order of their preference (1-most preferred, 7-least preferred).

Analysis and Interpretation

Table 1 Summary of the demographic details of the respondents.

DEMOGRAPHIC & PERSONALITY DETAILS OF THE RESPONDENTS			
Gender	Frequency	Percent	Cumulative Percent
Male	61	61%	61%
Female	39	39%	100%
Total	100		
Age (in years)			
<25	18	18%	18%
25-40	34	34%	52%
40-60	28	28%	80%
>60	20	20%	100%
Yearly Income (in lacs)			
1-3	5	5%	5%
3-5	34	34%	39%
5-10	46	46%	85%
>10	15	15%	100%
Personality (multiple choice)			
Practical	60	60%	
Adventurer	31	31%	
Cautious	41	41%	
Independent	67	67%	
Hopeful & optimistic	69	69%	
Self-confident	71	71%	

The result shows that real estate, followed by mutual funds is the most preferred choices for investment among the investors. Insurance is the fourth choice for investment followed by bonds. Equity shares/derivatives occupy the second position, probably because they are perceived as high-risk investments with higher returns and also require technical knowledge about the same. PPF, Bank fixed deposit gradually losing their shine as newer investment vehicles are available in the market which provides better returns in lesser time.

From the analyzed data, it was found that 43% of males were willing to take moderate risk in terms of investing their money. 16% males showed the tendency of assuming high risks while a meager 8% described their investing style to be highly conservative. The following graph shows the investment style of males as collected from the data. (Refer Figure-2)

Females tend to be less risk takers as compared to males. The following chart shows that 52% females are somewhat conservative in terms of investing their money. 26% of the females are willing to assume moderate risk and invest in

Table 2:

DESCREPTIVE STATISTICS: RANKING OF INVESTMENT AVENUES				
	N	Most Preferred	Least Preferred	Choice
Equity	100	1	7	2
Bonds	100	1	7	5
Mutual Funds	100	1	7	1
Real Estate	100	1	7	3
Insurance	100	1	7	4
PPF	100	1	7	6
Bank Fixed Deposits	100	1	7	7

riskier instruments like real estate and equity. 16% females are extremely conservative and invest their savings in bank fixed deposits, insurance, PPF etc.

Factor Analysis:

Factor analysis was used to generate 3 factors from the 7 variables that were input to the Factor

Figure 2: Investment Style of males
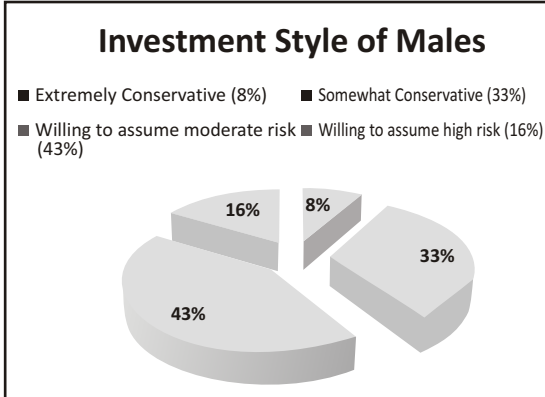
analysis process. It can be seen from the first table showing the communalities that 88.9 % of the variation in investment style is explained by the extracted factors. The communalities depict the extent of the variation of the variable captured by the extracted factors. The extent of the variation of each variable captured by the extracted factors can be seen from the table.

Figure 3: Investment Style of males
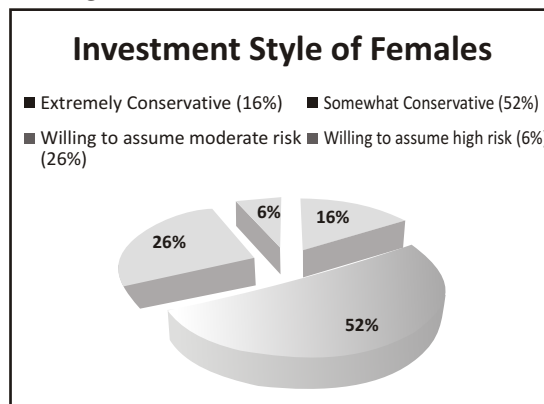
Now, if we look at the total variance explained it gives a figure of 74.461 %. This means that the extracted factors together explain 74.461 % of the variation. This result can be termed as acceptable.

A. (Risk Aversion) Factor 1: Risk Willingness, Avoid risk, Nature

The above three can be said to constitute the factor 1. This can be concluded from the loadings that we observe in the table. Risk Willingness, Avoid Risk and Nature have a high loading in favor of factor 1. These three together constitute the risk aversion characteristics of an investor. Hence this factor can be termed as the *Risk Aversion.*

A risk-averse investor dislikes risk, and therefore

will stay away from adding high-risk stocks or investments to their portfolio and in turn will often lose out on higher rates of return. Investors looking for "safer" investments will generally stick to index funds and government bonds, which generally have lower returns.

B. (Personality) Factor 2: Disciplined, Thoughtful

The above two factors have high loading in favor of factor 2 as can be seen from the rotated factor matrix. Hence these constitute the factor 2. Discipline and thoughtfulness are the two principal qualities to describe an individual. These two together describe the personality of an investor. This factor can be termed as *Personality.*

C. (Choice Makers) Factor 3: Investment Style, Choice1

The above two factors have a high loading in favor of factor 3. Although it's only investment

Conclusion And Suggestions

The study provides the evidence that:

1. The investment choice depends on and is affected by the demographic variables such as gender, age, income, education, occupation as well as various personality types such as conservative, medium conservative, moderate, medium aggressive and aggressive.

2. The choice of investment avenues as it varies with the demographic variables and personality types is tabulated in the following tables.

3. Various factors like age, annual income, gender, education and annual income affect the choice of investment. Females are considered to be less risk-averse hence they prefer keeping their money in bank fixed deposits while males prefer to invest their savings in real estate.

4. Investors in the age group of less than 25 are more risk takers and invest their money in

Table 3: The Choice of Investment Avenues for Male and Female Investors

S.No.	Gender	Choice #1	Choice #2	Choice #3
1	Male	Real Estate	Public Provident Fund	Equity
2	Female	Bank Deposits	Insurance	Mutual Funds

style which has a very high loading and the loading of Choice1 is lower. But it is definitely higher than the other variables. These constitute the factors that determine the choice made by an investor. Hence this factor can be termed as *Choice Makers.*

equity shares. Investors in the age group of greater than 60 tend to keep in their money in bank deposits for a secured future. Our findings are consistent with the notion that individuals tend to act 'normal' rather than 'rational' when making investment decisions.

Table 4: The Choice of Investment Avenues for Investors of Different Age Groups

Age Group	Choice #1	Choice #2	Choice #3
<25	Equity	Mutual Fund	Bonds
25-40	Mutual Funds	Equity	Insurance
40-60	Mutual Funds	Bank Deposits	Real Estate
>60	PPF	Bank Deposits	Insurance

Table 5: The Choice of Investment Avenues for Investors of Different Income Groups

Income	Choice #1	Choice #2	Choice #3
1-3	Equity	Bonds	Bank Deposits
3-5	Bank Deposits	Real Estate	PPF
5-10	Mutual Funds	Real Estate	Insurance
>10	Real Estate	Bank Deposits	Mutual Funds

Table 6: The Choice of Investment Avenues for Investors with Different Occupations

Occupation	Choice #1	Choice #2	Choice #3
Student	Equity	Mutual Funds	Bonds
Service	PPF	Bank Deposits	Insurance
Businessmen	Real Estate	Bank Deposits	Equity
Retired	Bank Deposits	PPF	Insurance

5. Our analysis reveals that the investors with different investment personality vary with regard to the choice of investments. People who are risk takers and adventurous tend to invest their money in equity and real estate. Options like bonds and mutual funds are for people who are less risk-averse and want a fixed cash flow over the years.

6. The prevailing economic situation has a major impact on the investment choices made by the investors. Due to the crash in the stock market and falling housing prices, investors have shifted their focus towards bonds, debentures, PPF and insurance.

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Dollar-Rupee Exchange Rate
A Fundamental Analysis

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ABSTRACT

This paper delves into the relationship of the Indian financial market and the USD-INR exchange rate over approximately a ten year period. The Indian market is studied with respect to the BSE Sensex and international trade flows. An attempt has also been made to examine the impact of fundamental factors, (such as interest rate and inflation rate differential between US and India), upon the prevailing exchange rate.

It is observed that the concepts of Interest Rate Parity (IRP) and Purchasing Power Parity (PPP) do not provide a guiding force for forecasting the USD-INR exchange rate. It is observed that a major determinant of BSE Sensex movements is the net FII inflows. Since, outflow of foreign currency increases the demand for the foreign currency and increases the supply of the home currency, and vice-versa, the BSE Sensex and USD-INR exchange rate tend to move in opposite directions, in majority of the cases considered. While considering the impact of the level of international trade that India has with the rest of the world, where US dollar is the preferred currency for dealings, petroleum products constitute a significant portion of the trade bill. Hence, there exists a significant relationship between the level of international trade and international crude oil prices and subsequently also the USD-INR exchange rate.

Keywords: Exchange Rate, Sensex, Interest Rate Parity, Purchasing Power Parity

Introduction

In finance, the exchange between two currencies specifies how much one currency is worth in terms of the other. It is the value of a foreign nation's currency in terms of the home nation's currency. The spot exchange rate refers to the current exchange rate. The forward exchange rate refers to an exchange rate that is quoted and traded today but for delivery and payment on a specific future date. A market based exchange rate will change whenever the values of either of the two component currencies change. A currency will tend to become more valuable whenever demand for it is greater than the available supply. It will become less valuable whenever demand is less than available supply.

Increased demand for a currency is either due to an increased transaction demand for money, or an increased speculative demand for money. The transaction demand for money is highly correlated to the country's level of business activity, Gross Domestic Product (GDP), and employment levels. More the unemployed people, the less the public as a whole will spend on goods and services. Central banks typically have little difficulty adjusting the available money supply to accommodate changes in the

demand for money due to business transactions.

The speculative demand for money is much harder for a central bank to accommodate but they try to do this by adjusting interest rates. An investor may choose to buy a currency if the return (that is the interest rate) is high enough. The higher a country's interest rates, the greater the demand for that currency. It has been argued that currency speculation can undermine real economic growth, in particular since large currency speculators may deliberately create downward pressure on a currency in order to force that central bank to sell their currency to keep it stable.

Objectives of the study

The prime objective of the paper is to study the relationship of the US dollar and Indian rupee exchange rate with respect to changes in the Indian market. Changes can be in the form of:

1. Changes in the monthly BSE Sensex values

2. Changes in the international trade of petroleum products

3. Changes in the international trade of non-petroleum commodities

4. Changes in the relative rates of interest

5. Changes in the relative rates of inflation as measured by the Consumer Price Index (CPI)

The paper also examines impact of changes in the price of commodities (like petroleum products) and the corresponding changes in the level of international trade and impact on/ of the USD-INR exchange rate.

Literature Review

In the above context, Edwards (1984) makes a pertinent observation. The modern approach suggests that the equilibrium value of the exchange rate can vary through time, whereas under the PPP approach, any deviation from an unchanging equilibrium exchange rate is taken to reflect a disequilibrium exchange rate. Various effects of tarrif policy, terms of trade changes, capital flows, and economic growth on the equilibrium exchange rate can then be analysed. The equilibrium exchange rate itself is defined in terms of a long-run sustainable current account as a fraction of output. Dornbusch (1980) defines the equilibrium real exchange rate as the relative price of tradeables to non-tradeables at which income equates expenditure and both the tradeables and non-tradeables goods markets are in equilibrium. The modern approach to an equilibrium exchange rate determination invalidates the standard linear regression estimation

As per the Purchasing Power Parity concept, the change in the exchange rate between two countries can be estimated by the change in the difference between the inflation rates prevailing in the two economies. Thus,

$$e = ao + a1 \ (ih-if)/ \ (1+if) + u$$

Where, hypothetically, ao = 0, a1 = 1,

e = change in the exchange rate,

ih = inflation in the home country,

if = inflation in the foreign country

u = error/ disturbance term

As per the Interest Rate Parity concept, the change in the exchange rate between two countries can be estimated by the change in the difference between the interest rates prevailing in the two economies. Thus,

$$e = ao + a1 \ (ih-if)/ \ (1+if) + u$$

Where, hypothetically, ao = 0, a1 = 1,

e = change in the exchange rate,

ih = interest rate in the home country,

if = interest rate in the foreign country

u = error/ disturbance term

Bhanumurthy, N.R. states that micro variables, such as order flows and number of transactions, affect the short run exchange rates more than the macro variables, such as domestic interest rates. The study also says that intervention by the central bank reduces market volatility but also has an adverse impact upon the market efficiency.

Meese & Rogoff (1983) found that forecasts based on monetary approach to exchange rate determination could not out-perform the random walk forecasts; hence macro models my not always give good results. Neely and Sarno (2002) argue that instead of forecasting exchange rates through fundamentals, agents can directly predict output, inflation and uncovered interest rate parity (UIP). Many argue that with the introduction of on-line trading systems macroeconomic fundamentals are hardly useful in predicting the rate movements. In such a scenario, models based on micro factors (i.e. information) are more useful in predicting exchange rates.

This study aims to verify the assertions of various parties by examining the exchange rate movements with respect to macroeconomic fundamentals, and factors influenced by market forces, such speculation. The equity markets have been assumed to be semi-efficient. Crude oil prices are greatly influenced by speculative activity and hence are more information based.

Research Methodology

The study relies on secondary data sources for analysis. The data has been collected on a monthly basis. Period of study is January 2000 to March 2009. Thus, there are one hundred and eleven (111) data points under consideration.

The BSE Sensex values were taken from CMIE (Center for Monitoring of Indian Economy) Prowess database. Data pertaining to exchange rates, net international trade with respect to

various commodities was taken from the CMIE Business Beacon database.

Graphical analysis is used to study the trend for changes in the variables under study. Statistical tools are used to check if the relationship between variables is statistically significant or not.

Sign test is used to test whether the USD-INR exchange rate and the BSE Sensex move in opposite directions or not, for the period under study. The sign test performed as our purpose is to study the direction of the movement and not the magnitude itself. It assumes that the data follows the binomial distribution. However, for large samples, it is assumed that the variable follows a normal distribution (Central Limit Theorem). Thus the hypotheses used are:

Ho: The proportion of positive movements is equal to the proportion of negative movements (i.e. $p = 0.5$)

H1: The proportion of positive movements is not equal to the proportion of negative movements (i.e. $p \neq 0.5$)

In order to analyse the relationship between FII (Foreign Institutional Investments) and the BSE Sensex movements, over the period of study, correlation analysis s performed.

Findings

Graphical comparison of the monthly Sensex and the USD-INR exchange rate is given below in figure-1

The graphical analysis reveals that movements in the Sensex are roughly matched by opposite direction movements in the exchange rate. Variations in the Sensex can be explained to a large extent by the inflow of the dollar into the

Figure-1 : Monthly Exchange Rate, Sensex and USD Inflow
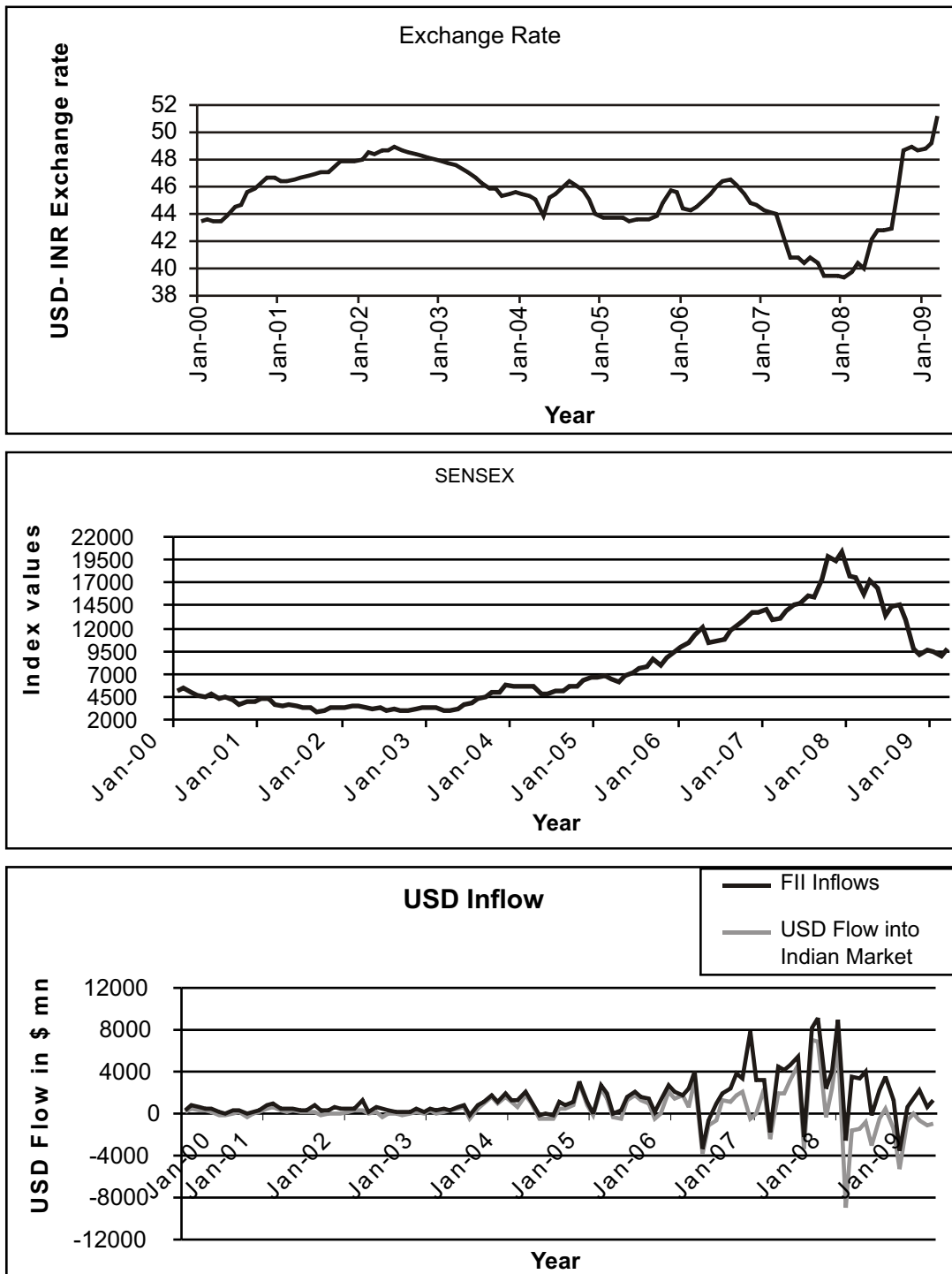
Indian market during the corresponding periods.

