The Impact of Excess-Return in Stock-Market upon Banking-Loan for Riskier asset

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Abstract

This research adds a theoretical possibility about the positive-relationship imperfect-capital-market and capital-holdings of banks. In particular, it discussed the issue of effectiveness of banking rule at BASEL, the capital-restriction to restrict riskier-loans, in presence of excess-return in stock-market. It comments upon the possibility of banking crisis and rationing of loans in the market. In addition, this research points out results from India, USA, Germany and Greece.

Key words

Stock-Market, Banks, riskier loans, BIS, Variable-Parameter Regression, Simulation.

Introduction:

This research purports at the relationship between the bouncy in stock- market, capital in hands of banks and loan for riskier asset by the banks. The particular question of this research is *whether market and capital holding of banks are inter-related or not? as well as, enhance the opportunity for riskier loans?* The riskier loans defined here as loan other than GDP production.

In particular, it looks at the correlation between loan for riskier assets and the excess-return for financial-assets in the stock-market. *Under the null hypothesis, excess return in stock market should not have any correlation with loan for riskier assets, under measures to curb unwanted risk taking behavior, otherwise such risk-curbing capital based measures may not be much effective.* In that sense this research put-forth a caution note about the decision on banking rules. In this case the excess-return for financial-asset is defined as the return from financial-asset minus return from fixed- asset.

From the perspective of policy research the objective of this work is to verify the effectiveness of capital-restriction on riskier loans, in presence of excess-return in stock-market. The necessity of the work is that, if riskier loans depends upon the excessive rise in stock market, in that case a failure in stock market may drag a bank into danger. The outcome is that market may face credit rationing and financing for real-GDP could be a problem.

This research uses two measures to process its research. First it is done on the basis of variation of loan-per-unit-of- GDP (discussed later); second it is done using the Risk-weighted-asset, which is available from 1995 to 2007, are provided by the individual-banks.

The definition of financial and the fixed asset are defined as follows: The earning of an asset like share, or share-related instruments, can be derived from two sources; first from financial or stock-market and second, from the business-activity by selling goods in the market. Similarly, the motive of the investors in the market can be divided into two forms. First is the only for short-term investment for financing purpose, and second is to get attach with the firm for longer-period. In this respect the assets in the financial market also can be divided into two parts, financial-assets and the fixed-assets. The significant portion of financial-assets comprise of assets which are used to finance equities: these are mainly equity of equities. Such assets

even determine the price of equity in the share market. In the short-run, the returns of such financial-assets are determined into financial-market. Such financial-assets generally may offer two-parts, first is the market determined prices, and second is the market-independent part.

On the other hand, the fixed-assets return means the returns that can be earned from business activity by the attachment with the firm for longer period. In short, the most important thing that comprises the fixed-asset return is the net-profit-to-capital-stock. Thus the returns from fixed-assets mainly earns from business in real-sector activities rather than a financial-market phenomenon. In a perfect-capital market, these both assets should be a near-substitute to each other because both help in financing of capital-goods. The short-run difference between return from financial and fixed asset is named here as difference in return, or excess-return for financial-assets.

Figure 1 presents the data series on excess return in stock market and difference between lending and deposit rate. It indicates one possibility that when excess return in stock market was higher the risk calculation on loan or difference between lending and deposit rate also was at higher level, at least till year 2000; it indicates the possibility that with the increase in excess return in the stock market and loan for riskier assets co-exist together.

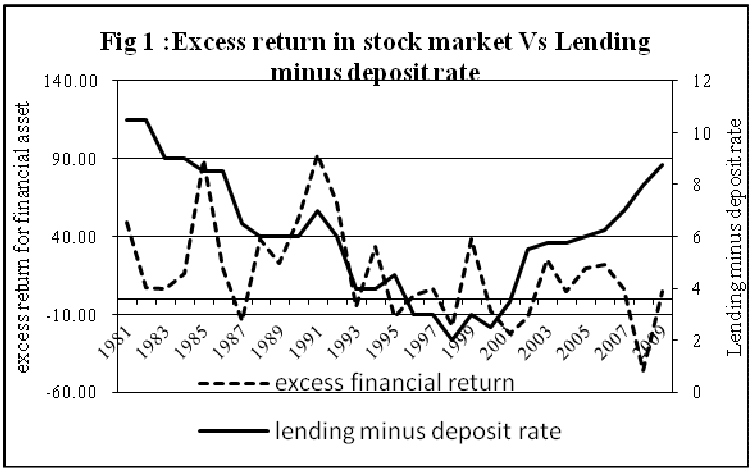


Figure 2 presents the data series of lending minus deposit rate Vs loan-to-GDP ratio. It can be seen from the figure that the lending minus deposit rate and loan to GDP ratio could be following a similar path, in other words, the per unit of loan out of GDP could be high when the risk composition of the banking loans were at higher level.