The sign test reveals that the opposite direction movements of the Sensex and the exchange rate is statistically significant with ninety percent degree of confidence. Also, there exists a significant relationship between movements in the BSE Sensex and the fresh FII inflows (in rupees crore)

into the market. Correlation analysis also reveals the following relationship between the variables under consideration. *(See Table-1)*

Regression analysis with the same set of variables, keeping the exchange rate as the dependant variable gives the following results. *(See Table-2)*

Table-1 : Correlation Matrix

	Net exports	Brent Crude Prices	Sensex	FII	Exchange rate
Net exports	1				
Brent Crude Prices	-0.86294	1			
B S E Sensex	-0.75123	0.870741	1		
FII	-0.75236	0.872056	0.999996	1	
Exchange rate	0.425876	-0.6521	-0.72599	-0.7261	1

Table-2 : Regression Analysis

Regression Statistics					
Multiple R	0.775844				
R Square	0.601934				
Adjusted R Square	0.590773				
Standard Error	1.636823				
Observations	111				
ANOVA					
	df	SS	MS	F	Significance F
Regression	3	433.4921	144.4974	53.93325	2.57E-21
Residual	107	286.6732	2.679189		
Total	110	720.1653			
	Coefficients	Standard Error	T Stat	P-value	
Intercept	49.3268	0.391586	125.9667	3.8E-118	
Net exports	-9.8E-05	2.2E-05	-4.43651	2.23E-05	
Brent Crude Prices	-0.05284	0.01586	-3.33197	0.001185	
FII	-0.00035	6.63E-05	-5.27094	7.1E-07	

**Figure-2 : Exports and Imports, POL Trade
Non-POL Trade and Brent Crude Price**
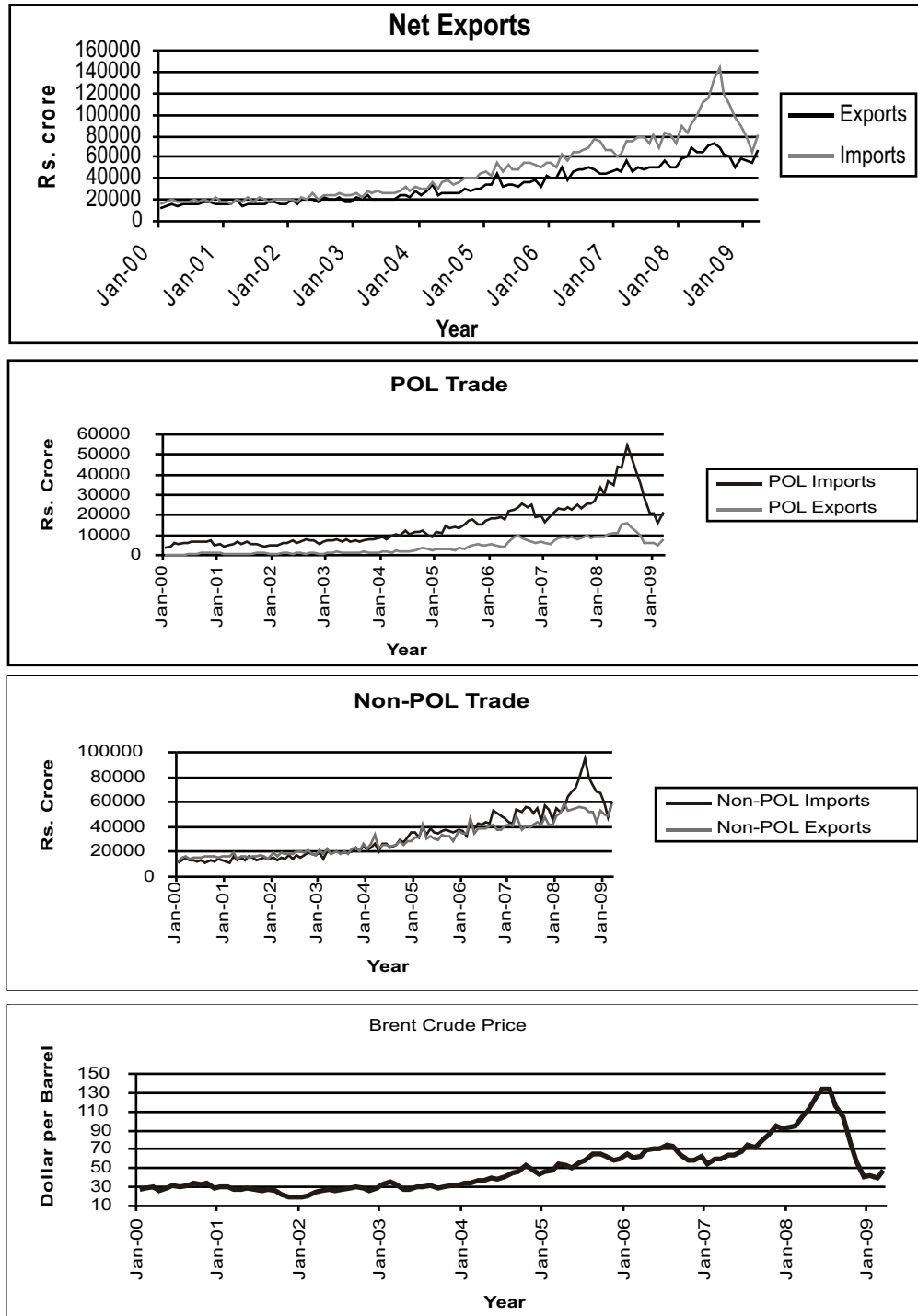
Thus, the regression equation is statistically significant. Thus, approximately sixty percent of the variation encountered in the exchange rate values can be explained by the regression equation.

It is important to note that India has had a trade deficit for a greater part of the past decade. Given below, is the export and import charts for the Indian economy. *(See Figure-2)*

It is also interesting to note that petroleum products are the biggest segment in international trade for India.

It is worth mentioning that the petroleum import bill has a high degree of correlation with the international crude oil price movements.

Table-3 : Regression Analysis Results (PPP)

Regression Statistics					
Multiple R	0.061516				
R Square	0.003784				
Adjusted R Square	-0.00544				
Standard Error	0.014912				
Observations	110				
ANOVA					
	df	SS	MS	F	Significance F
Regression	1	9.12E-05	9.12E-05	0.41025	0.523199
Residual	108	0.024017	0.000222		
Total	109	0.024108			
	Coefficients	Standard Error	t Stat	P-value	
Intercept	0.001761	0.001445	1.21834	0.22575	
Rel. inflation	-0.00042	0.000661	-0.64051	0.523199	

Table-4 : Regression Analysis Results (IRP)

Regression Statistics					
Multiple R	0.093221				
R Square	0.00869				
Adjusted R Square	-0.00049				
Standard Error	0.014876				
Observations	110				
ANOVA					
	Df	SS	MS	F	Significance F
Regression	1	0.00021	0.00021	0.946763	0.332719
Residual	108	0.023899	0.000221		
Total	109	0.024108			
	Coefficients	Standard Error	t Stat	P-value	
Intercept	0.001723	0.001424	1.209841	0.228981	
Δ Interest rate	-0.01369	0.01407	-0.97302	0.332719	

As per the Purchase Power Parity (PPP) concept, the exchange rate between two countries is affected by the relative difference in the inflation rate observed in the two economies. In the given study, the Consumer Price Index was taken as the measure of the inflation. However, results of the study give contrarian results. (Refer Table-3)

The results indicate that the change in the USD-INR exchange rate may not be significantly associated with the relative inflation rates.

As per the Interest Rate Parity (IRP) concept, the exchange rate between two countries is affected by the relative difference in the interest rate observed in the two countries. For the purpose of the give study, the deposit rates were taken into consideration. The study yields the following results: (Refer Table-4)

Thus, the results indicate that the USD-INR exchange rate may not be significantly associated with the relative interest rates.

Conclusions

The study comes up with the following results:

1. Opposite direction movements between the BSE Sensex and the USD-INR exchange rate are statistically significant. This can be explained by the fact that, overseas investors, who desire to invest in the Indian market, have to convert dollars into rupees which increases the supply of dollars in the Indian market and puts downward pressure on the dollar.

2. Movements in the BSE Sensex values can be associated with the fresh FII inflows into the Indian market. This suggests that FIIs have a major impact upon the Indian market. The period January, 2008 to October, 2008 was marked by heavy FII outflows, as a result of redemption pressures faced by institutions in various countries. The BSE sensitive index also recorded a sharp fall in the same period as FII turned net sellers.

Figure-3 : Interest Rate Parity and Purchasing Power Parity
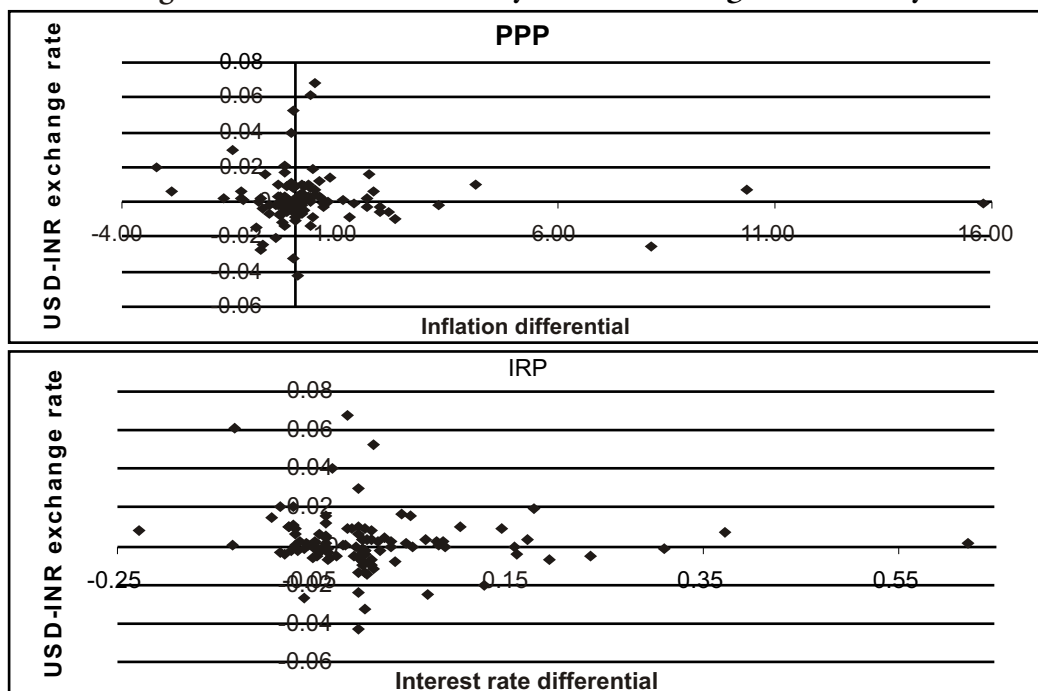
3. On the economic front, the trade deficit between India and the rest of the world has been increasing and reached their peak in mid 2008. However, petroleum products account for a big chunk of the international trade and the peak can be explained by the rise in the price of crude oil in that period.

4. The study reveals that PPP and IRP do not hold in the Indian context. This can be explained by the fact there are a number of restrictions placed by the Indian government with respect to international trade. Also, the India does not follow a free-float exchange rate regime. The Reserve Bank of India has been the assigned the task of maintaining the exchange rate within a certain range. As a result of these actions, relationships as described the PPP and IRP concepts do not hold in their strict sense.

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- CMIE Business Beacon Database

- ET Intelligence Group

  Forex Watch Various years
  Key economic indicators-India, website: http://www.etintelligence.com/etig/researchchannels/indiaeconomy/indiaEconomy.jsp
  Key economic indicators-Global economy, website http:// www. etintelligence.com/etig/researchchannels/globaleconomy/globalEconomy.jsp

An Analysis of Performance of RRBs in India

Moid U. Ahmad
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ABSTRACT

In the light of the current economic slowdown, liquidity distress worldwide and looming drought in India, it becomes important to study the performance of Regional Rural Banks (RRB's) and their role to bolster the rural economy. The given paper aims to take an overview of the rural banking sector in India through the perspective of RRBs and study its contribution to the financial system in India. The basic premise behind the research is to study RRBs data and derive some information which may be used in due course of business, in a broader context if not specific context and suggest means and ways for improvement in RRBs.

Keywords: Banking, Rural Banking, RRB, Economic Growth, Financial System

JEL Classification: A1, R00, Z1

Introduction

Banking Sector Reforms have changed the face of Indian banking industry. It is one segment of the Indian financial system which is significantly affected by the reforms in terms of competition and customer service. The reforms have led to the increase in resource productivity, increasing level of deposits, credits and profitability and decrease in non-performing assets, Bodla & Verma(2006). However, the role and effectiveness of RRB's is an issue of concern .Since these banks are linked to full commercial banks,it becomes imperative to study their performance . Regional Rural

Banks (RRB's) have special place in the credit structure in India. They are state sponsored, regionally based and rural oriented commercial banks. In 1975 after the identification of various weaknesses of the co-operative credit agencies and the commercial banks and felt that these institutions would not be able to fill the regional and functional gaps in the rural credit system, a new type of institution was recommended with a Local feel and familiarity and a degree of business organization ability to mobilize deposit, access to money market and modernized outlook. Thus RRB's came into being. The Regional Rural Banks Ordinance was passed on 26th September 1975, which was

later replaced by the Regional Rural Bank Act,1976. The preamble to the Act states the objective to develop rural economy by providing credit and facilities for the development of agriculture, trade, commerce, industry and other productive activities in the rural areas, particularly to small and marginal farmers, agricultural laborers, artisans and small entrepreneurs.

A Regional Rural Bank is jointly owned by the Govt. of India, the Government of concerned state and public sector bank, which sponsored it. The authorized capital of each bank is Rs. one crore and the issued capital is Rs. 25 lakhs; which is held by them in the proportion of 50, 15 and 35 per cent respectively. Each bank carries the banking business within the local limits specified by the Govt. notification. The management of a RRB is vested in a nine-member Board of Directors headed by a Chairman who is an officer deputed by a sponsor bank but appointed by the Govt. of India.

Every RRB must ensure to undertake the functions of credit enhancement to small and marginal farmers, agricultural laborers, co-operative societies, agricultural processing societies, co-operative farming societies, artisans, small entrepreneurs and small traders, businessmen, etc.

The Reserve Bank of India has brought RRB's under the ambit of priority sector lending on par with the commercial banks. From a modest number of six RRB's in 1975, they have increased to 96 by 2007.

Literature Review:
Megicks et. al (2005) Criticized the Indian regional rural banks (RRBs) and their prevailing culture and argued that a product-focused rather than a market-oriented approach to new service development (NSD) is responsible for their inadequate performance. Sura (2006) raise a concern that despite major structural changes in credit institutions and forms of rural credit in the post-Independence period, the exploitation of the rural masses in the name of credit facility is one of the most pervasive and persistent features of rural India for a time period of 30 years (1975-2005), he studied the credit distribution and geographical distribution of RRB's in India. He concluded that Credit-Deposit ratio is poor and there is lack of presence in underdeveloped states. Shivappa (2007) attempts to examine the growth in advances, deposits and financial performance of the Regional Rural Banks (RRBs).

Chipalkatti & Rishi (2007) presents information on a study, which evaluates the performance of Indian banks by using quantitative data on bank profitability and risk, subsequent to the market-oriented reforms in 1991. The study stresses an urgent need for improved risk management skills of Indian banks and their supervisors.

Bodla & Verma (2006) in their paper have made an attempt to identify the key determinants of profitability of Public Sector Banks in India. The analysis is based on step-wise multivariate regression model used on temporal data from 1991-92 to 2003-04. The study has indicated that the variables such as non-interest income, operating expenses, provision and contingencies and spread have significant relationship with net profits.

The paper of Das & Ghosh (2006) investigates the performance of Indian commercial banking sector during the post reform period 1992-2002. Data Envelopment Analysis (DEA) to measure efficiency of banks. Some variables used are bank size, ownership, capital adequacy ratio, non-performing loans and management quality. A close relationship is observed between efficiency and soundness as determined by bank's capital

adequacy ratio. A multivariate analysis based on the Tobit model reinforces these findings.

The research of Ravi Kumar (2007) presents a comprehensive review of the work done, during the 1968-2005, in the application of statistical and intelligence techniques to solve the bankruptcy prediction problem faced by banks and firms. The review is categorized by taking the type of technique applied to solve this problem as an important dimension. Accordingly, the papers are grouped in the following families of techniques: (i) statistical techniques, (ii) neural networks, (iii) case-based reasoning, (iv) decision trees, (iv) operational research, (v) evolutionary approaches, (vi) rough set based techniques, (vii) other techniques subsuming fuzzy logic, support vector machine and isotonic separation and (viii) soft computing subsuming seamless hybridization of all the above-mentioned techniques.

The issue whether location matters for the performance has been addressed in some detail by Malhotra (2002). Considering 22 different parameters that impact on the functioning of RRBs for the year 2000, Malhotra asserts that geographical location of RRB's is not the limiting factor for their performance.

Sathye & Khankhoje (2008) measured the efficiency of rural banks, post restructuring (93-94) and concluded that the efficiency has improved. They used the DEA technique for which interest income and non-interest income was taken as output and interest expense and non-interest expense was taken as input.

Research Methodology:
As on March 31, 2007 there were 96 Regional Rural Banks (RRB) operating in India and these banks with the data till March 31,2007 has been taken for study.

Mishra (2006) used net income as a percentage to total assets as an indicator of financial performance of the RRBs. This ratio as well as other data of RRBs from 1979 to 2007 has been used, which have been used to critically appraise the banks. These variables were selected on basis of their importance to the financial performance of RRBs which is one of the objectives of the study.

Initially basic statistics for all parameters has been calculated. For more comprehensive analysis some advanced ratios/parameters have been derived. The important one are

1. Total Income as a percentage of total Assets (TI/TA)

2. Operating expense as a percentage of total expenses(OE/TE)

3. Interest income as a percentage of interest expense(II/IE)

4. Net Interest Income(NII)=Interest Income-Interest Expense

5. Net Interest Margin(NIM)=NII/Total Advances

The derived figures are then converted into efficiency scores on time basis taking the highest figure as most efficient and then calculating comparative figures.

The figures mentioned have been rounded to nearest integer for better understanding.

Some variables and the acronyms used in the data analysis are:

1. Proft.Loss indicates the Profit or Loss of all the RRBs per year

2. Total.Inc indicates the total income of all the RRBs per year

3. TAx.Paid indicates the income Tax paid by the RRBs

4. FixdAsset indicates the total fixed assets of all the RRBs

5. Crdt indicates the credit made by RRBs

6. CAPITAL indicates the total capital invested in the RRBs

7. TermLoans indicates the amount the term loans disbursed by the RRBs

8. BORROWINGS are indicated annually of the RRBs

9. Unsecrd indicates the Unsecured Loans disbursed by the RRBs

10. Invt.share indicates the amount invested in shares by the RRBs

11. ADV.ind indicates the advances made by the RRBs in India

12. DEPOSITS indicate the total deposits of RRBs where Deposits.India and Deposits.outsde indicate in India and outside india respectively .Also SBdpst indicates deposit in savings bank.

13. Fixed.Asst.const indicate fixed assets under construction

14. Balnc.rbi and Balc.bnk.ind represent balance of RRBs with RBI and Indian banks respectively

The Correlations have been calculated by taking the Proft.Loss as the common variables as to understand the relation of this variable with all other variables.

Data Analysis and Interpretation:

1. Operating expenses as a percent of Total Expenses for RRBs has decreased from 1990 to 2002 after which it started to increase .The recent increase may be because of rising inflation in this time period.