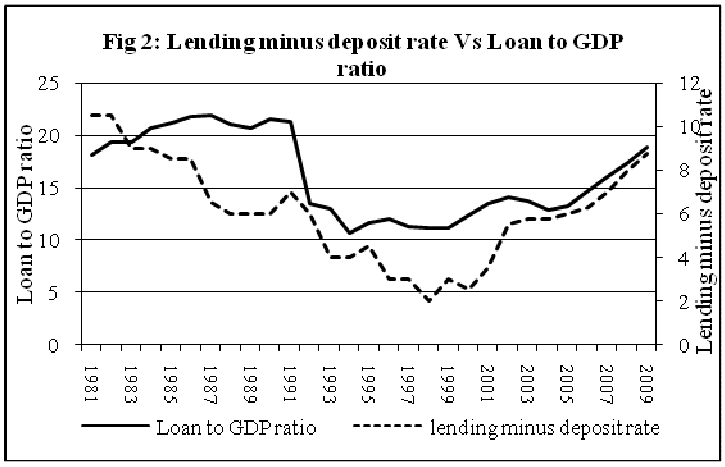
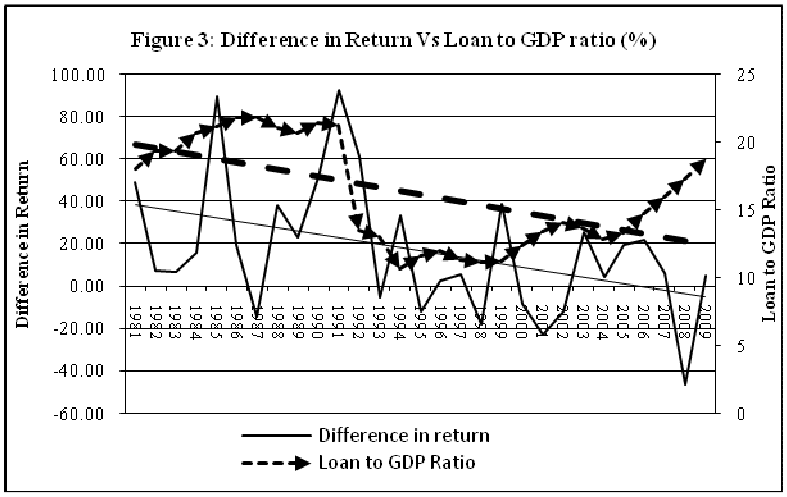


Figure 3 presents the relationship between loan-to-GDP ratio and the excess-return in the financial market. The GDP is defined at its current price. The three figures raisess the posssibility that loan for riskier assets could be at higher level when excess return in the stock market is high and most of these assets counts a lot of risk burden of banks.



However, this does not negate the other possibilities, for example; it could be possible that during 1980s the loan required to produce one unit of GDP could be higher than loan required to produce it during 2000, because of higher-cost of production for say, technological reasons. However, the technological improvements do not changes suddenly in a particular year, rather it follows a strict mild-trend. In that case the loan-to-GDP ratio should have followed a continuous trend.

The discussion on internal-fund is an another important channel. A firm may have utilized internal-fund when external fund were not found to serve their purpose for capital formation, or circulating money in the financial market. However, for any riskier investment, non-real investment, a firm should prefer external-fund relative to internal-fund because of limited liability. In case of failure some portion of loss can be shifted to banks too, because in relity there is limit of loss given default.

However, in the case of investment in fixed asset, the behaviour of firms should be just opposite. In this case the real-capital investment rises with the return of fixed asset because it is an indicator of efficiency of capital which reflects upon the return in future from today's investment. The efficiency of capital-goods to an entreprenure increases with the increse its return on its marginal unit. In this case the preference of a firm should be to internalize the part of real-investment as much as possible.