2. The deposits of RRBs for individuals (Rs. 7447030 Lakhs) is significantly more than institutional customers(Rs.716021 lakh) which on one side illustrate the focused effort of them and other side indicates a market to

them as well as to the policy makers. It is also supported by the fact that current account savings is low in comparison with savings account and term deposits.

3. Outstanding credits for RRBs have been maximum in rural and semi urban areas, which is their core market. This calls for increased efficiency in disbursements and collection of loans by RRBs. Maybe its time for these banks to focus more on high earning urban market or may be it is time to merge the RRBs with their parent banks.

4. Male/Female deposit ratio is 27.61% in favour of male depositors which indicates a target market for RRBs in the form of female customers.

5. Profit/loss is has a low correlation with the amount invested in shares indicating less contribution from this investment into profit or loss.

6. Term loans have almost perfect correlation with advances in India indicating a high similarity in disbursements in both the products.

7. Profit/loss and Income of RRBs has been correlated directly with credit provided and capital invested which is justified.

8. Deposit to Capital ratio increased constantly till 2000 and fell sharply in 2001 probably tightening the credit policies in the times of slowdown witnessed in 2001.

9. Borrowing to Capital ratio fluctuated between a high of 18.6 and low of 1.98 indicating that borrowings were used for Assets/Liabilities Management.

10. Fixed assets were almost zero in comparison to the capital of RRBs till 1984 which probably was due to support of government infrastructure avoiding big investment in

fixed assets. The Fixed Asset/Capital ratio never in the time period went above 10% indicating an area of focus by RRBs. Also Fixed Assets and Capital, both, have a high positive correlation with Profit.

11. Total Income, Profit and Deposit mobilization is highest for the year 2000.Also it is observed that the total income has been on the lower side in later part of the time period in comparison to the early part. Similarly with the profits also. This is an area of concern for the RRBs and needs to be looked into.

12. Credit, Reserve & Surplus, Savings Bank deposit and investment in shares are highly skewed on the positive side while Profit/Loss is negatively skewed.

13. Also Profit/Loss, Total Income, Capital, Deposits in India ,Term deposits and balance with banks in India have a negative kurtosis.

14. The total income of the all the banks has increased post 1990 but the ratio of total income to total assets(TI/TA) has been fluctuating for the period which indicates a volatility and which signals lack of proper asset management in the banking group.

15. Table four indicates the year and parameter for having the highest vale as 100% and the standing of all other years in comparison. Ideally it should be in ascending order.Net Interest Income and Interest Ratio was most efficient for the most recent year indicating the increasing in Interest efficiency for RRBs. For Net Interest Margin the most efficient period was 2000-2001, indicating a fall in efficiency which gives negative signals. The parameters of TI/TA and OE/TE also indicate fluctuating efficiency and hence give negative signals.

Conclusions:

There is a need to look into the banking policy for rural sector, especially in the light of increased economic power and greater access to urban sector by the rural sector. Public private partnership model can be implemented for priority sector lending thus reducing obligation of the banks and releasing money in other segments of the economy. There is a strong need for professional management of the working of these institutions.

Also it is observed that RRBs till date have been catering in majority to the low earning, individuals of rural markets and operating with amore social orientation than commercial. The commercial funding by them have been limited and which has been more a domain of large public sector bank with rural branches. There is a need to look into the rural banking sector in totality.

Annexures:
Table-1 : Basic Statistics/Data summary of important parameters

	RandS	CAPITAL	DEPOSITS	Deposits.India	Deposits.outsde	SBdpst
N	28	28	28	16	16	28
Mean	9.1464E2	7.3200E2	2.0439E4	34490.3750	.0000	9.5376E3
Median	46.0000	1.3500E2	7910.0000	29642.5000	.0000	3.4825E3
Std. Error of Mean	2.88712E2	1.76841E2	4.65536E3	6118.51189	.00000	2.34885E3
Minimum	-156.00	15.00	136.00	5902.00	.00	81.00
Maximum	4918.00	2368.00	83144.00	83144.00	.00	4.61E4
Range	5074.00	2353.00	83008.00	77242.00	.00	4.60E4
Std. Deviation	1.52772E3	9.35755E2	2.46339E4	24474.04755	.00000	1.24289E4
Variance	2.334E6	8.756E5	6.068E8	5.990E8	.000	1.545E8
Kurtosis	1.037	-.998	.365	-.774	.	2.139
Std. Error of Kurtosis	.858	.858	.858	1.091	.	.858
Skewness	1.519	.930	1.214	.584	.	1.659
Std. Error of Skewness	.441	.441	.441	.564	.	.441
Harmonic Mean	.ᵃ	75.7295	1232.9833	18107.4359	.ᵇ	7.0416E2
Geometric Mean	.0000	2.1916E2	6423.0860	25648.9501	.0000	3.1390E3
a. The data contains both negative and positive values, and possibly zero values.						
b. The weighted sum of reciprocals is zero.						

Table-1 : Continued

Data Summaries

	Proft.Loss	Total.Inc	TAx.Paid	FixdAsst.const	FixdAsset	TermLoans
N	18	18	18	18	28	16
Mean	135.6111	3.3784E3	35.2222	.1111	48.6071	9300.6875
Median	145.5000	3.0960E3	7.5000	.0000	30.5000	7091.0000
Std. Error of Mean	1.12640E2	5.53951E2	1.47040E1	.07622	10.67737	1.60476E3
Minimum	-803.00	593.00	.00	.00	.00	2878.00
Maximum	755.00	7447.00	250.00	1.00	196.00	23852.00
Range	1558.00	6854.00	250.00	1.00	196.00	20974.00
Std. Deviation	4.77890E2	2.35021E3	6.23836E1	.32338	56.49932	6.41905E3
Variance	2.284E5	5.524E6	3.892E3	.105	3192.173	4.120E7
Kurtosis	-1.095	-1.564	8.390	5.977	1.057	.286
Std. Error of Kurtosis	1.038	1.038	1.038	1.038	.858	1.091
Skewness	-.352	.231	2.734	2.706	1.348	1.093
Std. Error of Skewness	.536	.536	.536	.536	.441	.564
Harmonic Mean	.ᵃ	1.7112E3	.ᵃ	.ᵃ	.ᵃ	6173.0073
Geometric Mean	.ᵇ	2.4681E3	.0000	.0000	.0000	7512.1735
a. The data contains both negative and positive values, and possibly zero values.						
b. The data contains negative values.						

Table-1 : Continued

	Crdt	TermDpst	Borrowings	Balnc.rbi	Balc.bnk.ind	Invt.share
N	28	28	28	16	18	16
Mean	4.6454E3	9.8122E3	2665.0000	1.3830E3	9139.9444	42.5625
Median	2.5270E3	3.9670E3	1978.0000	7.6350E2	8909.0000	29.5000
Std. Error of Mean	1.08050E3	2.13034E3	434.56164	3.63653E2	1501.22948	16.80327
Minimum	160.00	44.00	101.00	.00	1174.00	.00
Maximum	2.33E4	32247.00	9776.00	4886.00	19009.00	277.00
Range	2.32E4	32203.00	9675.00	4886.00	17835.00	277.00
Std. Deviation	5.71748E3	1.12727E4	2299.48403	1.45461E3	6369.17729	67.21306
Variance	3.269E7	1.271E8	5287626.815	2.116E6	4.057E7	4517.596
Kurtosis	4.049	-.919	2.184	.620	-1.608	11.133
Std. Error of Kurtosis	.858	.858	.858	1.091	1.038	1.091
Skewness	2.075	.847	1.354	1.233	.153	3.145
Std. Error of Skewness	.441	.441	.441	.564	.536	.564
Harmonic Mean	1.1458E3	426.9953	763.1701	.ᵃ	4218.9815	.ᵃ
Geometric Mean	2.4214E3	2.7797E3	1658.9591	.0000	6509.9079	.0000
a. The data contains both negative and positive values, and possibly zero values.						

Correlations ## Table-2 : The Correlations among important variables

		Proft.Loss	Total.Inc	TAx.Paid	FixdAsset	Crdt	CAPITAL
Proft.Loss	Pearson Correlation	1	.842**	.452	.723**	.664**	.795**
	Sig. (2-tailed)		.000	.060	.001	.003	.000
	N	18	18	18	18	18	18
Total.Inc	Pearson Correlation	.842**	1	.651**	.904**	.840**	.934**
	Sig. (2-tailed)	.000		.003	.000	.000	.000
	N	18	18	18	18	18	18
TAx.Paid	Pearson Correlation	.452	.651**	1	.835**	.903**	.568*
	Sig. (2-tailed)	.060	.003		.000	.000	.014
	N	18	18	18	18	18	18
FixdAsset	Pearson Correlation	.723**	.904**	.835**	1	.962**	.909**
	Sig. (2-tailed)	.001	.000	.000		.000	.000
	N	18	18	18	28	28	28
Crdt	Pearson Correlation	.664**	.840**	.903**	.962**	1	.843**
	Sig. (2-tailed)	.003	.000	.000	.000		.000
	N	18	18	18	28	28	28
CAPITAL	Pearson Correlation	.795**	.934**	.568*	.909**	.843**	1
	Sig. (2-tailed)	.000	.000	.014	.000	.000	
	N	18	18	18	28	28	28
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Table-2 : Continued

		Proft.Loss	TermLoans	Unsecrd	Invt.share	ADV.ind	Borrowings
Proft.Loss	Pearson Correlation	1	.716**	.646*	.363	.679**	.638**
	Sig. (2-tailed)		.002	.013	.168	.003	.004
	N	18	16	14	16	17	18
TermLoans	Pearson Correlation	.716**	1	.982**	.505	.999**	.972**
	Sig. (2-tailed)	.002		.000	.065	.000	.000
	N	16	16	14	14	15	16
Unsecrd	Pearson Correlation	.646*	.982**	1	.540*	.981**	.940**
	Sig. (2-tailed)	.013	.000		.046	.000	.000
	N	14	14	14	14	14	14
Invt.share	Pearson Correlation	.363	.505	.540*	1	.535*	.495
	Sig. (2-tailed)	.168	.065	.046		.033	.051
	N	16	14	14	16	16	16
ADV.ind	Pearson Correlation	.679**	.999**	.981**	.535*	1	.977**
	Sig. (2-tailed)	.003	.000	.000	.033		.000
	N	17	15	14	16	17	17
Borrowings	Pearson Correlation	.638**	.972**	.940**	.495	.977**	1
	Sig. (2-tailed)	.004	.000	.000	.051	.000	
	N	18	16	14	16	17	28

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table-3 : Some derived calculations

YEAR	TI/TA	OE/TE	II/IE	NII(Rs.Lakhs)	NIM
1990	9.75%	43.81%	147.06%	153.56	4.54%
1991	9.82%	44.06%	154.67%	219.59	6.25%
1992	8.46%	47.50%	145.49%	220.26	5.50%
1993	9.11%	42.98%	132.87%	213.48	4.77%
1994	8.66%	42.81%	132.28%	243.05	4.83%
1995	8.27%	43.58%	136.08%	307.14	5.13%
1996	7.96%	40.55%	133.52%	356.83	5.06%
1997	8.76%	35.47%	139.06%	570.93	7.22%
1998	9.37%	32.27%	148.06%	851.81	9.44%
1999	9.58%	31.53%	153.93%	1149.39	10.89%
2000	9.81%	29.17%	153.57%	1373.85	11.06%
2001	9.80%	28.20%	155.74%	1653.02	10.98%
2002	9.79%	30.47%	155.94%	1862.18	10.51%
2003	9.31%	32.64%	156.72%	1951.15	9.32%
2004	8.88%	35.18%	164.60%	2172.16	8.68%
2005	7.89%	36.33%	179.59%	2515.33	7.91%
2006	6.17%	41.92%	186.61%	2398.7458	6.23%
2007	7.04%	42.08%	190.95%	3294.0972	6.96%

Table-4 : Efficiency scores of RRBs(Year Basis)

YEAR	TI/TA	OE/TE	II/IE	NII	NIM
1990	99.27%	100.00%	77.01%	4.66%	41.03%
1991	100.00%	100.00%	81.00%	6.67%	56.53%
1992	86.19%	108.42%	76.19%	6.69%	49.71%
1993	92.77%	98.11%	69.58%	6.48%	43.14%
1994	88.20%	97.72%	69.28%	7.38%	43.67%
1995	84.17%	99.47%	71.26%	9.32%	46.39%
1996	81.10%	92.57%	69.92%	10.83%	45.72%
1997	89.23%	80.97%	72.82%	17.33%	65.27%
1998	95.39%	73.67%	77.54%	25.86%	85.37%
1999	97.57%	71.97%	80.61%	34.89%	98.42%
2000	100.00%	66.59%	80.42%	41.71%	100.00%
2001	100.00%	64.37%	81.56%	50.18%	100.00%
2002	100.00%	69.55%	81.66%	56.53%	95.07%
2003	94.84%	74.50%	82.08%	59.23%	84.27%
2004	90.40%	80.30%	86.20%	65.94%	78.44%
2005	80.39%	82.92%	94.05%	76.36%	71.54%
2006	62.84%	95.68%	97.73%	72.82%	56.29%
2007	71.70%	96.04%	100.00%	100.00%	62.93%

Table-5 : Important derived variables

Year	D/C	B/C	FA/C	TI/C	P.L/C
1979	9.20	6.79	0.00	NA	NA
1980	10.82	8.03	0.00	NA	NA
1981	13.13	9.27	0.00	NA	NA
1982	16.62	11.21	0.02	NA	NA
1983	18.82	12.56	0.00	NA	NA
1984	23.02	15.07	0.00	NA	NA
1985	28.46	17.82	0.01	NA	NA
1986	32.44	18.00	0.02	NA	NA
1987	34.85	17.36	0.01	NA	NA
1988-89	38.19	18.10	0.06	NA	NA
1990	44.33	17.46	0.31	7	0.13387
1991	47.94	17.16	0.28	7	0.189455
1992	51.89	16.87	0.26	6	-2.16758
1993	53.79	15.20	0.23	7	-2.4006
1994	62.98	14.14	0.22	7	-2.62027
1995	67.09	13.69	0.20	7	-2.39666

Year	D/C	B/C	FA/C	TI/C	P.L/C
1995	67.09	13.69	0.20	7	-2.39666
1996	39.54	7.22	0.11	4	-1.25888
1997	25.50	4.20	0.06	3	-1.13824
1998	19.85	2.90	0.04	2	0.063298
1999	19.60	2.64	0.04	2	0.159102
2000	159.54	18.60	0.32	21	2.120198
2001	18.69	1.98	0.04	2	0.293133
2002	20.78	2.11	0.04	3	0.284562
2003	23.16	2.21	0.05	3	0.271482
2004	25.35	2.07	0.06	3	0.339846
2005	27.05	2.41	0.07	3	0.326498
2006	30.40	3.11	0.08	2	0.207966
2007	35.10	4.13	0.08	3	0.204428

Where

1. D/C indicates Deposits by Capital

2. B/C indicates Borrowings by Capital

3. FA/C indicates Fixed Assets by Capital

4. TI/C indicates Total Income by Capital (data not available for 1979-1989)

5. P.L/C is Profit or Loss by Capital (data not available for 1979-1989)

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In the Arena of Corporate Governance in Banks of India

Anu Antony

ABSTRACT

The convergence of financial market accelerated the growth and the complexity in the financial system. The corporate culture in India was started in 1947 as a part of industrialization. Though the industrialization opens the window for the corporate growth, it also witnessed many scams with shock the entire financial system as such. The need for corporate governance was first realized in the India with the Harshad Mehta's scam in April 1992 with shocked a large number of banks and even the stock market. Sarbanes - Oxley Bill (popularly called SOX) was enacted in July 2002, has brought forward fundamental changes in the every area of corporate governance. More over Basel Committee has come up with guidelines to improve the supervisions among the banks. In India, corporate governance initiatives have been undertaken by the Ministry of Corporate Affairs (MCA) and the Securities and Exchange Board of India (SEBI). The first formal regulatory framework for listed companies specifically for corporate governance was established by the SEBI in February 2000, following the recommendations of Kumarmangalam Birla Committee Report. It was enshrined as Clause 49 of the Listing Agreement. Further, SEBI is maintaining the standards of corporate governance through other laws like the Securities Contracts (Regulation) Act, 1956; Securities and Exchange Board of India Act, 1992; and Depositories Act, 1996. Reserve Bank of India has taken various steps furthering corporate governance in the Indian Banking System such as a) Transparency b) Off-site surveillance c) Prompt corrective action

Key words : Corporate Governance, RBI, Regulatory Bodies, Supervision.

Introduction

In the arena of corporate governance in banks of India, Corporate governance has become the subject with tremendous relevance, focus and significance in the present day business world. The corporate culture in India was started with the development of industrialization after 1947. Harshad Mehta scam (1992), C.R. Bhansali, Ketan Parekh, Enron, Houston, World Com, Satyam Computer Limited (a firm which was decorated with awards for corporate governance) which shocked the business world with their unethical and illegal practices. Though the economic development and corporate governance were intrinsically linked, these illegal practices are adversely affecting the market indicators. As a matter of economic development, the

Governments, Regulators of stock exchanges, Banks and other financial institutions continuously reviews the system and procedures to enhance corporate governance.

The main objective of this paper is

1. to find out the various measures taken by the governing authorities to reduce the fraudulent activities by the banker;

2. Measure taken by the authorities to improve the customer satisfaction.

The need for corporate governance was first realized in the India with the Harshad Mehta's scam in April 1992 which shocked a large number of banks and even the stock market. Rs. 3500 crores were misappropriated in this single scam. This scam was engulfed by top executives of large nationalized banks, foreign banks and financial institutions, brokers, bureaucrats and politicians. It was followed by consolidating the ownership of transnational companies by issuing equity allotments in 1993. Frauds in banks are increasing day by day. Initially it was in traditional areas such as cash credit export finance, guarantees, letter of credit, etc. Now the trend is in retail segment such as housing and mortgage loans, credit card dues, internet banking, etc. the complexity of these frauds was creating the operational risk for the bank. The chart shows the recent frauds reported in the banking sector. So in order to safeguard the stakeholders of the banks the Reserve bank of

India has tightend its supervisory control over the banks and initiated Fraud Risk Management System in banks.

In order to have a uniformity in reporting, RBI has classified fraud based on the provision of Indian Penal Code[1]

•   Misappropriation and criminal breach of trust.

•   Fraudulent encashment through forged instruments, manipulation of books of account or through fictitious accounts and conversion of property.

•   Unauthorised credit facilities extended for reward or for illegal gratification.

•   Negligence and cash shortages.

•   Cheating and forgery.

•   Irregularities in foreign exchange transactions.

Definitions of Corporate governance

The concept of corporate governance sounds simple and unambiguous. The definition varies according to the sensitivity of the analyst and from the standpoint of academics versus corporate managements. From the academic standpoint, "it is the problems that result from the separation of ownership and control". According to the Noble laureate Milton Friedman "Corporate Governance is to conduct the business in accordance with owner or shareholders' desires, which generally will be to

Year	Fraud		Fraud involving Rs. 1 crore and above	
	Number	Amount	Number	Amount
2004-05	10450	779	96	461
2005-06	13914	1381	194	1094
2006-07	23618	1194	150	840
2007-08	21247	1059	177	659
2008-09	23914	1883	212	1404

make as much money as possible, while conforming to the basic rules of the society embodied in law and local customs.

According to OECD the Corporate Governance structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as, the Board, managers, shareholders and other stakeholders spells out the rules and procedures for making decisions on corporate affairs.

In other words it is transparency, accountability and promoting the corporate fairness.

According to La Porta et al (2000), good corporate governance lowers the cost of capital by reducing risk and creates higher firm valuation by boosting real investments. This mechanism will ensure better resources allocation and better Return on assets (ROA).

Even this will reduce the financial crisis. According to Johnson et al (2000), there is a mechanism will ensure better resources allocation and better Return on assets (ROA).

Even this will reduce the financial crisis. According to Johnson et al (2000), there is a strong relationship between the quality of corporate governance and currency depreciation. Indeed poor transparency and corporate governance norms are believed to be the key reasons behind the South East Asian Crisis of 1997. Finally a good governance will increase the stakeholders confidence, reduces legal costs and improve better stakeholder relationship.

Sarbanes - Oxley Bill (popularly called SOX) was enacted in July 2002, has brought forward fundamental changes in every area of corporate governance and particularly in auditor independence, conflicts of interest, corporate responsibility, enhanced financial disclosures,

and severe penalties, both fines and imprisonment, for willful default by managers and auditors.[2]

In 1999 the Basel Committee on Banking Supervision published the guideline to assist banking supervisors in promoting the adoption of sound corporate governance practices. The purpose of these guidelines is to assist the government in order to improve and evaluate the framework of corporate governance in the financial market. A poor corporate governance will pose a significant public cost and deteriorate the public interest and confidence, which is essential for the banking system. Good corporate governance will make the management and the board more effective.[2]

This will help the directors to set the.[2]

a. Corporate objectives;

b. Operate the bank's business on a day-to-day basis;

c. Meet the obligation of accountability to their shareholders and take into account the interests of other recognized stakeholders;

d. Align corporate activities and behavior with the expectation that banks will operate in a safe and sound manner, and in compliance with applicable laws and regulation and;

e. Protect the interests of depositors.

Sound governance will contribute to the protection of depositors of bank and permit the supervisor to place more reliance on the bank's internal processes.

Basel II Accord
In order to reduce the operational risk, the Bank of International Settlements (BIS) has framed Basel I and II Accord to ensure adequate capitalization of banks. Basel I was a proposal dealt with credit risk only. Concentrating on

credit risk will dilute the capitalisation of the banks. Inadequate estimation of the overall risk by bank affects under Basel I norm. In order to overcome the Basel I deficiencies Basel II was formulated. It covers systematic risk, credit risk, operational risk and the market risk.

The Basel II recommendations are based on three pillars

•   Minimum Capital requirement:

•   Supervisory review:

•   Market Discipline.

Basel II norm was designed with sophisticated techniques using autonomous risk assessment. This helps the board and the management to evaluate the risk of a bank scientifically. In long term it acts as a yardstick to measure the Corporate Governance of the bank. Even though the issues of Basel II are multiple it vary from country to country

2.   Dept of Company Affairs: www.dca.nic.in depending on the banking environment.

The implementation of Basel II affects the Indian banks in various ways. It involves high costs for valuation. It improves operational performance of the bank. Better allocation of resources, better management and the transparency improves the stakeholder relationship.

It enhances the role of the regulator (RBI) in supervising and maintaining market discipline. The supervisory review process will involve: -

   • Ensuring that banks have adequate capital

   • Encouraging banks to develop and use better risk management techniques

   • Evaluate banks on
      o Bank's assessment of capital needs relative to risk
      o Effectiveness of risk management

      systems
      o Effectiveness of internal control process

The three pillars of the Basel II such as minimum capital requirement , supervisory review process and market discipline rejuvenate the transparency in banking sector.

Corporate Governance and Indian Banks

The corporate governance of banks and other financial intermediaries have significant role for shaping the capital allocation in the financial market at country level. The security scam creates systematic risk for banks especially in the settlement issue during the process of transacting the securities. It is a result of domino effect. Since independence, Indian banks have gone through four major phases -

•   Foundation phase (1949- 1969);, which witnessed the development of the required legislative framework for facilitating and catering the growth and development of the Indian economy.

•   Period of historic expansion in both geographical and functional terms (from 1969 to mid 1984);

•   Period of consolidation (1985 to 1990);

•   Reform phase from 1991 onwards.

The reform phase introduced many innovations in banking environment in India. This phase was the resultant of the M Narasimham committee recommendations. Innovation includes increase in the number of foreign banks and the ATM stations. Phone banking and net banking were introduced. The entire system became more convenient and swift. Time is given importance in all money transactions.

These reforms resulted in consolidating the banking activities. The consolidation helps in increasing the strength of bank and improves the

customer service.

The reforms followed by M Narasimham committee included accepting international norms in income recognition, establishment of new generation bank and entry of foreign banks, diluting the government stake, transparency and disclosure standards in financial reporting, adoption of Basel Accord on capital adequacy, technological innovations which promote computerization and introduction of electronic banking. These reforms changes approaches of the bank in terms of competition, profitability and even harmonization of global operational standards and adoption of best practices

At end-March 2009, there were 80 commercial banks (excluding RRBs); 4 local area banks; 86 Regional Rural Banks; 1,721 Urban Co-operative Banks. Between July 2008 and June 2009 around 20 branches/subsidiaries/representative offices are opened by the Indian banks abroad In 52 countries the Indian banks made their presence through either branches or subsidiaries or representatives or through Joint Venture.

Organizational Framework of Corporate Governance in India

In India, corporate governance initiatives have been undertaken by the Ministry of Corporate Affairs (MCA) and the Securities and Exchange Board of India (SEBI). The first formal regulatory framework for listed companies specifically for corporate governance was established by the SEBI in February 2000, following the recommendations of Kumarmangalam Birla Committee Report. It was enshrined as Clause 49 of the Listing Agreement. Further, SEBI is maintaining the standards of corporate governance through other laws like the Securities Contracts (Regulation) Act, 1956; Securities and Exchange Board of India Act, 1992; and Depositories Act, 1996.

The Ministry of Corporate Affairs had appointed a Naresh Chandra Committee on Corporate Audit and Governance in 2002 in order to examine various corporate governance issues. It made recommendations in two key aspects of corporate governance: financial and non-financial disclosures: and independent auditing and board oversight of management. It is making all efforts to bring transparency in the structure of corporate governance through the enactment of Companies Act and its amendments.

The Committee's recommendations relate to: [3]

- Disqualifications for audit assignments;

- List of prohibited non-audit services;

Table 2 : Total number of Banks in India as on June 30 , 2009

Banks	No. of banks	No. of Branches
SBI & Associates	7	16260
Nationalized bank	20	39095
Old private sector Banks	15	4701
New private sector bank	7	4264
Foreign banks	32	295
Regional rural bank	86	15144
Non scheduled commercial bank	4	44

Sources : Reserve Bank of India Annual Report 2008-09

- Independence Standards for Consulting and Other Entities that are Affiliated to Audit firms

- Compulsory Audit Partner Rotation;

- Auditor's disclosure of contingent liabilities;

- Auditor's disclosure of qualifications and consequent action;

- Management's certification in the event of auditor's replacement;

- Auditor's annual certification of independence;

- Appointment of auditors;

- Setting up of Independent Quality Review Board;

- Proposed disciplinary mechanism for auditors;

- Defining an independent director;

- Percentage of independent directors;

- Minimum board size of listed companies;

- Disclosure on duration of board meetings/committee meetings;

- Additional disclosure to directors;

- Independent directors on Audit Committees of listed companies;

- Audit Committee charter;

- Remuneration of non-executive directors;

- Exempting non-executive directors from certain liabilities;

- Training of independent directors;

- SEBI and Subordinate Legislation;

- Corporate Serious Fraud Office; etc.

In the year 2002 in order to improve the corporate governance standards in India another committee was constituted by SEBI under the chairmanship of Mr. N R Narayana Murthy to review Clause 49. The key mandatory recommendations focused on strengthening the responsibilities of audit committees;

- improving the quality of financial disclosures, including those related to related party transactions and proceeds from initial public offerings;

- requiring corporate executive boards to assess and disclose business risks in the annual reports of companies;

- introducing responsibilities on boards to adopt formal codes of conduct; the position of nominee directors; and stock holder approval and improved disclosures relating to compensation paid to non-executive directors.

Measures taken by RBI towards Corporate Governance

Reserve Bank of India has taken various steps furthering corporate governance in the Indian Banking System. It is broadly classified into the three categories:

a) Transparency

b) Off-site surveillance

c) Prompt corrective action

Transparency and disclosure standards are the important constituents of a sound corporate governance mechanism. The transparency aspect emphasis by expanding the coverage of information and timeliness of such information and analytical content. Transparency and accounting standards in India have been enhanced to align with international best practices. More over all the banks are more or less following the BASEL accords

The off-site surveillance mechanism is also active in monitoring the movement of assets, its impact on capital adequacy and overall efficiency and adequacy of managerial practices in banks. RBI

also brings out the periodic data on "Peer Group Comparison" on critical ratios to maintain peer pressure for better performance and governance.

Prompt corrective action has been adopted by RBI as a part of core principles for effective banking supervision. As against a single trigger point based on capita adequacy normally adopted by many countries, Reserve Bank in keeping with Indian conditions have set two more trigger points namely Non-Performing Assets (NPA) and Return on Assets (ROA) as proxies for asset quality and profitability. These trigger points will enable the intervention of regulator through a set of mandatory action to stem further deterioration in the health of banks showing signs of weakness.

Conclusions

A good corporate governance has improved the value of the stake holders and the shareholders. The recent growth in the financial system increases the complexity in nature due to the competition. The growth of financial market increases the operational flexibility and a greater prudential regulation and supervision. With elements of good corporate governance, sound investment policy, appropriate internal control systems, better credit risk management, focus on newly-emerging business areas like micro finance, commitment to better customer service, adequate automation and proactive policies on house-keeping issues, co-operative banks will definitely be able to grapple with these challenges and convert them into opportunities.

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Effect of Demographic Characteristics on Information Search Behaviour of Consumers

Rashmi

ABSTRACT

This article concentrates on examining the effect of demographic characteristics on information search behaviour of consumers for fast moving consumer goods (FMCG). A field survey of 315 actual consumers of brands was conducted. The various demographic variables examined were gender, age, marital status, education, income, occupation and city (place of residence). A regression analysis was done to examine the relationship between amount of information search and consumer demographics. Results indicated that the most influencing demographic variable affecting information search behaviour is occupation (retirement of consumers). Males and married people are less interested in making information search. Age, education and income are negatively related to the amount of information search. Further results for place of residence indicated that consumers of Jalandhar make more information search as compared to consumers of Amritsar whereas consumers of Ludhiana, Chandigarh and Delhi make fewer searches as compared to the consumers of Amritsar.

Key words: Demographics, Information Search, Consumers, Regression Analysis.

Introduction

Consumer decision-making process starts when a need is identified by the consumer. In order to satisfy that need, consumer undertakes information search process. Haines (1978) defined information search to include such data that induces consumer to construct or alter an existing decision process for the relevant product, including raw data, encoded symbols, and any other data capable of representing reality to the decision-maker. Thus it means consumer makes information search to obtain all relevant facts that could provide satisfactory solution to the problem. For every product category, consumer selects his/her final product from the numerous competing brands. Most of the stores stock a large number of brands to provide consumers a large variety to make choice. In order to make a wise choice, information search is necessary (Guo, 2001). For example, a consumer needs a digital camera. In order to get the best brand of digital camera, consumer must have knowledge about various brands of digital cameras prevailing in the market, their distinct features, promotional offers, etc.

Information search is a conscious goal-oriented behaviour whereby consumers acquire information to clarify or evaluate a particular brand or product class. Bei and Widdows

(1999) argued that in a world of imperfect information, consumers always seek more information as long as the expected pay off from the another search exceeds its marginal cost. The implication is that more information would result in a "smarter" purchase.

Actually consumers are driving force in today's market economy. In order to have high quality products at fair, reasonable and competitive prices, they need to be knowledgeable consumers. Every company want to include its product/brand/service in the purchase list of the consumer. This can be possible only if the consumer is properly informed about such alternatives. Once he/she is informed about the existence of these options, the chance of considering that alternatives can increase in the next purchase occasion. Thus the information providing is very essential for the consumers. This task becomes more crucial for the new company because the consumers are not having any knowledge about their product. Thus information search stage plays a very crucial role in consumers' purchase decision. McColl-Kennedy and Fetter (2001) suggests that information search is a primary means of increasing knowledge, reducing perception of risk and uncertainty and increasing post purchase satisfaction.

The study of information search behaviour of consumers is very vital because information search is considered as an indispensable part of the consumer decision-making. Howard (1963) said that in choosing products and brands, an individual tends to rely strongly on his past experience with the product and brand. The greater the experience with the particular products, the less will be importance attached to outside sources of information such as advertising, discussion with friends, etc. Nicosia (1967) provides that when an individual is exposed to an informational cue that is, an advertising message, he forms an attitude. Wide information search and evaluation motivates him to make the final purchase decision. Howard and Sheth (1969) also included a stage of information search in his model. The model starts when a stimulus is given to the consumer. Any ambiguity about stimulus motivates the consumer to make information search. Because of knowledge derived from search, consumer clears his all doubts and makes a purchase decision. Engel et al., (1973) presented a model, which is based on learning process. He provided a stage of information search and evaluation of alternatives in decision-making process. At each stage of the process, the consumer is faced with a new decision and he makes these decisions in the light of information either received actively, passively or his internal information that is, past experience. A review of these basic models of consumer choice process highlighted the importance of information search process which makes it necessary to examine this stage of consumer decision-making.

A Review of Literature Regarding Role of Demographics in Information Search Process

Above discussions has clearly elaborated the role of information search process in consumer decision-making. Further, understanding the amount of information search efforts made by different segments of consumers is of great relevance to marketers to frame appropriate marketing strategy for different segments as consumers differ from one another because of different demographic characteristics (Slama and Tashchain, 1985). A large number of studies have analysed the role of demographics in the process of information search task.

Newman and Staelin (1972); Claxton et al., (1974); Kiel and Layton (1981); Ratchford (1982) and Putrevu and Lord (2001) found that education level of the consumers influence their information search process. Moore and Lehmann (1980) and Putrevu and Lord (2001) analysed the role of marital status of the consumers in information search behaviour. Kiel and Layton (1981); Ratchford (1982); Furse et al., (1984) and Putrevu and Lord (2001) observed that age is related to the amount of information search made. Meyers-Levy and Maheshwaran (1991) examined the difference between the behaviour of males and females at the time of buying. Kiel and Layton (1981); Avery (1996) and Putrevu and Lord (2001) illustrated the role of income in information search behaviour of the consumers.

The greatest limitation of the above mentioned review is that all these studies are conducted in developed countries. No study examines the effect of demographics in context of developing countries or under-developed countries. This article concentrates on examining the effect of demographic characteristics on information search behaviour of consumers selected from a developing country say India for fast moving consumer goods (FMCG). However the consumers from few cities of India are taken for convenience.

Research Methodology

Selection of the Sample

For the purpose of understanding the information search behaviour of consumers, a convenient survey of 315 actual consumers of brands was conducted. The survey yielded a total of 304 complete usable questionnaires. The survey was conducted in northern part of India covering Amritsar (24%), Jalandhar (20%), Ludhiana (22%), Chandigarh (18%) and Delhi (16%).

Out of the total respondents, 47% were male and 53% were females. The percentage of married respondents was 55% and unmarried was 45%. About 30% and 50% of the respondents were of 18-24 years and 25-35 years of age group respectively whereas 20% were above 35 years. Only 10% of the respondents were under graduate, 29% were graduate and 61% were postgraduate and professionally qualified. Out of total respondents, 32% were self employed, 11% were student, 8% were housewives, 33% were salaried person and 6% were retired personnel. Fifteen percent of the respondents were earning up to Rs.15000/-, 30% were having Rs.15001/-Rs.25000/-, 29% were in Rs.25001/-Rs.35000/-income group and 26% were earning above Rs.35001/-.

Selection of the Product

The scope of this study was restricted to the fast moving consumer goods (FMCG) brands. East (1997) provides that in case of FMCG products, choice is the outcome of habitual behaviour because of low involvement. However Rundle-Thiele and Bennett (2001) argue that such products become high involvement products at the time of their initial purchase and subsequent purchases become routine process provided the market is stable. But whenever there is a new entry, the decision making process breaks the habitual nature of purchase. Thus in case of FMCG, information search behaviour becomes important, because of the availability of the large number of the brands, the large number of the dimensions (attributes) on which these are evaluated and varied prices of these alternatives.

The product category chosen is toothpaste which creates importance in the minds of the consumers because of its utilitarian nature as any wrong purchase could result into serious dental problem. Thus a consumer is very conscious while indulging in buying process of this product.

Further in India, a large number of companies are dealing with toothpaste like Colgate Palmolive India Ltd., Hindustan Unilever Ltd., Balsara Hygiene Ltd and Dabur India Ltd, Smithkline Beecham consumer Healthcare, Anchor Health & Beauty Products, Vicco Laboratories along with local made brands. The 58,000-tonne tooth-paste industry in India is worth Rs1,000/-crore*. Colgate and HUL together account for over two-thirds of the organized toothpaste market. In toothpowder market, Colgate, HUL and Dabur are the major players**.Thus it is very interesting to study the information search behaviour of the consumers with regard to these products.

Measure of Variables

Amount of information search: This study used the same scale for measuring the amount of information search as suggested by Moorthy et al. (1997). Amount of information search has been taken as simply the summation of information obtained from each of the source of information specified in Table 1. It has been measured on a

seven-point scale, ranging from 'hardly anything' to 'quite a bit' in response to the question *'Did you get any relevant information about toothpaste from (above mentioned sources of information)'.* The mean values along with their standard deviation of these measures are shown in Table 1.

The Table 1 shows that the highest score is provided to TV advertisements (6.16), followed by past experience (5.85), whereas least scored source of information is direct mails (3.78).

Independent variables: In the present study, the independent variables are demographic variables which are gender, age, marital status, education, income, occupation and city. These variables are measured in terms of dummy variables (gender, marital status, occupation and city), continuous variables (age) and categorical variables (education and income). A description of these variables is shown in Table 2. In case of gender, male and female are two categories. Female category is taken as base. Thus if a respondent male, value assigned is one and if female, then zero.