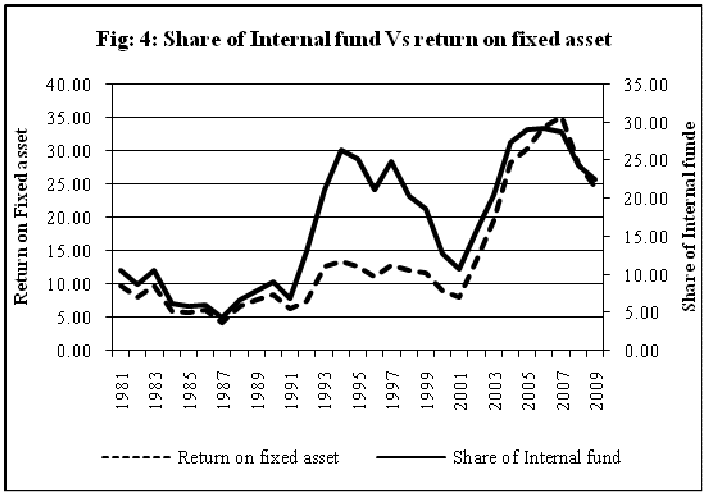
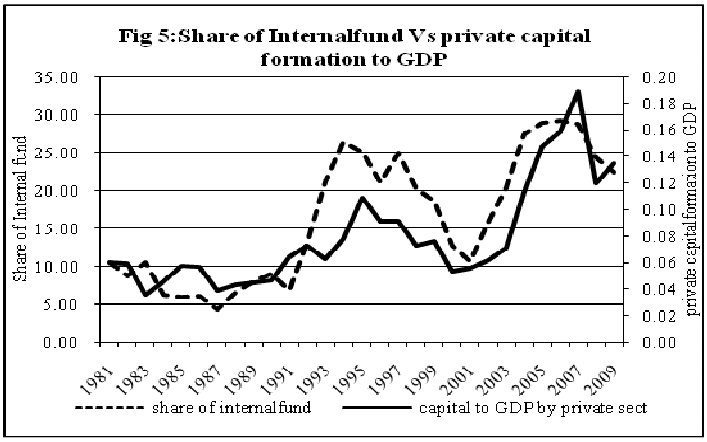
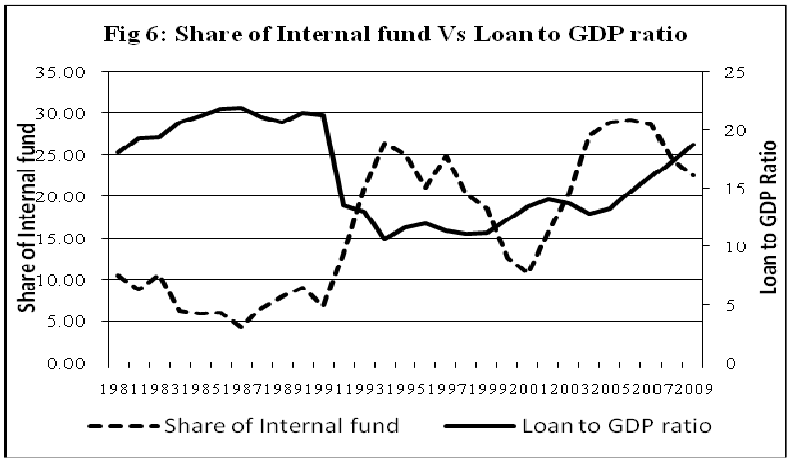


Figure 4 presents the relation between return on fixed asset and share of internal fund. While figure 5 presents the relation between share of internal-fund and private capital formation to GDP ratio. The both figure raises the possibility that in the case of increase in fixed capital formation the utilisation of internal fund rises as much as possible. The motive should be to internalise the return from real-investment as much as possible.



On the other hand from the figure 6 presents the loan-to-GDP ratio against the share of internal-fund. The figure raises the possibility that when loan-to GDP ratio is high the share of internal-fund was in low level relatively; it raise a negative relation between loan to GDP and share of internal fund. The both figure raises the possible that when riskier investments are there in the market, a firm would be more tilted towards external-fund while making riskier investment. On the other hand, for making fixed-investment decision, a firm should dependent more upon the internal-fund, though mostly funds their fixed-capital investment from external fund, credit from banks.



According to Banking rule while creating loans into a market, a bank also calculate a risk component or the amount of loss that may occour with the loan. In recent times a capital restriction also have come under the International banking aggrement (BIS), in which it is decided that bank should follow some unique rule all over the world. A bank should keep a

proportion of capital, to the amount of unsystemic-risk, which is different than the systemic/market-risk. In addition, there are other types of measurement of risk like operational risk etc.

To cover the market-risk, a bank keeps provision or some part of its profit, and if needed, it may keep some capital too. The market-risk is mainly associated with the uncertainty in macroeconomic variables, mainly interest rate, exchange-rate volatility; the market risk attached with the loss due to overall dampenning macro-economic-situation of an economy. The credit-risk is more attached with individual charecteristic, given a macroeconomic scenario. The basic of an unsystemic-risk is that an invidual may default even if macroeconomic situation is favorable. Mainly to cover such particular type of risk, a bank is advised to keep capital. According to quote from Reserve-Bank-of-India guideline (RBI/2009-10/308, DBOD.No.BP.BC. 73 /21.06.001/2009-10):

Banks are required to maintain a minimum Capital to Risk-weighted Assets Ratio (CRAR) of 9 percent on an ongoing basis. A specified percent of the minimum capital required to be maintained as per the Basel-I framework for credit and market risks.

Capital funds are broadly classified as Tier I and Tier II capital. Elements of Tier II capital will be reckoned as capital funds up to a maximum of 100 per cent of Tier I capital, after making the deductions/ adjustments.

Elements of Tier I capital

For Indian banks, Tier I capital would include the following elements:

i) Paid-up equity capital, statutory reserves, and other disclosed free reserves, if any;
ii) Capital reserves representing surplus arising out of sale proceeds of assets;
iii) Innovative perpetual debt instruments eligible for inclusion in Tier I capital, which comply with the regulatory requirements.
iv) Perpetual-Non-Cumulative Preference Shares (PNCPS), which comply with the regulatory requirements.
v) Any other type of instrument generally notified by the Reserve Bank from time to time for inclusion in Tier I capital.

Elements of Tier II capital:

Revaluation reserves: These reserves often serve as a cushion against unexpected losses, but they are less permanent in nature and cannot be considered as 'Core Capital'. Revaluation reserves arise from revaluation of assets that are undervalued on the bank's books.

General Provisions and Loss Reserves: Such reserves, if they are not attributable to the actual diminution in value or identifiable potential loss in any specific asset and are available to meet unexpected losses, can be included in Tier II capital. Adequate care must be taken to see that sufficient provisions have been made to meet all known losses and foreseeable potential losses before considering general provisions and loss reserves to be part of Tier II capital.

Hybrid debt capital instruments: Such instruments comes a number of debt capital instruments, which combine certain characteristics of equity and certain characteristics of debt. Each has a particular feature, which can be considered to affect its quality as capital. Where these instruments have close similarities to equity. In particular when they are able to support losses on an ongoing basis without triggering liquidation, they may be included in Tier II capital.

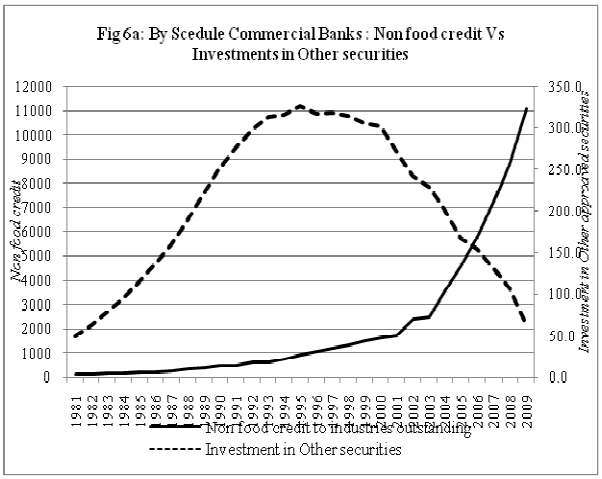
Subordinated debt: To be eligible for inclusion in Tier II capital, the instrument should be fully paid-up, unsecured, subordinated to the claims of other creditors, free of restrictive clauses, and should not be redeemable at the initiative of the holder or without the consent of the Reserve Bank of India.

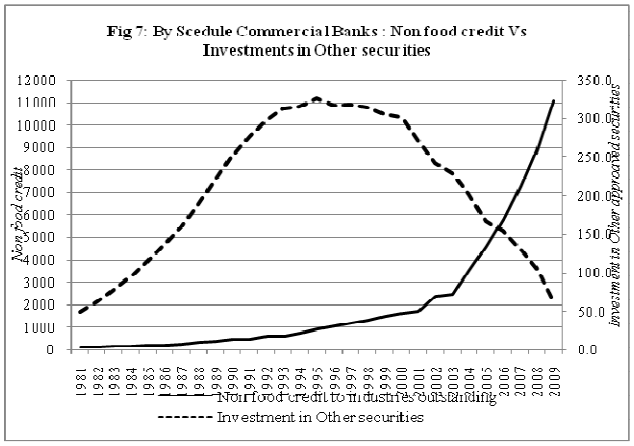
Innovative Perpetual Debt Instruments (IPDI) and Perpetual Non-Cumulative Preference Shares (PNCPS): IPDI in excess of 15 per cent of Tier I capital may be included in Tier II, and PNCPS in excess of the overall ceiling of 40 per cent ceiling prescribed may be included under Upper Tier II capital, subject to the limits prescribed for Tier II capital.

Upper Tier II instruments along with other components of Tier II capital shall not exceed 100 per cent of Tier I capital.

In short, the effective amount of capital broadly can be divided into two parts: first, Core or paid-up equity capital or which is known as *"capital"*. The second is the others financial assets.

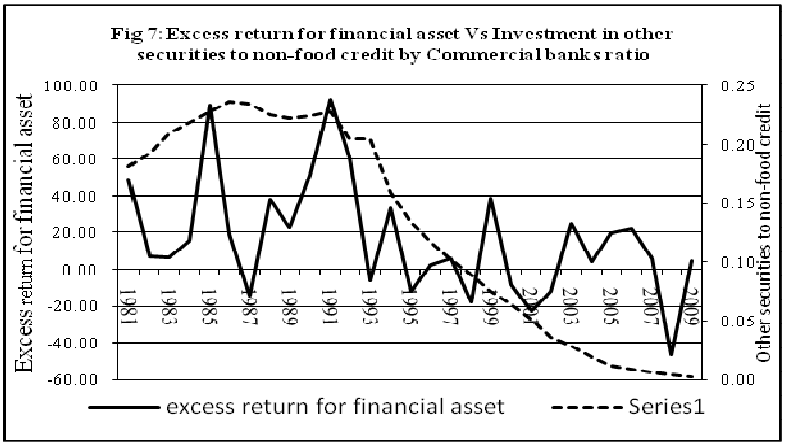
After an initial starting, as return for financial asset in the stock market goes up, financial assets are generated in the market to accrue such returns (sovan2014).