Table 1: Statistics for Sources of Information Search

Sources of information	Mean (Standard Deviation)
TV advertisements	6.16 (1.03)
Radio advertisements	4.11 (1.67)
Newspaper, Magazine advertisements	4.99 (1.46)
Past experience	5.85 (1.26)
Manufacturer's brochure and pamphlets	4.52 (1.42)
Salesperson and Shopkeeper's advice	4.50 (1.61)
Friends and family's advice	4.91 (1.58)
Window shopping through store visits	4.57 (1.63)
Manufacturer's websites	4.14 (1.67)
POP advertisements	4.79 (1.58)
Ads on public transport	3.91 (1.78)
Cinema advertisements	4.03 (1.81)

Table 2: Description of Independent Variables

Variable	Description
Gender	1 if respondent is male, 0 otherwise.
Age	Actual age mentioned by the respondent.
Marital Status	1 if respondent is married, 0 otherwise.
Education	1 if the respondents were under graduates,
	2 if the respondents were graduates
Variable	**Description**
	3 if the respondents were post graduates/professionally qualified.
Income	1 if the income is less than ₹15000/-
	2 if the income is ₹15001/- to ₹25000/-
	3 if the income is ₹25001/- to ₹35000/-
	4 if the income is ₹35001/- and above.
Occupation: Self employed	1 if respondent is self employed, 0 otherwise.
Occupation: Salaried	1 if respondent is salaried person, 0 otherwise.
Occupation: Housewife	1 if respondent is hosewife, 0 otherwise.
Occupation: Retired	1 if respondent is retired personnel, 0 otherwise.
City: Jalandhar	1 if respondent is resident of Jalandhar city, 0 otherwise.
City: Ludhiana	1 if respondent is resident of Ludhiana city, 0 otherwise.
City: Chandigarh	1 if respondent is resident of Chandigarh city, 0 otherwise.
City: Delhi	1 if respondent is resident of Delhi city, 0 otherwise.

While measuring age, all the respondents were asked to state their actual age. Thus age is taken as a continuous variable. The actual age mentioned by the respondents was taken as the value of the variable. In case of marital status, respondents were to state their marital status in terms of married/unmarried. It was presented as a dummy variable. Unmarried status was taken as base category. Hence respondents who were married were allotted value 1 and zero otherwise. Education was measured as a categorical variable. The respondents who were under graduates were assigned a code value of one, graduates were coded as 2 and post graduates and professionally qualified people were taken as 3. Income was measured in four categories. Respondents were asked to mention their monthly family income in any of following mentioned categories, a) less than ₹15000/- b) ₹15001/- to ₹25000/- c) ₹25001/- to ₹35000/- d) ₹35001/- and above. All the income categories were assigned codes of 1,2,3,4 respectively. In case of occupation, four dummy variables were taken (self employed, salaried, housewives, and retired personnel) and 'student' was taken as base category to measure the relationship between occupation and amount of information search.

Hypothesis Setting

In this study, the influence of demographic variables is determined on information search behaviour of consumers. The various hypotheses for these variables along with the literature support are are shown as under.

Gender: Zeithaml (1985) found that men and

women often shop differently in terms of amount of pre purchase activity. Caplow (1982) and Fischer and Arnold (1990) shows that females were more information seekers and males were less interested in undertaking information search. Thus the relationship between males and information search behaviour is shown through the following hypothesis.

H₁: Male and amount of information search have negative relationship.

Age: Westbrook and Fornell (1979), Kiel and Layton (1981), Ratchford (1982), Furse et al. (1984), Iglesias and Guillen (2002) found that increased age proves an obstacle in the way of information search. Hence age and information search behaviour is negatively related. Thus the following hypothesis is framed.

H₂: Age and amount of information search have negative relationship.

Marital status: When people get married, they start making fewer searches; this contention is provided by Moore and Lehmann (1980). Hypothesis relating to this variable is shown as under.

H₃: Marriage and amount of information search have negative relationship.

Education: As the people become more educated, they become more analytical. Newman and Staelin (1972), Claxton et al. (1974), Schaninger and Sciglimpaglia (1981), Kiel and Layton (1981) and Ratchford (1982) show that education and extent of information search have positive relationship that is, with the increase in education, people start making more information search. H₄ is framed to show the relationship between education and information search.

H₄: Education and amount of information search have positive relationship.

Income: Kiel and Layton (1981) and Avery (1996) suggested that income is negatively associated to amount of information search which means that highly income grouped people are less interested in searching for more information. Thus the following hypothesis is set.

H₅: Income and amount of information search have negative relationship.

Occupation: Because of the lack of literature on this relationship, hypothesis was set up with regard to the significance. The hypothesis is as under.

H₆: Occupation and amount of information search have significant relationship.

City: There is a lack of literature which analyses the information search behaviour of consumers on the basis of their place of residence. Thus a hypothesis is set to check the level of significance.

H₇: City and amount of information search have significant relationship.

Model Specification

For the purpose of analysis, a regression equation was estimated through ordinary least square (OLS) method. The relationship between Y (dependent variable) and Xs (independent variables) is specified as under:

$$Y = \alpha + \beta_i X_i + \mu_i \qquad (1)$$

Where Y refers to amount of information search made; α is constant; β is the vector coefficient of X. X_i is a vector of various demographic variables mentioned earlier. $_i$ refers to the error term which reflects a number of different aspects that cannot be observed by a researcher such as measurement errors, omitted variables etc.

Results

The pre specified value of amount of information search as dependent variable was put into E-Views along with independent variables to test the equation 1 with the help of OLS estimators. The results after running the model are presented in Table 3.

Table 3: Results of Regression Analysis

Variable	Coefficient (T-ratio)
Constant	82.68 (11.02)*
Gender	-1.83 (-2.87)**
Age	-2.01 (-3.06)*
Marital Status	-3.06 (-3.75)*
Education	-3.12 (2.46)***
Income	-2.84 (2.93)**
Occupation: Self employed	3.32 (2.98)**
Occupation: Salaried	-2.70 (3.55)*
Occupation: Housewife	2.36 (-2.04)***
Occupation: Retired	- 4.41 (2.78)**
City: Jalandhar	1.51 (4.43)*
City: Ludhiana	-1.69 (2.95)**
City: Chandigarh	-1.59 (-2.36)***
City: Delhi	-1.26 (-2.38)***
R^2	0.385

Note: *,**,*** represent highly significant, significant at 1%, and 5% respectively.

The above stated model is a good fit since R^2 constitutes 0.385. The higher the value of R^2, greater is the %age of variation of Y explained by regression, that is, better the goodness of fit (Gujarati, 2004). Thus the above models explain 37% of total variation in Y.

All the above stated variables are found to be significant and have signs as hypothesised except the hypothesis for education which was set as positive but however results indicated a negative relation between education and information search behaviour. Thus hypotheses H_1, H_2, H_3, H_5, H_6 and H_7 have been accepted and H_4 has been rejected.

Discussion

Avery (1996) found that females were more information seekers. As per the regression results specified in Table 3 males are found to less information seekers (-1.83) whereas females search for more information. Slama and Tashchian (1985) found that women have higher levels of purchase involvement because she is identified as family purchasing agent (Davis, 1971, Wilkes, 1975). Thus she is interested in making more and more information search in order to come out with best results for her family. Parameswaran (2007) found that Indian women describe themselves not as just housewives, but as home managers. Thus they want to mange their homes in most proficient way by selecting a most excellent choice though it involves a massive search. Thus the marketing managers are required to satisfy the information urge of women.

Age is an important determinant influencing information search behaviour. Table 3 shows that with the increase in age, the longing for making more search trims down (-2.01). Westbrook and Fornell (1979) provided that age was assumed to have opposite effect on buyer's need for information search. Cole and Balasubramanian (1993) said that limited memory constrains the amount of information any person can process

while solving a problem. Elder people face an especially limited memory. Thus they cannot hold and manipulate numerous alternatives in their memory. Schaninger and Sciglimpaglia (1981) established that older people consider lesser alternatives as compared to the younger ones. Thus it means that they need less information search because they have a limited evoked set size. Staugham and Albers-Miller, (2001) observed that older people are less willing to accept new ideas thus in order to attract such people towards own brands is a tedious act. Since elder people reduce their cognitive abilities and want to simplify their decision-making process (Lambert-Pandrauel et al., 2005), marketing managers are required to present the information before them in very easy and uncomplicated foam so that they could grasp that easily.

Further marital status of the consumers has a negative relationship with the amount of information search (-3.06). This may be due to increased responsibilities. As after marriage responsibilities increases and thus people find less time for making information search.

Newman and Staelin (1972) provided that education varied directly with information search behaviour because educated persons represent interest in seeking and evaluating information. But in this analysis, reverse results are obtained. Regression results show that more educated consumers are less likely to make information search (-3.12). Thus it could be interpreted that Indian consumers are less likely to make information search when they are highly educated.

The next influential factor in information search behaviour is income. A negative relation between income and information search is observed according to Table 3 (2.84). Kiel and Layton (1981) observed that consumers, to whom purchase represents a high proportion of income,

undertake more search. It is very obvious that FMCG products like toothpaste constitute a burden for low-income group whereas high-income group people are not affected by any increase/decreases in prices of such products. Hence marketing managers should design their communication strategies according to low-income group people by providing them intensive information in such sources for which consumers are required to pay nothing, for example, road side bill boards, POP advertisement, etc.

This study observes that self employed people do more searches (3.32) and this is followed by housewives (2.36), students (base category), salaried people (-2.70) and retired personnel (-4.41).

Area of residence also emerges as an influencing factor in undergoing information search activity. While analysing behaviour of Indian people, it was established that as compared to residents of Amritsar and Jalandhar, Delhi people were very less involved in doing search followed by Ludhiana and Chandigarh.

Conclusion

Consumer is said to be a king. Thus the marketing managers need to move according to the saying of the consumer. Brands are evolved keeping in mind the needs behaviour of the consumers. But these brands are of no use if these do not come in the knowledge of the consumers. Such strategies are totally useless which concentrate on informing those consumers who are not at all interested in collecting new information. Thus marketers needs to focus on those consumers who are more information searchers. Above discussion reveals that there is two types of consumers. One who is interested in doing more and more information search task and other who do not search or make fewer searches. The reason behind the behaviour of

latter group (in this study, this group consists of males, more aged people, unmarried, less educated people, high income earners, salaried, retired personnel, residents of Delhi and Chandigarh)may be that such group may be loyal customer base of the company who is not at all interested in any other new option. Thus they do not make information search. Hence marketing managers are required to be very conscious while making strategies if they are targeting such segment. The strategy or communication should be in such manner which at once could grab their attention and could be able to shift the consumers to their product from their already existing choice. Further while targeting first segment, which is making extensive research (in this study this group consists of females, less aged people, unmarried, highly educated people, less income earners, self-employed people, housewives, residents of Jalandhar and Amritsar), a new entry is required to make a place in choice set of the consumers. Thus it needs awareness in the minds of the consumers. Hence the marketing managers are required to present the information in such a manner that concludes their product as best one.

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EVA Linked Incentive Plan : Evolving an EVA-HR Compensation Model

Dr. Shweta Lalwani

ABSTRACT

This research paper is an inter-disciplinary study which aims at application of Financial Management tools to Human Resource Management, Financial Ratios and other conventional accounting strategies to evaluate corporate performance have number of limitations. The most important amongst them is that conventional measures concentrate on profitability and such tools do not account for cost of capital i.e. cost of equity and cost of debt. A corporate unit may publish P&L Account revealing profitability; however, such profitability may not provide real profits because cost of capital has not been deducted. Management decisions based on profitability may lead to a faulty situation if cost of capital deduction provides a negative figure of profitability. It is always safe to calculate Economic Value Added (EVA) which is Net Operating Profit After Tax (NOPAT) minus capital charge. The residual amount depicts real or economic profit which may be linked to Bonus payments or HR Incentive Compensation Model is formulated that is based on EVA. Most of the Corporate Units in India are turning towards EVA calculations, EVA Reporting and linking EVA with incentive plans which are better than convention incentive plans. Since EVA is a better method of evaluating corporate performance, this study has strived to present a comparative study of EVA, NOPAT, Cost of capital and HR compensation for a sample of seven corporate giants like Godrej, HLL, Infosys, Pidilite, Cadila, Dr. Reddy's Laboratories, and ICICI. The sample in a unique combination of different types of industries and research study pertains to a period 2001-02 to 2005-06 where comparative study has been undertaken to test three main hypotheses that increase-decrease in NOPAT leads to corresponding increase-decrease in EVA, that a decrease in cost of capital results in rise in EVA and that an increase in cost of capital reduces EVA drastically. The Research analysis makes comparison on an individual basis and also on a collective basis for all sample units. Simultaneously hypotheses testing have also taken place for sample units.

The research study has evolved EVA-HR Incentive Compensation Model for Indian Corporate Sector and it has substantiated Bonus payments on the basis of EVA for sample units. The study has dealt with EVA conceptual framework in details with HR Compensation Theory and practice with special reference to EVA. The paper has investigated EVA-HR compensation linkage in details and opened future research avenues in the field.

EVA studies in India are in an infant stage; however, many corporate units are now keen to

calculate EVA for measuring corporate performance. This study with a comprehensive sample, conclusions and suggestions will be useful for many other corporate units which may intend to implement EVA process with Bonus/Incentive plan for their HR. EVA linked Bonus plans in Godrej Group, Tata Steel, TCS, Infosys have been successful and Human Resource at all levels have appreciated the initiative. The study aims at evolving EVA-HR Incentive Compensation Model for Indian Corporate Sector and it has substantiated Bonus payments on the basis of EVA for sample units.

Research Objectives:

The Study has following objectives:

1. To analyze EVA as a tool for measuring financial performance and also to determine compensation/ incentives to (employees) HR.

2. To provide comparative study of EVA reported by sample units and draw conclusions accordingly.

3. To develop a linkage of EVA with compensation and incentive plans for Human Resource in Indian Corporate Units

Identification of Problem

Most of the corporate units in India report Profitability after Tax. Profitability is the simplest indicator of financial health of a unit. Some of the units report financial ratios and other measures to evaluate financial performance.

At present shareholder value creation has gained top priority because of massive attention on stock market. Stock Prices and Shareholder value are positively correlated and depend on each other. EVA is one of the most important and contemporary tool to measure financial performance which is the only tool that accounts for cost of capital employed. Profitability measurements do not account for cost of capital and, therefore, if cost of Capital is deducted from profitability one may arrive at a negative value

also. Hence profitability is not a dependable tool.

Since EVA accounts for Cost of Capital also, then a surplus over such cost reflects the value created. This value created as a percentage of capital employed may present a correct financial performance. Hence EVA HR Incentive compensation may be a real research problem which shall be identified by this study with reference to sample corporate units. The study will particularly focus attention on a relationship between EVA and HR compensation with specific reference to Incentive Payments.

The Sample

The sampling process is not based on any particular method. The sample units have been identified on the basis of availability of data where EVA calculation is possible. In fact EVA reporting is not compulsory for Indian corporate units and therefore, all companies do not report EVA as part of their annual report. Some of the units have published EVA calculations as additional information. As such no particular criteria could be adopted to finalize a representative sample. The sample has been finalized on the basis of availability of data.

Purposive or judgemental sampling technique has been used for selection of sample. Only a few of them provide information about variables like NOPAT, Cost of Capital and EVA. Sample is based on these units, which provide secondary

data on these components of EVA. Accordingly seven companies have been selected as under:

1. Godrej Consumer Products Ltd;
2. Hindustan Level Ltd.;
3. Infosys Technologies Ltd.;
4. Pidilite Ltd.;
5. Dr. Reddy's Laboratories Ltd.;
6. Cadila Health Care Ltd; and
7. ICICI Bank Ltd.

Hypotheses

The study will test the following hypotheses:

1. That in case of sample units an increase in NOPAT (Net Operating Profit After Tax) shall lead to a corresponding increase in the Economic Value Added.
2. That in case of sample units a decrease in the Capital Charge (cost of capital) shall raise EVA.
3. That in case of sample units an increase in the Capital change (cost of capital) shall invariably decrease EVA drastically.

Research Methodology

This Research Analysis incorporates two parts. The first part deals with an in depth analysis of EVA in sample companies where EVA growth has taken place. At first instance EVA performance has been measured for individual sample units and then a comparative study of EVA in all the sample units has been undertaken.

The second part of the research analysis relates to a linkage between EVA and Human resource incentive compensation management. If a corporate unit has a positive profitability and incentive-compensation is paid, financial crisis may be an outcome. The reason is that profits have not accounted for cost of capital because it is not a part of the Profit & Loss Account. If incentive-payments are made out of profits and

then cost of capital is deducted, there may be a negative amount. EVA is a profit after deducting cost of capital. Out of this residual amount of EVA, a certain per cent may be kept for a Bonus Bank to meet out compensation in future if a corporate unit is under losses so as to enable that company to ensure sustainable incentive payments. Remaining EVA may be distributed to human resources in that corporate unit by way of compensation for ensuring greater efficiency and productivity. EVA or economic value added is a corporate performance measure that aligns employee incentives with shareholders interests." EVA allows companies to calculate the amount of real wealth that an employee generates and then links it with income incentives. The higher the EVA generated, the higher the income, uniquely, the higher the EVA generated, the greater is the likely hood of dividend payouts to the shareholders".... Nadir Godrej sums it up thus: "The Godrej Group was attracted to EVA because it is a well designed compensation system that rewards employees while taking care of the interest of shareholders."

In view of the above, the research analysis has developed a comprehensive EVA-incentive compensation plan to serve as a model for corporate units to implement such vision for further growth.

Computation of EVA depends on calculation of Net Operating Profit After Tax (NOPAT), Cost of Capital (Capital Charge). NOPAT depends on profit before tax to which number of adjustments may have to be made like Interest, Profit on sale of fixed Assets, Tax on Profit, Tax on interest, other Tax adjustments etc. After NOPAT calculation, cost of capital is calculated. For these two variables data are available in Annual Reports of these corporate units. Cost of capital calculation depends on cost of equity, cost of debt, WACC or Weighted Average Cost of Capital, leverage beta

(), Market Risk Premium (P) Equity Risk Premium (P), Risk free Return (r), Equity Market Value (e) Debt/Market value (d) and capital employed.Cost of capital gives EVA, when it is deducted from NOPAT. Corporate units make different adjustments and there is no uniform methodology for calculation of EVA. Stern & Stewart has Trade Mark on EVA and they have suggested as many as 160 adjustments, however, only 10 to 15 adjustments are made in practice.

Accordingly EVA has been calculated on the basis of NOPAT- Capital charge. Residual amount is EVA. On the basis of these three variables % change over the previous year has been calculated. These changes in % have been given in a separate Table so that Table may be used as a base for test of hypotheses also. Year wise data have been analyzed separately for each sample unit. Accordingly, individually and collectively unit wise research analysis has been carried out and findings, hypothesis test results have been arrived at.

The study has a period of six years, i.e. from 2001-2002 to 2005-2006. Change over previous year data give a five year comprehensive study and research analysis is based on that. This is how the research study has been carried out, hypotheses tested and findings outlined.

The study defines EVA as an excess of operating profit over the cost of capital employed or

EVA = NOPAT (WACC - CE)

Where NOPAT = Net Operating Profit After Tax

WACC = Weighted Average Cost of Capital

CE = Total Capital Employed

Where NOPAT is Profit before Tax (PBT) plus interest payments minus cash operating tax. EVA reveals whether management of a company generates a return that covers the opportunity cost of capital. EVA will improve if operating profit grows without putting more capital resulting from greater efficiency. Moreover, if additional capital is employed, the project should give return more than cost of that capital. "Unlike the traditional methods of accounting profit, where only cost of debt was deducted, EVA took into account the cost of equity also. Therefore, EVA tried to capture the true economic profit of an enterprise. EVA was more directly linked to the creation of share holder wealth over time."

A number of adjustments are made in NOPAT, however all sample units have different methodology. These, adjustments are Non-recurring gains & Losses, Research & Development (Intangibles) Deferred Taxes, provisions for Bad debts, Depreciation, Marketable Securities/investments, and Goodwill, operating Leases and Inventory.

For the purpose of the study it is assumed that NOPAT reported by companies under sample have given a final amount and on that basis EVA has been calculated.