Continuing the above-mentioned arguments, banks also may increase holding of capital as market flogged with financial assets. It can be seen from figure 6a that the holding of other financial assets by banks have risen till 1995, and till the excess-return in the stock market was at higher level. Such, holding of other financial assets also may give a bank access to provide more riskier-loans (figure 3 and figure 6a) on demand. In that case a bank could have more effective-amount of total-capital, even if core-capital may not be needed to increase much to support the amount of risk. As a result an excessive hike in return at financial market should be beneficial for banks in two ways: first, it can extend loans to more risky business because the "effective-amount" of capital in its' hand. Second, it would not have to depend upon the core-capital to extend riskier-loan (even the value of core capital also may go up excessively). Though by rule Tire-II capital cannot go beyond a portion of Tire-I, however, in such scenario raising Tire-I capital should not be a constraint to a bank, as it not attached with fixed-capital, like a firm. It is rather more liquid than any fixed asset. A bank can easily extend riskier-loan to business and earn profit. So, it is the system that automatically (Riskier-loan→Capital→Riskier-Loan) may provide riskier-loan to some extent (as long as source of dividend pursue it to do so (Sovan(2014))) when lot of riskier-assets comes to the market.

It also can be seen from figure 7 that when return in stock market was higher the investment in other securities-to-loan ratio by commercial banks was also at higher level till year 1993. In other words, excess return in stock market induces banks to invest more into other securities. Though this research even has gone before 1988, but, even if, the capital restriction would have come before that than also it might not have worked in presence of above-mentioned scenario.



Data Description

The data has been collected from RBI. It is an aggregate and group-wise, as well as individual data for banking sector. The Loan and advances has been divided by the GDP at Market price to get an anticipation of the intensity of the loan that is financing things, other than GDP. This is a relative measure, not the absolute one. An increase in loan to GDP ratio may give an anticipation that financing other than GDP or riskier loan, is increasing in the economy, vice-versa. The investments in government-bond and debentures also have been divided by aggregate-loan. The capital to loan ratio gives an idea about risk taking behavior of the bank. The core capital mainly consist the owners' fund.

This research also tried to see the result in individual level information. However, the capital adequacy ratio or capital to risk-weighted asset ratio has been calculated by a bank itself. The individual level bank information has been collected from Reserve Bank of India. It has total 47 banks, from year 1995 to 2004. All types of banks, including foreign banks are there.

Distribution of banks among groups

Name of the group	**Number of banks**
Nationalized banks	**18**
Foreign banks	**9**
Other commercial banks	**12**
SBI group	**8**
Total	**47**

Definition of variables:

Capital: Capital represents paid-up capital, or, the amount of share capital actually contributed by the owners or the shareholders of a bank.

Deposits: Deposit are collected from public, upon which a bank liable to pay a fixed amount as interest. In balance sheet, it is counted under the head of liability. Banks usually sell different types of deposits.

Asset: Asset constitutes cash, investments and loan and advances.

Borrowings: Banks in India, mainly borrow from RBI, in addition, it also can borrow from financial institutes like IDBI, NABARD and non-bank financial institutes like LIC, UTI GIC etc.

Cash: Cash, defined broadly, includes cash in hand, and balances with other banks, balances with RBI.

Investments: These are investments in securities usually classified under three heads: Government securities; other approved securities; bonds and shares.

Loans advance and bill discounted or purchased: These are the principle components of bank assets and the main source of bank income. These loans represent bank credit to commercial sector.

Provision and contingencies: Provisions and contingencies are a part of reserve or accumulated profit of a bank. Provisions are made for affecting known reduction in the value of a firm. Simply it kept a support to the small-risk or which also can be named as expected risk.

Risk weighted asset: A bank place different weights for different types of assets. Naturally, relatively higher riskier asset is assigned higher weight. The base is a low-risk asset, like cash, government bond, other securities, debentures and shares, which are assigned as zero weights.

Capital adequacy ratio: Capital adequacy ratio is defined as capital divided by risk- weighted asset.

Other Expenditure: This is related to the expenditure that has occurred.

Results

The correlation table 3A_1 and 3A_2 present the correlation-coefficient between excess-return for financial assets, the investment in Government-bond-to-loan, investment-in-other-securities to loan and capital-to-loan ratio during 1981 to 1995 and during 1996 to 2009.

From table 3A_1 it can be seen that the correlation between excess return in financial asset and investment in other-securities-to-loan is positive, while correlation with government securities to loan and capital to loan is small and negative during 1981 to 1995. The similar correlation (from table 3A_2) between 1996 to 2009, is very small and close to zero. Another important point is that the correlation between capital to loan and investment other securities to loan is negative during 1981 to 1995, and while positive during 1996 to 2009. It may be possible that the relation between capital-to-loan and other-securities-to-loan may depend upon the excess-return in stock market; when the stock-return is higher the correlation of the above-mentioned variables could be negative and vice-versa.

The table 3A1 presents the simple-linear-regression result from aggregate bank level information. The GDP growth rate is insignificant while excess-return for financial-asset is significantly positive. Similarly, table 3A2 presents the regression-result of group-data. The fixed-effect model presents the result of loan-to-GDP ratio on, growth-rate-of GDP and excess return for financial assets, and another multiplicative variable (excess return and dummy at 1995). It can be seen that the growth-rate is significantly negative, reflects the possibility that a high growth-rate reduces the provision of riskier-loans. The excess-return of financial-assets is significantly positive. It reflects the fact that, given a level of growth-rate, a higher level of return on financial-asset or higher stock-market return always increases the amount of loan-to-GDP ratio or loan to riskier assets. In other words, an increase in excess-financial-return always increases provision of riskier-loans into the market. One of most possible channel could be the speculative activities in the financial market. Figure 3A presents the actual versus predicted figure of the regression analysis.