A few sample units have reported NOPAT in Annual Reports as an Additional Information. The concept of EVA is catching up and number of companies are calculating EVA and reporting in Annual Reports. There are no disclosure practices relating to EVA and, therefore, companies are not under any obligation to report EVA calculations. In recent times, companies prefer to publish such data because share holders are also interested in evaluating shareholder value created by the company.

Capital Employed is a mix between Debt and Equity, Funds put in a business to enable business activities to take place and such funds help in value creation indicate capital employed.

Similarly cost of capital is also calculated, as per details given ahead.

Cost of Capital

Weighted Average Cost of Capital (WACC) is calculated for computation of EVA. It depends on cost of equity and cost of debt. In a market additional income may be generated if investment takes place in risky, non-contractual residual claims to corporate cash flow. The following variables are important.

Market Premium (P)

Leveraged beta (b):

Company specific risks over and above the market risk premium, measuring the volatility of the company's stock relative to the market changes.

It is the ratio of the coefficient of variation of a company's stock prices compared to the market as a whole.

Cost of equity: is the risk free return (r) plus a company premium (P) is weighted by the ratio of equity to market value (e) to arrive at the WACC.

Cost of Debt: It is calculated by multiplying the pre tax cost of borrowing (l) with the retention rate (1-tax rate) it is weighted by the ratio of debt to market value (d) to give weighted cost of debt.

WACC: Add the weighted cost of equity and weighted cost of debt.

As per the Capital Asset Pricing Model (CAPM) the cost of equity is calculated as follows:

$$K_e = R_f + \beta (R_m \ R_f)$$

Where

R_f is the Risk free return

R_m is market rate of return

β represents the systematic risk of company's equity share

For the purpose of this study WACC is taken from Annual Reports as a source of secondary data. A number of sample companies have mentioned a uniform methodology of calculating the cost of capital in their Annual Reports. Explanatory notes given as such makes the conceptual framework clear. Such figures have been adopted accordingly.

Research Analysis:

EVA Calculation, Analysis and Comparison

(I) Research Analysis for Godrej Consumer Product Ltd. & Findings:

EVA calculation wil

It will be clear from Table 1 that EVA for Godrej has continuously increased during the period of study. The reason is that NOPAT also increased continuously and very important to note that capital charge decreased continuously.

Table-1 : EVA calculation for GODREJ (Rs. in Crores)

		2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
1.	NOPAT (Net Operating Profit After Tax)	49.4	56.2	67.5	91.8	120.5
2.	Capital charge19.3	14.5	13.8	13.0	11.6	
3.	EVA (12)	30.1	41.7	53.7	78.8	108.9

Source : Annual Reports.

Table-2 : Godrej % Increase / Decrease

	% change in 2001-02 over 2000-01	% change in 2002-03 over 2001-02	% change in 2003-04 over 2002-03	% change in 2004-05 over 2003-04	% change in 2005-06 over 2004-05
NOPAT		13.6%	20.1%	36%	31.2%
Capital charge		24.8%	5%	5.7%	10%
EVA		38.5%	28.7%	46.7%	48.4%

Table 2 has been evaluated to test the hypotheses for sample unit GODREJ. The table has three variables i.e. NOPAT, Capital charge and EVA and % change in these variables has been calculated over the previous year. The % change gives a clear view of relationship between the variables that enables to test the hypotheses.

Year wise analysis is given as follows :

(i) I. In 2002-03NOPAT increased over 2001-02 by 13.6% where as EVA drastically increased to 38.5%.

II. Capital charge decreased by 24.8% and EVA increased by 38.5%.

(ii) I. In 2003-04NOPAT increased by 20.1% over 2002-03 and it resulted in an increase in EVA also. Thus hypothesis stands tested that increase in NOPAT increases EVA also.

II. Capital charge actually decreased by 5% over 2002-03 and EVA increased which means a decrease in capital charge leads

to an increase in EVA.

(iii) In 2004-05NOPAT increased by 36% & EVA increased by 46.7% because simultaneously there was a decrease in capital charge by 5.71%.

(iv) In 2005-06NOPAT increased by 31.2% over 2004-05 but there was higher increase in EVA by 48.4% because capital charge also decreased by 10%.

Hypothesis Testing:

It is clear that for the entire period of study:

1. NOPAT increased and EVA also increased thus hypothesis stands tested and holds good that increase in NOPAT leads to a corresponding increase in EVA.

2. Capital charge decreased resulting in increase in EVA, thus second hypothesis holds good that in case of sample unit a decrease in capital charge shall raise EVA.

3. The third hypothesis is not relevant here in

Table-3 : EVA calculation for HLL   (Rs. in Crores)

		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
1.	NOPAT	1546	1722	1847	1281	1367	1547
2.	Capital charge	466	486	418	395	353	421
3.	EVA	1080	1236	1429	886	1014	1126

Source : Annual Reports.

view of the fact that capital charge did not increase in case of GODREJ and the sample unit kept cost of capital under control.

(II) Research Analysis for Hindustan Lever Ltd. & Findings:

EVA calculation for HLL is clear from Table 3 given below:

Table 3 depicts fluctuations in NOPAT, capital charge and EVA as well. NOPAT initially increased in 2001-02 and 2002-03 over the year 2000-01, however, it declined in 2003-04. After that it again rose in subsequent years. The capital charge increased in 2001-02 as compared to 2004-05. Capital charge again rose in 2005-06. EVA kept on rising upto 2002-03, declined in 2003-04 but again rose in 2004-05 and 2005-06.

Table-4 : HLL % Increase / Decrease

	2001-02	2002-03	2003-04	2004-05	2005-06
NOPAT	11.3%	7.25%	30.6%	6.7%	13.1%
Capital charge	+ 4.2 Inc	14.8% Dec	5.5% Dec	1.9 Dec	+ 19.2 Inc
EVA	14.4%	15.6%	61.2% Dec	14.4%	11%

Source : Calculations based on Table 3

Table 4 reveals that HLL performed as under :

In 2001-02 NOPAT increased by 11.3% over 2000-01 resulting in an increase in EVA by 14.4% infact, there was an increase in capital charge too by 4.2%. The study has a hypothesis that with increase in capital charge EVA should have decreased, but it is found that EVA rather increased by 14.4%. It reflects greater efficiency in HLL and higher returns on investment as compared to cost.

In 2002-03 NOPAT increased by 7.25% over 2001-02 and it shows a marginal increase only. So far as capital charge is concerned, it is mentioned with a satisfaction that it decreased over 2001-02 by 14.8%. On the one hand NOPAT increased marginally and on the other hand capital charge decreased, therefore, EVA increased by 15.6% as compared to increase in 2001-02 by 14.4.% only.

In 2003-04 NOPAT declined by 30.6% over 2002-03 and resulting EVA also declined drastically by 61.2% despite the fact that capital charge also decreased by 5.5%. With decrease in NOPAT, EVA also fell down, however, despite decrease in capital charge, EVA decreased, hence hypothesis do not hold good.

In 2004-05 NOPAT improved over last year's amount and it was 6.7% increase that resulted in increase in EVA by 14.4% as compared to negative EVA last year which decreased by 61.2%. The capital charge declined by 1.9% and EVA improved, thus hypothesis that decrease in capital charge improves EVA, holds good.

In 2005-06 NOPAT increased by 13.1% and EVA also increased by 11%. Increase in EVA and NOPAT both despite an increase in capital charge by 19.2% reveals greater efficiency.

Hypothesis Testing:

It is clear that for the entire period of study:

(1) An increase in NOPAT brought an increase in EVA except for the year 2003-04 when NOPAT decreased and EVA also decreased. Thus, first hypothesis holds good that increase in NOPAT leads to an increase in EVA.

(2) In years 2002-03 and 2004-05 cost of capital decreased and therefore EVA increased. The second hypothesis holds good only for two years as above, however the hypothesis stands rejected in years 2001-02 where both variables increased, in 2003-04 both decreased and in 2005-06 both increased.

(3) The third hypothesis stands rejected because even with increase in capital charge, EVA did not decrease, rather it increased in years 2001-02 and 2005-06.

(III) Research Analysis for Infosys Technologies Ltd. & Findings:

During the entire period of study NOPAT increased but with an exception in 2002-03, EVA also increased during the period. Though capital charge also increased throughout the period, both during the period of study. In this case NOPAT increased by 29.52% in 2001-02 over previous year and EVA also increased by 33.6%. It is worth mentioning that both NOPAT and EVA improved despite the fact that capital charge also increased by 26.8%. Hence, third hypothesis did not hold good that increase in capital charge shall invariably decrease EVA drastically.

In 2002-03 EVA increase was marginal only to the tune of 8.6% over 2001-02. Since capital charge increased by 42.2%, EVA fell down by 10.9%. Hence, third hypothesis comes true that EVA declines with increase in capital charge.

In 2003-04 NOPAT increased by 28.5% and EVA also increased by 51.76% though capital charge increased marginally by 3.77%.

In remaining two years of study i.e. 2004-05 and

Table 5 EVA calculation for Infosys Technologies Ltd.

(Rs. in crores)

		2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
1.	NOPAT	623.37	808	878	1129	1722	2341
2.	Capital charge	234.30	298	424	440	590	801
3.	EVA	389.02	510	454	689	1132	1540

Source : Annual Reports.

Table-6 : INFOSYS % Increase / Decrease

	2001-02	2002-03	2003-04	2004-05	2005-06
NOPAT	29.52%	8.6%	28.5%	52.5%	35.94%
Capital charge	26.8%	42.2%	3.77%	34%	35.7%
EVA	33.6%	10.9%	51.76%	64.2%	36%

Source: Calculations based on Table-5

NOPAT and EVA increased.

Table 6 reveals relationship between different variables for Infosys. Year wise details are:

Infosys registered a satisfactory performance

2005-06 NOPAT and EVA both increased significantly by 52.5%-64.2% (2004-05) and 35.94%-36% (2005-06) respectively despite the fact that capital charge also increased by 34% in 2004-05 and 35.7% in 2005-06. This simply

reflects excellent performance that resulted in shareholder wealth creation.

Hypothesis Testing

To sum up

(1) The first hypothesis holds good for entire period of study except in case of 2002-03 when despite increase in NOPAT, a decrease in EVA was noticed.

(2) The second hypothesis is not relevant because there was no decrease in capital charge. In fact it increased throughout.

(3) The third hypothesis was that an increase in capital charge shall decreases EVA and it holds good only in year 2002-03 when capital charge increased and EVA declined but in other years EVA increased. It shows that EVA improved because of better NOPAT due to greater efficiency in the sample unit.

(IV) Research Analysis for Pidilite Ltd. & Findings :

It is evident from the Table 7 that NOPAT and EVA, both have continuously increased over the period of this study. The cost of capital initially decreased till 2002-03, however it kept on increasing after that.

Table 8 reveals the following:

In 2001-02 percent change in NOPAT increased by 8.6% over 2000-01 and therefore EVA also increased by 36.8%. The cost of capital decreased by 0.7% and it stands proved that decline in cost of capital raises EVA.

In 2002-03 NOPAT increased by 7.9% and the sample unit registered a high increase by 54.2% in EVA. This high increase may also be attributed to a sharp decline in cost of capital by 13.1%.

In 2003-04 NOPAT marginally increased by 2.1% only. There was an increase in capital charge by 3.57% and that was the main reason that EVA declined by 0.36%.

In 2004-05 NOPAT had a significant rise by 23.9% over 2003-04. Despite a high increase in capital charge by 30.9%, EVA still increased by 14.8%. It was a reverse situation that even after an increase in capital charge, EVA did not fall, rather it increased.

Table -7 : EVA calculation for Pidilite Ltd. (Rs. in crores)

		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
1.	NOPAT	521.7	566.9	612.2	625.8	776.4	916.5
2.	Capital charge	391.4	388.1	336.4	349.0	457.8	557.4
3.	EVA	130.3	178.8	275.8	276.8	318.6	359.1

Source : Annual Reports.

Table-8 : PIDILITE % Increase / Decrease

	2001-02	2002-03	2003-04	2004-05	2005-06
NOPAT	8.6%	7.9%	2.1%	23.9%	18.03%
Capital charge	0.7% Dec	13.1% Dec	3.57%	30.9%	21.8%
EVA	36.8%	54.2	0.36%	14.8%	12.5%

Source: Calculations based on Table-7

In 2005-06 NOPAT increased by 18.03%, Lower than previous year. EVA increased by 12.5%, however, this increase was registered even though cost of capital increased by 21.8%.

Hypothesis Testing:
Research Analysis as per Table 8 depicts that

(1) First hypothesis holds good that an increase in NOPAT leads to increase in EVA.

(2) Second hypothesis partially holds good that decrease in capital charge leads to an increase in EVA which is true in years 2001-02 and 2002-03. In remaining years cost of capital increased but still EVA increased instead of a decrease. Hence for years 2003-04, 2004-05 and 2005-06, the hypothesis stands rejected.

(V) Research Analysis for Dr. Reddy's Laboratories Ltd. & Findings:
Table 9 reveals number of fluctuations in all the

04 and EVA was negative in 2004-05, 2005-06 which resulted in shareholder value destruction.

Research Analysis:
Table 10 reveals the following and findings are:

In 2001-02, NOPAT increased by 360.3% over 2000-01, the cost of capital increased by 116.8%, even then, EVA had a massive increase by 1827.8%. Despite increase in cost of capital EVA registered a heavy growth.

In 2002-03, 2003-04 and 2004-05 NOPAT declined by 24.1%, 33.72% and 92.7% respectively over previous year but it increased by 966% in 2005-06.

In 2002-03, NOPAT declined by 24.1%, hence EVA also fell down by 51.5%. Cost of capital increased by 13.4%, therefore, EVA declined as well.

In 2003-04 NOPAT decreased by 33.72% and EVA fell down heavily by 1474.6% whereas cost of capital increased by 12.5%.

In 2004-05 NOPAT declined by 92.7% and EVA

Table-9 : EVA Calculation

(Rs. in crores)

		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
1.	NOPAT	1050	4672	3546	2350	171	1823
2.	Capital charge	910	1973	2239	2267	2571	3051
3.	EVA	140	2699	1307	83	2400	1228

Source: Annual Reports.

three variables. NOPAT initially increased by a massive amount over 2000-01, however it decreased in 2002-03 as compared to 2001-02, further decreased in 2003-04 as compared to 2002-03. In 2004-05 there was a sharp decline in NOPAT, but again increased in 2005-06. The cost of capital kept on increasing throughout the period of study. EVA increased initially significantly, however, it declined in 2002-03 as compared to 2001-02, sharply declined in 2003-

fell down by 24.91% mainly because of the fact that cost of capital was very heavy and registered an increase by 13.4%.

In 2005-06 NOPAT increased satisfactorily by 966% suddenly over 2004-05 where it actually declined to Rs. 171 crores (Rs. 2350 crores in 2003-04). Since the cost of capital also increased, therefore, EVA was also negative and fell down by 151%.

Table-10 : Dr. Reddy's Laboratories % Increase / Decrease

	2001-02	2002-03	2003-04	2004-05	2005-06
NOPAT	360.3	24.1 Dec	33.72 Dec	92.7 Dec	966 Inc.
Capital charge	116.8	13.4	12.5	13.4	18.6
EVA	1827.8	51.5 Dec	1474.6 Dec	2791.5 Negative	151 Negative

Source: Calculations based on Table 7

Hypothesis Testing:

Results are as follows:

(1) The first hypothesis that an increase (or decrease) in NOPAT leads to increase (or decrease) in EVA holds good partially. In years 2002-03, 2003-04 and 2004-05 NOPAT decreased and hence EVA also decreased. In year 2001-02 NOPAT and EVA both increased. In year 2005-06 though NOPAT increased but EVA was negative because cost of capital was high.

(2) The second hypothesis is not relevant because cost of capital did not decline, rather it kept on increasing.

(3) The third hypothesis holds good in remaining fours years where increase in cost of capital led to a decrease in EVA, however in 2001-02 it is not true because even with increase of 116.8% in cost, EVA increased by 1827.8%.

(VI) Research Analysis for Cadila Health Care Ltd. & Findings:

Table 11 makes it clear that NOPAT increased in the entire period of study with an exception of year 2004-05. EVA increased in years 2003-04 over 2002-03 but fell down in 2004-05 as compared to 2003-04. It again increased in 2005-06 and fell down in 2006-07. The cost of capital decreased in 2003-04 as compared to 2002-03, however, increased in subsequent years. Since data for the year 2001-2002 were not available, the study is limited to five years.

Research Analysis:

Table 12 reveals the following and findings are:

In 2003-04 NOPAT increased by 26.6% as compared to 2002-03. EVA increased by 101.4% because of the fact that NOPAT increased and cost of capital decreased by 6.85%. In 2004-05 NOPAT decreased by 4%, cost of capital increased by 21.29%, therefore, EVA decreased by 20.21%.

In 2005-06 NOPAT increased by 20.9%, however, capital charge increased by 29.31%, obviously EVA had a marginal increase only by 5.87%. In 2006-07 NOPAT increased by 17.95%. During this year cost of capital massively increased by 36.46% and therefore, EVA decreased by 22.66%

Table 11 EVA Calculation

(Rs. in crores)

		2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
1.	NOPAT	1372	1737	1667	2016	2378
2.	Capital charge	948	883	1071	1385	1890
3.	EVA	424	854	596	631	488

Source: Annual Reports.

Table-12 : Cadila Health Care Ltd. % Increase / Decrease

	2003-04	2004-05	2005-06	2006-07
NOPAT	26.6	4%Dec	20.9	17.95
Capital charge	6.85Dec	21.29	29.31	36.46
EVA	101.4	20.21 Dec	5.87	22.66 Dec

Source: Calculations based on Table-11

Hypothesis Testing:

(1) The first hypothesis holds good for years 2003-04, 2004-05, 2005-06 where increase or decrease in NOPAT led to increase or decrease in EVA. In year 2006-07 it stands rejected because despite increase in NOPAT, EVA decreased because cost was high.

(2) Second hypothesis holds good for 2003-04 when cost decreased and EVA increased, in 2004-05/2006-07 cost increased and EVA declined, but in 2005-06 despite on increase in capital chargeEVA did not decrease, rather it increased by 5.87%.

(VII) Research Analysis for ICICI Ltd. & Findings:

Table 13 reveals that NOPAT increased

Research Analysis:

In 2001-02 NOPAT increased by 85.27% over 2000-01. Since cost of capital also increased by a massive percentage of 482.7%, therefore, EVA fell down by 238.7%.

In 2002-03 NOPAT increased significantly by 522.9% cost of capital increased by 19.21%. In 2001-02 EVA was negative 19.70 crores, therefore, an increase in EVA during this year to a positive figure of Rs. 218.20 crore led to an increase in EVA by 1207.6%.

In 2003-04 NOPAT decreased by 29.36% and therefore, EVA also declined by 33.78% despite a fall in cost of capital by 181.5%.

In 2004-05 NOPAT increased by 15.15% though EVA increased by 4.64% only, cost of

Table-13 : EVA Calculation   (Rs. in crores)

		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
1.	NOPAT	25.80	48.00	299.70	211.20	243.40	413.40
2.	Capital charge	11.60	67.70	81.50	66.70	92.20	161.50
3.	EVA	14.20	19.70	218.20	144.50	151.20	251.90

Source: Annual Reports.

continuously in the sample unit, however, rate of change was fluctuating. The cost of capital increased during first half but it fell down in 2003-04 as compared to year 2002-03. In 2004-05 it increased followed by a further increase in 2005-06. EVA had an increasing trend except in year 2001-02 when it fell down.

capital increased significantly i.e. by 382.3%. This rise eroded EVA. In 2005-06 NOPAT increased by 73.9% the cost of capital registered an increase of 751.6% over the previous year. The EVA increased by 66.61%.

Table-14 : ICICI Ltd. % Increase / Decrease

	2001-02	2002-03	2003-04	2004-05	2005-06
NOPAT	85.27	522.9	29.36 Dec	15.15	73.9
Capital charge	482.7	19.21	181.5Dec	382.3	751.6
EVA	238.7	1207.6	33.78	4.64	66.61

Source: Calculations based on Table-7

Hypothesis Testing:

(1) The first hypothesis stands true that an increase or decrease in NOPAT results in increase or decrease in EVA, however it is not true in year 2001-02 when despite an increase in NOPAT, EVA fell down by 238.7%.

(2) The second hypothesis that a decrease in cost of capital results in increase in EVA stands rejected. In year 2003-04 cost decreased by 181.5% however, EVA did not increase rather it declined by 33.78%.

(3) The third hypothesis also stands rejected that an increase in cost leads to a decrease in EVA. In years 2002-03, 2004-05, 2005-06 cost increased, however EVA also increased but in 2001-02 cost increase led to a fall in EVA by 238.7%.

In 2004-05 NOPAT increased by 15.15% though EVA increased by 4.64% only, cost of capital increased significantly i.e. by 382.3%. This rise eroded EVA. In 2005-06 NOPAT increased by 73.9% the cost of capital registered an increase of 751.6% over the previous year. The EVA increased by 66.61%.

It will be clear from Table 15 that for seven sample units under study, NOPAT, Capital charge and EVA are given in addition to capital charge as % of NOPAT and EVA as % of NOPAT. By converting those variables in %, comparison among sample unit is possible and also it helps to conclude that which unit has a high cost of capital

or low cost resulting in Low EVA or High EVA. These units can then formulate their strategy to correct the situation.

Year 2001-02:

Godrej had a NOPAT of Rs. 46.4 crore with cost of capital at Rs. 19.3 crore and it, therefore, earned EVA to the tune of Rs. 30.1 crore. EVA earned by Godrej is 60.9% of the NOPAT and cost of capital is low 39.1% HLL earned EVA 71.7% of NOPAT, where as cost of capital was only 28.3% of NOPAT. Infosys earned EVA that was 63.1% of NOPAT and cost of capital was 36.9%. Pidilite has a very high cost of capital that comes to 68.47% of NOPAT and EVA is as low as 31.53% of the NOPAT. Dr. Reddy's Lab. still has a better EVA of 57.7% of NOPAT but significantly high cost of capital as % of NOPAT to 42.3%. ICICI has a negative EVA because cost of capital was very high.

HLL has the highest EVA and lowest cost of capital followed by Infosys, Godrej and Dr. Reddy's Lab.

Year 2002-03:

Godrej has a better performance and HLL, ICICI too improved during this year. EVA as % of NOPAT for Godrej came to 74.19, HLL 77.36 and ICICI 72.8%. For these units cost of capital was low which means that NOPAT & EVA improved because of their efficiency. Infosys had high cost of 48.3% hence EVA was only 51.70% of NOPAT. Pidilite had high cost of capital which

(Rs. in crores)

No.	Sample Unit	NOPAT	Capital charge	Capital charge as % of NOPAT	EVA	EVA as % of NOPAT
1.	Godrej (GCPL)	49.4	19.3	39.1	30.1	60.9
2.	HLL	1722.0	486.0	28.3	1236.0	71.7
3.	INFOSYS	808.0	298.0	36.9	510.0	63.1
4.	PIDILITE	566.9	388.1	68.47	178.8	31.53
5.	Dr. REDDY'S LAB	4672.0	1973.0	42.3	2699.0	57.7
6.	CADILA	N.A.	N.A.	N.A.	N.A.	N.A.
7.	ICICI	48	67.70		-19.70	-

(Source: Annual Reports)

came to 54.95%. Reddy's Lab had 63.15% of NOPAT, CADILA had 69.10% cost of capital to NOPAT and therefore, they had destroyed the share holder value meaning thereby low EVA.

The capital charge during 2002-03 for sample units was high on an average which is suggestive of alternative sources of funds or diversification of business activities.

Wherever sample units get a high EVA, the study suggest that compensation incentive system should be launched for motivating employees to perform still better to boost shareholder value.

Data on these variables are given ahead in Table 16.

NOPAT for sample units was positive, however, cost of capital for Dr. Reddy's Laboratory was too high. EVA was better for HLL as 77.36% of NOPAT, and for Godrej also, Infosys had a reasonable rate of EVA. On the other hand EVA fell down for remaining sample units.

It is evident from the above Table17 that Godrej improved EVA during this year which comes to 79.55% of NOPAT, reducing cost to 20.45% only. HLL EVA declined as compared to previous year and it comes to 69.16. Infosys had 61.02% to NOPAT, and ICICI had 68.41% of its

NOPAT, shareholder value was destroyed by PIDILITE, Dr. REDDY's Lab. and CADILA. Dr Reddy's Lab. had witnessed an ever increasing cost of capital / debt leading to eroded EVA.

Year 2004-05:

Though most of the sample units improved their performance in terms of NOPAT and EVA both, yet a few sample unit were shareholder wealth destroyers because EVA fell down drastically.

Shareholder value creators as per Table 18 were GODREJ (EVA 85.83% of NOPAT) HLL (EVA 74.17% of NOPAT), INFOSYS (EVA 65.73%) and ICICI (EVA 62.11% of NOPAT) on the other hand EVA of PIDLITE fell down to 41.03% of NOPAT, CADILA to 35.75% of NOPAT and surprisingly Dr. Reddy's Lab. turned to a negative EVA with a very high cost of capital.

Cost of capital for the year 2004-05 was low for Godrej (i.e. 14.17% of NOPAT) 25.83% of NOPAT for HLL, 34.27% of NOPAT for Infosys, and 37.89% of NOPAT for ICICI. For remaining sample units cost of capital was bit high.

Year 2004-05 was better for most of the sample

Table-16 : Comparative Research Analysis of EVA in Sample Units and Findings Yearwise Analysis: Year 2002-2003

(Rs. in crores)

No.	Sample Unit	NOPAT	Capital charge	Capital charge as % of NOPAT	EVA	EVA as % of NOPAT
1.	Godrej (GCPL)	56.2	14.5	25.81	41.7	74.19
2.	HLL	1847	418	22.64	1429.0	77.36
3.	INFOSYS	878	424	48.30	454	51.70
4.	PIDILITE	612.2	336.4	54.95	275.8	45.05
5.	Dr. REDDY'S LAB	3546	2239	63.15	1307	36.85
6.	CADILA	1372	998	69.10	424	30.90
7.	ICICI	299.70	81.50	27.20	218.20	72.80

(Source: Annual Reports)

Table-17 : Comparative Research Analysis of EVA in Sample Units and Findings Year wise Analysis : Year 2003-2004

(Rs. in crores)

No.	Sample Unit	NOPAT	Capital charge	Capital charge as % of NOPAT	EVA	EVA as % of NOPAT
1.	Godrej (GCPL)	67.5	13.8	20.45	53.7	79.55
2.	HLL	1281.00	395.00	30.84	886.0	69.16
3.	INFOSYS	1129.0	440.0	38.98	689.0	61.02
4.	PIDILITE	625.8	349.0	55.77	276.8	44.23
5.	Dr. REDDY'S LAB	2350.0	2267.0	96.47	83.0	3.53
6.	CADILA	1737.0	883.0	50.84	854.0	49.16
7.	ICICI	211.20	66.70	31.59	144.50	68.41

(Source: Annual Reports)

units because EVA for these units improved. Hence they may be termed as value creators. Cost of capital was high for two units only, but it was low for other units. Dr. Reddy's Lab. had a poor performance.

Research Analysis for Year 2005-06:

Table 19 reveals that Godrej appreciably improved EVA to as high as 90.37% of the NOPAT reducing cost of capital to 9.63% only. Other sample units maintained status quo or slightly improved which were HLL (EVA 72.78% of NOPAT & cost 27.22% of NOPAT)

Infosys (EVA 65.78% and capital charge 34.22% of NOPAT) ICICI (EVA 60.93% and cost of 39.07% of NOPAT).

Table 19 depicts that Dr. Reddy's Lab. continued to destroy shareholder value and EVA was negative rather because of low profit of 1823 crores and high cost of Rs. 3051 crores) EVA as percent of NOPAT for CADILA came down to 31.29% and cost went up to 68.71% of the NOPAT.

It is important to note that these sample units have a positive net operating profit and on face of

No.	Sample Unit	NOPAT	Capital charge	Capital charge as % of NOPAT	EVA	EVA as % of NOPAT
1.	Godrej (GCPL)	91.8	13.0	14.17	78.8	85.83
2.	HLL	1367.0	353.0	25.83	1014.0	74.17
3.	INFOSYS	1722.0	590.0	34.27	1132.0	65.73
4.	PIDILITE	776.0	457.8	58.97	318.6	41.03
5.	Dr. REDDY'S LAB	171.4	2571.0		-2400.0	Negative
6.	CADILA	1667.0	1071.0	596.0		35.75
7.	ICICI	243.40	92.20	37.89	151.20	62.11

(Source: Annual Reports)

No.	Sample Unit	NOPAT	Capital charge	Capital charge as % of NOPAT	EVA	EVA as % of NOPAT
1.	Godrej (GCPL)	120.5	11.6	9.63	108.9	90.37
2.	HLL	1547.0	421.0	27.22	1126.0	72.78
3.	INFOSYS	2341.0	801.0	34.22	1540.0	65.78
4.	PIDILITE	916.5	557.4	60.82	359.1	39.18
5.	Dr. REDDY'S LAB	1823	3051		-1228	Negative
6.	CADILA	2016	1385	68.71	631	31.29
7.	ICICI	413.40	161.50	39.07	251.90	60.93

(Source: Annual Reports)

it seems that a company is doing well, but EVA deciphers that such a company is actually destroying share holder value because their cost of capital is high. After deducting cost of capital, true scenario emerges and then positive EVA alone reflects the true shareholder value creation.

EVA-HR Compensation Linkage
Bonus Rules:

Bonus has to be paid more or less on a compulsory basis. If P&L A/c shows profits, 8.33% of wages has to be paid by way of Bonus to all employees subject to a maximum of Rs. 3500. Incase, there are losses, Bonus may not be paid for first five years, however, after that it is mandatory to pay bonus. The maximum Rate of Bonus is 20% and maximum limit is Rs. 8400. If rate ranges 8.33% to 20%, automatically amount is adjusted on the basis of Rs. 3500/-. Supposing Bonus to be given is declared at 16.67%, the amount of Bonus will come to Rs. 7000. Depending on profits, bonus is negotiated every year.

Even with a marginal profit, bonus has to be paid and if cost of capital is then deducted, a negative amount may come. It is therefore, always better to pay Bonus with EVA linkage so that corporate

units are not put to a loss. In such a situation managers think and act as owners and they strive hard to enhance efficiency, avoid unproductive investment and reduce cost of capital. EVABonus linkage plan may have following features:

- Bonus is linked to EVA increase

- No limit on Bonus

- Target Bonus is practical and additional amount is put in Bonus Bank, residual is distributed.

- Bonus target, Bonus Distribution is fixed by formula and not by Trade Union negotiations.

- Bonus may be negative also if EVA is negative.

On the other hand EVA based Bonus has no limits and any amount may be paid.

Sharing EVA in Sample Units:

The study kept NOPAT as base and identified EVA as a % of NOPAT. The sample unit includes Godrej, HLL, Infosys, Pidilite, Dr. Reddy's Lab., Cadila and ICIC. EVA as % of NOPAT has been calculated for all the sample units for the yeas 2001-02 to 2005-06. The study suggests that in case EVA increases by 30% of NOPAT, bonus should not be distributed. In case performance is better and EVA cross limit of 30% of NOPAT then such surplus should be distributed amongst human resources of that unit.

It was found that sample unit GODREJ has a surplus EVA (Beyond 30% of NOPAT) which may be distributed or put in Bonus Bank for emergency. The Godrej could distribute 30.9% of NOPAT in 2001-02, 44.19% in 2002-03, 49.55% in 2003-04, 55.83% in 2004-05 and 60.37% in 2005-06. EVA has continuously increased in Godrej and that could be shared by all employees to ensure boost in EVA further.

It will be clear from Table 20 that beyond 30% a minimum of 10% of NOPAT has to be paid by way of Bonus. The shortfall should be charged from the Bonus Bank which was credited with surplus EVA on the basis of Table A. HLL, Infosys and ICICI have a surplus EVA beyond 30% of NOPAT, therefore, it could be distributed. On the other hand Pidilite has a shortfall 8.47% in 2001-02 and 0.82% 2005-06 which may be met out of Bonus Bank. Similarly Dr. Reddy's Lab. there is a shortfall of 3.15% of NOPAT in 2002-03, 3.53% in 2003-04 which may be paid by Bonus Bank. Since 2004-05 & 2005-06 EVA is negative no Bonus could be paid. For Cadila there is a shortfall of 4.25% in 2004-05 and 8.17% in 2005-06 to be charged to Bonus Bank.

It is clear from Table 20 that ICICI has a negative EVA in 2001-02, therefore, no Bonus is payable. Distribution of EVA has been explained in Table A and explanatory note is also given on the basis of which distribution should take place.

EVA-Bonus should be distributed to all employees irrespective of level one comes from. It is for the sample unit to decide the amount based on % of pay of each employee. A fixed % of pay may be identified and Bonus be paid accordingly. It should be a uniform % of pay for al employees. Calculation may be made on the basis of total amount available and the basis o total amount available and % of pay of all employees in the organization. The basis pay may be kept as a base excluding all benefits on which calculation of a fixed % be made. Accordingly, amount arrived at may be explained and distributed. The sample unit must keep a transparent transaction open for all employees to examine.

It is clear from Table 20 that ICICI has a negative EVA in 2001-02, therefore, no Bonus is payable. Distribution of EVA has been explained in Table A and explanatory note is also given on the basis

No.		2001-02 EVA% of NOPAT	2002-03 EVA% of NOPAT	2003-04 EVA% of NOPAT	2004-05 EVA% of NOPAT	2005-06 EVA% of NOPAT	Remarks
1.	GODREJ	60.9	74.19	79.55	85.83	90.37	
	Bonus	30.9	44.19	49.55	55.83	60.37	
2.	HLL	71.7	77.36	69.16	74.17	72.78	
	Bonus	41.7	47.36	39.16	44.17	42.78	
3.	INFOSYS	63.1	51.70	61.02	65.73	65.78	
	Bonus	33.1	21.70	31.02	35.73	35.78	
4.	PIDILITE	31.53	45.05	44.23	41.03	39.18	
	Bonus	1.53-8.47	15.05	14.23	11.03	9.18 0.82 Bonus Bank	
5.	Dr. Reddy's Lab	57.7	36.85	3.35	Negative	Negative	
	Bonus	27.7	6.85 3.15 BB 10%	6.47 3.53BB 10%	NIL	NIL	Charge (BB) Bonus Bank 6.47% of NOPAT (2003-04)
6.	CADILA	NA	30.90	49.16	35.75	31.29	
	Bonus	NIL	00.90	19.16	5.75 + 4.25 from Bonus Bank	1.29 8.71 BB	
7.	ICICI	Negative EVA	72.80	68.41	62.11	60.93	
	Bonus	NIL	42.80	38.41	32.11	30.93	

Note: Bonus payment will be based on TABLE-A

of which distribution should take place.

EVA-Bonus should be distributed to all employees irrespective of level one comes from. It is for the sample unit to decide the amount based on % of pay of each employee. A fixed % of pay may be identified and Bonus be paid accordingly. It should be a uniform % of pay for al employees. Calculation may be made on the basis of total amount available and the basis o total amount available and % of pay of all employees in the organization. The basis pay may be kept as a base excluding all benefits on which calculation of a fixed % be made. Accordingly, amount arrived at may be explained and distributed. The sample unit must keep a transparent transaction open for all employees to examine.

Significant Findings:

The study arrives at following findings:

(1) That Net Operating Profits After Tax minus cost of capital give EVA.

(2) EVA is an amount of Profit which covers all costs including cost of capital and Debt.

(3) EVA is a residual amount which is closer to economic profit.

(4) EVA is a superior measure of performance evaluation because it accounts for cost of capital but conventional measures ignore it.

(5) EVA mainly depends on NOPAT and cost of capital. If NOPAT increases, EVA also increases. Similarly, if cost of capital decreases, EVA increases and therefore every effort should be made to reduce cost of capital. In case cost of capital increases, EVA shall invariably decrease. Some times NOPAT may be high and hence despite increase in cost of capital, EVA increased.

(6) Three hypotheses were tested for individual sample units, however results were common on the whole. It was found that increase/decrease in NOPAT led to increase/decrease in EVA. Further, it was found that decrease in cost of capital led to an increase in EVA. Similarly increase in cost of capital gave rise to a fall in EVA.

(7) NOPAT should be adjusted only when amounts are significant having a direct impact. Insignificant amounts should not be adjusted. As for as possible adjustments should be minimum so as to represent true

Table-21 : Criteria for Bonus

EVA Target 30% of NOPAT or less	—	Normal statutory Bonus payable as 8.33% to 20% subject to a minimum of Rs. 3500 and a maximum of Rs. 8400/-
EVA being 31% to 40% of NOPAT	—	100% Amount of EVA beyond 30% of NOPAT eligible for Distribution (Max. 10% of NOPAT being Bonus)
EVA being 41% to 50% of NOPAT	—	EVA beyond 30% of NOPAT i.e. maximum of 20% out of which 50% of 20% to Bonus Bank and 50% of 20% to employees
EVA being 51% to 60% of NOPAT	—	Beyond 30% Bonus Bank : HR = 50 : 50
EVA being 61 to 70% of NOPAT	—	Beyond 30% 50 : 50
EVA being 71 to 80% of NOPAT	—	Beyond 30% 60:40
EVA being 81% of 90% of NOPAT	—	Beyond 30% 70 : 30
EVA being 90% above	—	Beyond 30% 80 : 20

NOTE : If EVA is 30% or less than 30% of NOPAT then at least 10% of NOPAT shall be paid by way of Bonus and shortfall be met out of Notional Bonus Bank.

value.

(8) EVA Target be setup beyond which Bonus may be linked with EVA so as to motivate Human resources to continuously strive to increase EVA and share EVA as an owner and not as an employee.

(9) EVA more than a Target EVA should be transferred to a Bonus Bank for rainy days and EVA beyond Target be shared by Human Resources to ensure an automatic escalation.

This incentive package has no limit as compared to a statutory Bonus which is limited to a minimum of 8.33% and a maximum of 20% of pay subject to Rs. 3500 and 8400 respectively.

The research study has a few suggestions to make as under:
It was found that there is no Accounting Standard in India regarding EVA reporting. In Annual Reports NOPAT, cost of capital and EVA are not reported separately and therefore shareholder value creation is not known.