The table 3C and 3D presents the result from *Variable-Parameter-Approach,* the dependent-variable is the loan-to-GDP ratio and in both cases the regression analysis is done without using any dummy-variable, to capture the drastic-swing in the series. Table 3C

presents the result of current value (2009/10) of the parameter when the explanatory variables are growth-rate and excess-return for financial-assets. It can be seen the growth-rate is significantly-negatively-correlated with loan to GDP ratio. The excess-financial-asset-return is significantly positively correlated with loan-to-GDP ratio. In other-words, a rise in excess-return for financial assets should increase in the loan-to-GDP ratio, or provision for loan for risky assets. On the other hand a rise in growth rate of GDP decreases the loan-to-GDP ratio, or provision of loan for risky assets.

The table 3D presents the Variable-parameter approach regression when dependent variable is Loan-to-GDP ratio and the explanatory variables are capital-to-loan ratio and growth rate at constant price. It can be seen current parameter (2009/10) of both variables are significantly negative. It presents a situation when capital to loan ratio is low, a bank may prefer to extend more loans to riskier assets; it could be the case that when return in stock market is higher level, the valuation of the part of capital that comprises financial-assets, could be going up; as a result owners can keep less amount of core-capital per unit of loan, and, can extend loans for riskier-assets even maintain the capital-risk banking regulation. In addition, it also may be the case that less capital-to-loan or less liability of a bank may induce it in extending more loans towards risky investments.

Figure 3B1 presents the actual versus predicted figures of loan-to-GDP ratio when explanatory variables are excess-return of financial-assets and growth-rate of GDP. Figure 3B2 presents the actual versus predicted figures of loan-to-GDP ratio when explanatory variables are capital to loan ratio and growth-rate of GDP.

The table-3E presents the dynamic-panel-data regression from individual bank information. The number of banks have been included in the regression analysis are 47. The estimation is done by Arellano-Bond estimation process. The dependent variable is log of risk-weighted asset. The risk-weighted has been calculated by the banks according to BIS rule. It can be seen that previous year's risk-weighted asset is significantly-positively related, while the capital adequacy ratio is significantly-negatively related, the cash to asset ratio is significantly-positively related, and the investment in Government bond to asset ratio is significantly-negatively related. The result indicates the possibility that a bank would increase fund to risky-assets if it had a history of directing loan towards risky-assets. The more liquid

asset like cash in hand increases the possibility of flow of towards risky-assets. In that respect it seems that the banks may not treat the Government bond as a liquid asset. It seems that the higher capital-adequacy ratio may reduce the possibility of flow of fund towards financing of risky-assets. In this case the restriction on the basis of 'capital', defined upon the core-capital, should have the characteristic of reduction of the flow of fund towards risky-assets.

In other words the overall results raise the possibility that the capital seems to be an ineffective measure to curb loans towards risky-assets. Even in presence of capital restriction, a bank can extend loan to riskier assets; as the return on financial assets goes up in the stock-market, the effective amount of capital in hand of a bank also goes up, even if the valuation of owner's capital do not support. As the speculative-activities rises the excess return on financial assets goes up, the valuation of financial-asset in hands of a bank goes-up too. Such things may be increasing the effective amount of capital in hands of a bank to extend loans towards riskier assets. In that situation a bank even can reduce the owners' contribution and extend the loan towards risky investments.

A sudden downfall/break in the stock market may reduce the value of capital in hands of a bank, a lot of creditor may unable to pay, and as a result credit rationing may occur in case of stock market failure.

- **Simulation Study**

This research also considered one simulation analysis, comparing scenario of capital requirement between situation, under perfect-market scenario where credit profile follows a normal distribution pattern, and a scenario where imperfect-market scenario is added with it. In this case the excess returns on stock-market remain behave as during 1982 to 2009. For an approximate idea the capital requirements has been calculated according to

$$K=LGD*\phi[(1-\rho)^{-0.5}* \phi\text{-}1(PD) + (\rho/(1-\rho))^{.5} * \phi\text{-}1(.99)] *(1/1-1.5*b)$$

Where $\rho=.12* \lambda + .24 * (1- \lambda)$

$\lambda =1-e^{-50*PD}/(1-e^{-50})$ (From Saidenberg & Schuermann)

The model-assumption idea is very much subjective and this research is not going into that detail.

The study itself is an approximate idea and LGD or loss given default is taken as 1. It can be seen from the 5000 simulation result that if the imperfect-market would have been incorporated in the calculation of over a normal scenario, the core-capital requirement, given the stock market behavior, should have gone up 1.04% over present level, using result from table 3B1. Though the study is an approximation because Loss given default also can change, in addition, complexity in maturity pattern has been ignored. The important point is that difference in capital requirement between two scenarios is quite significant and should not be ignored.