Now when people have growing interest in knowing shareholder value creation, it is necessary that these aspects are dealt with separately in Annual Reports. Some of corporate units give additional information on EVA and other concepts, however not all of the corporate units depict such information. In fact EVA is a perfect measure for evaluation of performance for corporate reporting and also for internal governance; hence, it must be reported.

Now there has been a massive entry of FIIs in India and, therefore, international comparisons are inevitable. Hence it is suggested that an Accounting standard be formulated to enable all corporate entities to report EVA and other related aspects. It will pave way for international comparison as also domestic comparison. This will make disclosure of EVA on a mandatory basis and all listed companies may be covered.

EVA reporting is rare in Indian scenario, A study revealed that out of 125 companies, only 12 companies disclosed EVA. Only one company disclosed data for 10 years. It is suggested that EVA be calculated by all companies and details be attached to Annual Reports on a compulsory basis.

So far as uniformity in calculation is concerned, it is suggested that common adjustments in NOPAT be formulated and uniformity be maintained. This will facilitate true comparison. In fact, there is no unanimity over common adjustments in dealing with various accounting items. Initiative should be taken by corporate units to arrive at a consensus regarding adjustments.

EVA should be used profusely for determining incentives/Bonus and Human resources at all levels be rewarded on the basis of EVA and not on the basis of profits. This will enable the corporate units to boost EVA which shall be conducive for economic development of a country.

Corporate units should be encouraged to adopt EVA process linked to incentive compensation. This will facilitate a healthy comparison among all units and it will serve as a motivator to improve performance.

All these sample units under study should strive hard to increase NOPAT, decrease cost of capital and thus, increase EVA.

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Convergence : E-Learning and Knowledge Management in Higher Education

Geeta Rana

ABSTRACT

In today's knowledge-based economy and society, modern, effective education and training systems are vital to everything from economic competitiveness to individual occupational aptitude. New technologies and tools provide greater flexibility, easier access to information and the opportunity to match learning to specific individual needs and circumstances, Therefore the linking of such knowledge management concepts with adequate E-Learning strategies is of increasing importance. When new technology emerges, a higher education institution lecturer/teacher tries to implement ICT to support learning and advancement but their assumption is all the staff willing to use it. But the fact that not all people who work as a lecturer/teacher will have open minded with the new comertechnology. In this paper, light is shed on the basic concepts of KM and e-learning. This paper focuses and concerned with key ideas: to promotes E-learning and KM programme in educational institutions, made a model for successful implementation of E-learning and KM programme in higher education institutions so that the new learning system will be embedded and become part of daily activity of the institution.

Keywords: *E-Learning Systems, Higher Education, ICT-Enhanced Learning, Knowledge Management*

Introduction

We are living in an era of instability, insecurity, and constant change. The knowledge acquired by a person during his formal education becomes obsolete at a very rapid rate in the digital environment. Lifelong learning is the only way to survive and thrive in the rapidly changing environment. This change has brought a total transformation in society. Education has been pivotal for these changes. The system of higher education in India needs to move to the center to provide people with an opportunity to reflect on the critical, social, economic, cultural, moral and spiritual issues facing humanity. It also must contribute to the national development through dissemination of specialized knowledge and skills. Being at the apex of the educational pyramid, it has a key role in producing teachers for the education system. To be able to perform these roles and functions, higher education institutions will have to reflect on their own current structures and their ability to function with efficiency and effectiveness as

autonomous organizations. In recent years, the rapid and continuing evolution of technology has converted our world into a knowledge society. Institutes will invest heavily in the innovation environment and in research development.

That will anticipate and safeguard the supply of a trained workforce and ensure high-quality education. Recent research reveals that great interest in introducing Knowledge Management (KM) ideas to e-learning systems. It is argued that KM can facilitate an e-learning system. Development of information society and information technology brings a lot of improvements to classical study represented by daily form of learning but, more important, it eases distance study and on-line courses. Quality standards of learning in each of its forms are desired to be as high as possible. The interests are on both sides of education providers (universities) and education beneficiaries (students).

Literature review

E-Learning is construed in a variety of contexts, such as distance learning, online learning and networked learning (Wilson 2001). In the context of this paper all of these instances will be considered to describe learning that utilizes information communications technology (ICT) to promote educational interaction between students, lecturers and learning communities (Holley 2002). Volery (2000) argues that the fast expansion of the Internet and related technological advancements, in conjunction with limited budgets and social demands for improved access to higher education, has produced a substantial incentive for universities to introduce e-Learning courses. Volery continues that if universities do not embrace e-Learning technology that is readily available, they will be left behind in the pursuit for globalization.

Ribiero (2002) argues that if universities are able to maximize the potential of e-learning as a means of delivering higher education, they must be fully aware of the critical success factors concerned with introducing online models of education. O'Hearn (2000) contends that university structures are rigid and unproven, regarding the incorporation of technological advancements.

Developments in Information and Communication Technology (ICT), particularly in intranets, the Internet, hardware, multimedia software, and videoconferencing have created a tremendous potential for multisided course delivery and on-demand training to teachers in classrooms. In this paper, the main features of e-learning that benefit the KM approach are discussed at the end, an integrated approach between KM and e-learning is introduced. The emergence of the knowledge-based economy and the popularity of e-business initiatives have further highlighted the need for effective exploitation of knowledge and making knowledge management an essential area of activity in organizations. To ensure the success of knowledge management initiatives, among other things, it is necessary that skills and competencies for knowledge management work should be properly defined and appropriate strategies are deployed for the education and training of knowledge professionals (Chaudhry, 2005). The term knowledge management is defined in many ways; however, it is certain that it traverses various disciplines such as philosophy, psychology, sociology, information & computer science, and many others (Ruth, Theobald & Frizzell, 1999). As a result, KM programmes are hosted by schools in different domains such as schools of business, information systems, computer science, library and information science (LIS), organizational behavior (OB), and information

and communication technology (ICT), with considerable variation in the subject scope and treatment.

Kumar (2004) argues that online teaching and learning would become more effective through incorporating multimodality in content delivery which involves presentation of information in different modes of representation (eg. visual, textual, audio). Multimodal presentations are known to stimulate and utilize the whole human brain (Thomas, Kellogg & Erickson, 2001) allowing more opportunities for erudition, creativity and the generation of ideas. With the popularity and acceptance of e-learning, there is a gradual change from lecturer centered to student-centered learning approaches (Stansfield, McLellan & Connolly, 2004). With the lecturer's role becoming that of a facilitator in the learning process, students actively participate and contribute to their own learning (Lee & Tan, 2004). As a result, students view things differently, more critically and creatively (Pan, 1999).DeRienzo (2000) claims that in online learning, interaction is the key factor and that passive lecturing is deadly. The role of the lecturer is transforming from a broadcaster of knowledge to that of a mentor.

The characteristics and attributes of online learning make it an ideal learning mode that can either complement or replace traditional learning modes in meeting challenges posed by the digital age. An important issue that surrounds online learning is that of technological infrastructure, knowledge and expertise. However, online learning requires students to have proper technological infrastructure and access to the Internet, which may incur substantial initial financial costs. On top of that, students are expected to have a certain set of technological knowledge and skills, that not all of them are

necessarily equipped with (Dzakiria, 2005). Therefore, a balanced approach, using various learning methods and tools is more appropriate in the current circumstances. The paper concludes that socialization facilitated by collaborative teaching and discussions on the e-learning system encouraged KM graduate to form knowledge communities for sharing knowledge in their institutions.

Enhanced learning and e-learning systems
In the scope of this paper, e-learning and online education will be defined as the formally and systematically organized teaching and learning activities in which the instructor and the learner(s) use ICT to facilitate their interaction and collaboration. This is usually referred to as e-learning, which can take several forms: Computer-Based Training (CBT), Web-Based Training (WBT), electronic support systems, web casts, discussion forums, interactive broadcasts, *etc.* The important common characteristic is that education is delivered through electronic devices or computers.

Main features of e-learning systems
In e-learning systems, the complete cycle of the teaching and learning process should be fulfilled. Important functional aspects within this coverage must be followed (**Paranjpe, 2003**).

- **Course creation phase** Throughout the instructors/teachers' experience, excellent knowledge on the creation process of e-learning contents has been developed. This knowledge covers pedagogical, psychological and instructional issues as well as technical questions. Nearly all relevant e-learning environments offer rich authoring functionality.

- **Structuring and sequencing phase** This important feature includes not only the

functionalities of course or class deployment on the basis of existing teaching material, but also all aspects of structuring and sequencing courses.

- **Course administration phase** Course administration includes user management, administration of access rights and all aspects of billing, which have been adapted from e-commerce and e-business solutions.

- **Learning, practicing phase** The most important aspect of e-learning is the learning phase. This phase includes the consumption of learning content, all communication aspects and of course all questions addressing interaction, navigation and use of e-learning contents.

- **Assessment of student performance** An imperative part of e-learning is a continuing assessment of the learner's performance through examination and testing. Learners need to verify that they have succeeded in gaining new knowledge or skills. During this phase, the relationship between information and knowledge becomes visible with respect to e-learning. This is where it is seen whether students have been able to successfully turn information into knowledge or not.

- **Feedback** Effective e-learning environments try to collect and take user feedback into account.

Knowledge management definition and models

The term 'knowledge management' is used to describe everything from the application of new technology to the harnessing of the intellectual capital of an organization. It is not one single discipline; rather, it is an integration of numerous endeavors and fields of study. **Rowley (2000)** describes KM as follows: "Knowledge management is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization's objectives." The knowledge to be managed includes both explicit, documented knowledge and tacit, subjective knowledge. Management entails all of those processes associated with the identification, sharing and creation of knowledge. This requires systems for the creation and maintenance of knowledge repositories, and for cultivating and facilitating the sharing of knowledge and organizational learning. KM is the management of processes that govern the creation, dissemination, and utilization of knowledge by merging technologies.

One of the earliest KM models is that of **Nonaka and Takeuchi (1995)** (shown in Table 1). The model classifies knowledge into two kinds: tacit and explicit. According to this model, four different processes are involved in transferring knowledge, depending on its type:

1. **Internalization** We learn by acquiring public knowledge. This knowledge is internalized. We obtain general knowledge from books, the internet and other public sources.

2. **Socialization** We learn by socializing with other people, exchanging ideas and experiences. We observe our elders and they share their wisdom with us.

3. **Externalization** Personal knowledge becomes public or explicit knowledge through documentation. The knowledge of individuals is captured, classified and stored using appropriate knowledge representations and then made available for reuse by others.

4. **Combination** Here explicit knowledge from different sources is combined, mixed or connected to create new knowledge; this can be done using groupware and wikis, which usually leads to new innovations.

Table 1: Knowledge management model

		To	
		Tacit	Explicit
From	Tacit	Socialization	Externalization
	Explicit	Internalization	Combination

Source: Nonaka and Takeuchi (1995)

Innovative teaching and learning approaches

The inter-disciplinary nature of the knowledge management discipline desires collaboration in teaching through partnerships and alliances among different schools. In recent years, a large body of literature has emerged discussing the innovative pedagogical approaches to effective teaching and learning. The tremendous developments in information and communication technologies (ICT), exponential growth in digital content, and the popularity and easy accessibility of the Internet and wireless technologies, have revolutionized the whole spectrum of learning approaches

In these days, the expression knowledge management is perhaps the most commonly used term in management literature. Although it is interesting that the management of knowledge and the role of knowledge workers in connection with higher education are mentioned relatively less, though the system of higher education is precisely the place where not only the potentially future knowledge workers are trained but also the place where they are present as professors. According to Sveiby's definition the role of the knowledge workers is to turn information into knowledge by using their competence, pieces of information and other special knowledge for students, e-Learning can provide an educationally-superior alternative to traditional lectures, in which learning can take place outside the lecture hall. E-Learning can also provide a model for students on how to become self directed independent learners, which may assist them to become 'life long learners". For lecturers, networked learning may cause changes in work patterns and even change their professional role, but in addition, e-Learning provides them with the opportunity to test students in real business situations and new methods to evaluate each student's learning. The role of the lecturer is predominant in the successful delivery of networked learning initiatives, as lecturers have the influence to eliminate student's technical frustrations, make students feel empowered and encourage students to interact with one another. For lecturers, e-learning programmes represent a change in teaching style. The precise nature of the change is difficult to quantify, however allocation of sufficient time and resources combined with managerial support will help staff through the period of transition. Effective management can also help institutions to deal with any increase in lecturer workload by ensuring efficient use of resources

To utilize these capabilities successfully, higher education institutions must determine the most suitable environments and courses for e-Learning delivery, indeed a successful e-Learning course may be one that is blended with other more traditional face to face delivery methods. E-Learning has a fundamental impact on the structure of higher education. Whilst the growth in demand can be accommodated by its

implementation, the diversity of the new student population requires that institutions carefully develop programmes that will satisfy a broad range of learning requirements.

Proposed model for higher education

The basic concepts of KM and e-learning systems have been outlined. E-learning is considered in the context of formally and systematically organized teaching and learning activities in which the instructor and the learner(s) use ICT to facilitate their interaction and collaboration. Emphasis was made on the basic characteristics of e-learning and KM.

The main task of the research is to find common features of both domains. A combination of the advantages of both domains facilitates the delivery of high-quality education for satisfying the specific educational needs.. E-learning is definitely growing rapidly and is becoming the most common method of delivering education.

When new technology emerges, a higher education institution lecturer/teacher tries to implement ICT to support learning and advancement but their assumption is all the staff willing to use it. But the fact that not all people who work as a lecturer/teacher will have open minded with the new comer technology.

The e-learning technology that been adopted by some educational institutions should accommodate all type of users. The problem occurs when some users are resist to use the new technology to deliver their activity (teaching) because they not used to it, or some staff might be to old to interact with new technology while, the young generation is so enthusiastic. Lecturers who used to teach with classroom based system and never use any learning technology will feel clumsy when they are asked to change to the new system. The old teacher who never uses technology also feels the difficulty to move. This

is the management task to assessing and evaluating their human resources before implement new technology into their learning system. To overcome these problems this paper focuses and concerned with key ideas: to promotes E-learning and KM programme in educational institutions, made a model for successful implementation of E-learning and KM programme in higher education institutions so that the new learning system will be embedded and become part of daily activity of the institution. To merges the new system into the existing one is not and easy thing. Lecturers who used to teach with classroom based system and never use any learning technology will feel clumsy when they are asked to change to the new system. The old teacher who never uses technology also feels the difficulty to move. But the learning system should be changing. To overcome those problems, the institute should have a good strategy and always encouraging their staff to accept the changing. There are some steps to promotes e-learning and KM in educational institutional that must be taken when they want to implement e-learning system. By applying good strategy the new learning system will be embedded and become part of daily activity of the higher institution. The steps will be discussed
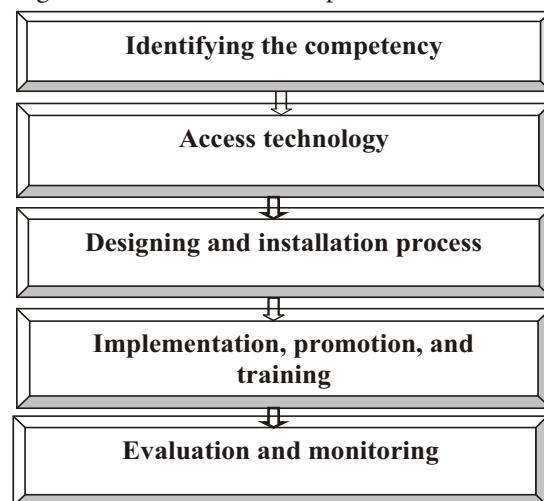
below:

1. Identifying the competency: Personal and professional competencies will play a pivot role in managing success in the networked environment identifying teacher's competency in higher education is difficult task. First we should asses the competency through various modes like feedback forms, research experience, technology up gradation etc. then for e-learning and KM program important thing is to collect the data for technology awareness.

2. Access technology: Management gathers the data from all of their staff especially their technology skill. This data gathering is either through questioner or interview on staff's technological skills. This is important data to help management to take further action. After the data collected, then classify them into some level (such as expert, moderate, novice) depend on the staff's technology awareness level

3. Design software for e-learning and installation process after understanding the user, it is time to find the right e-learning technology that suitable for the user and institution goal. For institution with unlimited budget can outsource the e-learning system with reputable vendor, however institution with limited budget may build in house e-learning system with free e-learning software that available, or for the institution that have a good IT team might develop their e-learning system own .

4. Implementation, promotion, and training this stage is very important to determine the successful of implementation. Promotion makes all staffs aware the existence of the new e-learning system. Encourages all staffs to use the new system, explain the main purposes why staffs should use the system, develops reward culture for everyone who enthusiast on using new system. However, promotion alone is not enough, the

staff also need to be trained, and supported with 24/7 help desk, online tutorial, and other technical support.

5. Evaluation and monitoring evaluation and monitoring are needed to discover the problem occurs during implementation. This is good method to finding information from the user about the difficulties and flaws as well as the new solution or other good thing of the system. Monitoring the user is a must, the management will know who uses and not uses the e-learning system, and then they can ask them why and find a solution to encourage all staff to use it.

With a good strategy and promotion the implementation of e-learning in higher education institution will be successful. Currently there are not many institution that develop e-learning in India, hopefully in the next few years there will be a lot of institution that implement professional e-learning to deliver better education.

Implications
The availability of powerful e-learning tools has revolutionized the whole process of teaching and learning. Many academic institutions are quickly embracing this platform which allows dynamic content creation and delivery thus making learning more interesting, effective, meaningful and engaging. However, as all technologies have their own strengths and weaknesses, e-learning cannot entirely replace the need for a lecturer imparting knowledge in a face-to-face mode. Therefore, it is desirable that academic institutions, deploying e-learning initiatives, should come up with a strategy that suits their particular environment. Similarly, the success of the e-learning initiatives would also depend on the technical competence, preparedness and motivation of the academic staff and students. Lecturers need to learn creative and innovate ways of developing contents which might need learning new skills, thus resulting in increased

workload. Students also need to be more disciplined, organized, responsible and willing to share their ideas and opinions by using available collaboration tools. A major change in mindset is needed where all players are ready and motivated to effectively play their roles. In this context, appropriate awareness strategies and training, both for the lecturers and students can play a decisive role in the success of the new initiatives. The use of a combination of approaches in teaching KM courses through active physical and virtual discussions emphasizing socialization and collaboration will enhance learning and encourage knowledge sharing and forming knowledge communities.

Conclusion

E-learning is a pre-condition for success management in the digital environment. We must promote e-learning for knowledge and success management. Digital libraries must play a pivotal role in knowledge and information sharing. Networking of these digital libraries will further facilitate the development of a Global Virtual Library. Library and Information professionals (LIPs) must also learn to get information from knowledge and convert information into knowledge. Information consolidation and repackaging can go a long way in facilitating e-learning and knowledge management. Only this way, LIPs can help the end-users in coming out of a paradoxical situation in which they have more information then they can manage, but less information then they actually need. The use of KM in e-learning will definitely impact the quality of the education that is delivered and the deliverability of information through knowledge and information sharing. In spite of some obstacles and limitations in the immediate implementation, it is clear that knowledge management and e-learning are the way of the

future in the field of distance online education.

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