Result from simulation study	Percentage change in core-capital requirement in imperfect market relative to perfect market scenario.
Mean	1.04%
Median	0.75%
Standard deviation	2.66

- **Scenarios from other countries**

Figure 4, 5 and 6 presents the scenarios from USA, Germany and Greece. Due to unavailability of information, money to GDP ratio has been used. It can be seen the co integration between stock price growth and money to GDP ratio should be more visible in USA, relative to Germany and Greece. However, stock price growth also not exact value of excess return in stock market, but this research calls for a very small possibility that, in case stock market failure, loan for riskier assets could be more rationed for USA, relative to Germany and Greece. If it is the case, within the framework of current banking rules, this research call for more tighten banking regulation for Germany and Greece.

- **Conclusion:**

This part of the research presents one possibility that loan-to-GDP or loan towards risky-projects, mostly varies similar way with excess-return of financial-asset in the market. It could be possible that part of such riskier-assets are getting finance by the bank.

In one hand capital restriction based upon core-capital or owners contribution should have reductionary impact upon the loan towards riskier assets, in this respect the capital restriction is successful in limiting the loan towards for uncertain or risk-assets. However, on the other hand with the rise in stock market the valuation of the financial assets goes up and effective amount of capital in the hand of banks rises. It gives them an access to enhance loans for speculative activities. In these scenarios the system changes automatically such that when riskier-assets would be there in the market, the loans also could be available into the market automatically, even in presence of strong capital restriction. Such things could be limiting the basic objective of capital restriction of banking system.

In short, with the existence of a higher return in stock-market, a higher effective risk-premium-charges and large amount of risky-loan would co-exist together. As a outcome, in face of any banking crisis or default of many loans together, the rationing of loan would be the result. In that case some selected borrowers by banks would only get loans or credit would be rationed.

From the scenerios from other countries, within the framework of current banking rules, this research call for more tighten banking regulation for Germany and Greece. However, it needs more depth study on these particular countries.

Policy Proposal

As a policy proposal this research suggests that the risk related restriction should be based upon something which is invariant to the variation in return of stock market or risk-weights should be also based upon excess return from stock-market, so that it can net out its' impact. However, in that case amount of capital may be much higher. A country should be prepared for that. In that case an excessive rise in the stock market would not have system generated impact upon risk-curbing instruments, so could have some binding upon loans for riskier assets.

Statistical Tables:

Names	*Short-Name*
Ratio of Capital to Loan ratio	Cpl
Ratio of Investment in Government asset to Loan ratio	Ingol
Ratio of Investment in other-securities-to-Loan ratio	Insel
Ratio of Excess return for financial assets	F-R
Growth Rate of GDP at constant prices	Grgd
Ratio of Loan and Advances to GDP at Market Prices	Logd
Dummy variable =1 if year>=1995, Otherwise=0	D
Log of Risk-Weighted Asset: Individual bank	Ln_Rwa
One period of Log of Risk-Weighted Asset:”	L_Ln_Rwa
Capital-adequacy Ratio:”	CAR
Log of Cash in hand to Asset ratio:”	Ln_Cash
Log of Investment in Govt. bond to Asset ratio:”	Ln-Rings
Log of Investment in approved-securities to Asset ratio:”	Ln_Rinse
Log of Investment in approved-Shares to Asset ratio:”	Ln_Rinsh

Table 3A_1: Correlation Matrix during 1981 to 1995				
Ingol	1.00			
Inosl	−0.23	1.00		
Cpl	0.78	−0.58	1.00	
F−R	−0.12	0.29	−0.18	1.00

Table 3A_2: Correlation Matrix during 1996 to 2009				
Ingol	1.00			
Inosl	0.41	1.00		
Cpl	0.50	0.98	1.00	
F−R	0.05	0.02	−0.02	1.00

Table 3B1: Aggregate Regression result			**Table 3B2: Fixed effect Regression result, for banking groups**	
Dependent Variable: Logd			**Dependent Variable: Logd**	
Explanatory Variables			Explanatory Variables	
Grgd	−0.47 (0.350)		Grgd	−0.17* (0.09)
F−R	0.04* (0.02)		F−R	0.01*** (0.006)
(F−R)×D	−0.05 (0.05)		(F−R)×D	−0.015 (0.014)
Cons	18.16*** (2.44)		F(3, 81)	4.62***
R-squared	0.24		Number of Observations	87
Number of Observations	29			

Table 3C: Variable-Parameter Approach Regression	
Dependent variable: Logd	
	Value-of-the current-state or Parameter
F−R	0.016*** (0.0002)
Grgd	−0.579*** (1.02*10^-5)
Constant term	21.05*** (0.228)
Log-likelihood value	145.06

Table 3D: Variable-Parameter Approach Regression	
Dependent variable: Logd	Value of the current state or Parameter
Cpl	-0.914*** (1.24*10^-5)
Grgd	-0.432*** (3.73*10^-5)
Constant term	23.25*** (1.02*10^-5)
Log-likelihood value	-52.70

Table:3E-Dynamic-Panel-data-Regression-Analysis:Arellano-Bond-Method: For individual Bank level information	
Dependent Variable: Rwa	
L_Rwa	0.672*** (0.053)
CAR	-0.043*** (0.010)
Ln_Cash	0.414*** (0.163)
Ln-Rings	-0.289*** (0.144)
Ln_Rinse	0.007 (0.071)
Ln_Rinsh	0.061 (0.053)
Grgd	0.027 (0.028)
Cons	0.036 (0.023)
Wald chi2(7)	200.12
Sargan-test-of-over-identification	106.83***
Number of group	47

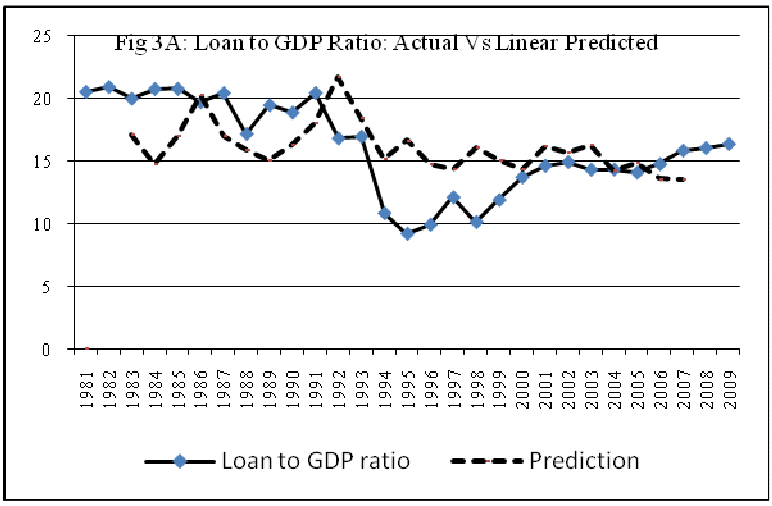


Fig 3A: Loan to GDP Ratio: Actual Vs Linear Predicted
25
20
15
10
5
0
1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009
Loan to GDP ratio
Prediction

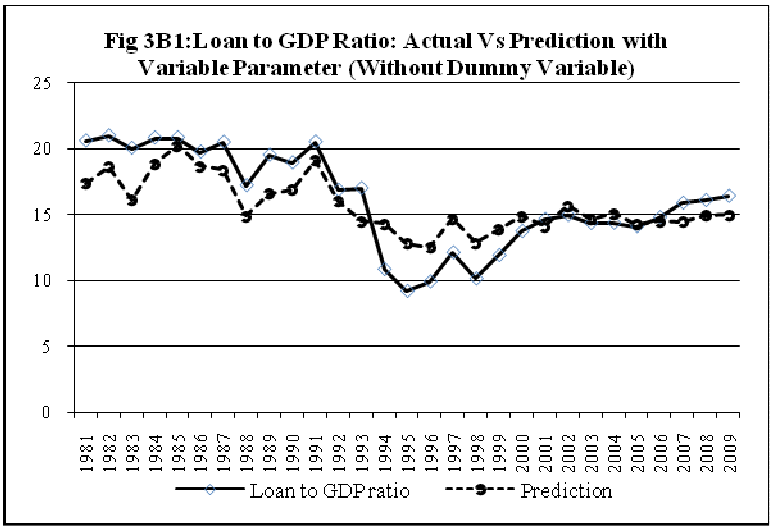


Fig 3B1:Loan to GDP Ratio: Actual Vs Prediction with Variable Parameter (Without Dummy Variable)
25
20
15
10
5
0
1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009
Loan to GDPratio
Prediction

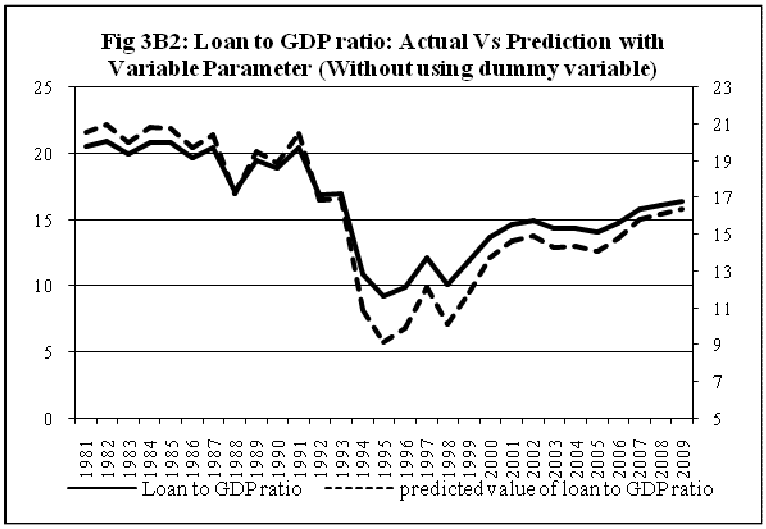


Fig 3B2: Loan to GDP ratio: Actual Vs Prediction with Variable Parameter (Without using dummy variable)
Loan to GDP ratio
predicted value of loan to GDP ratio

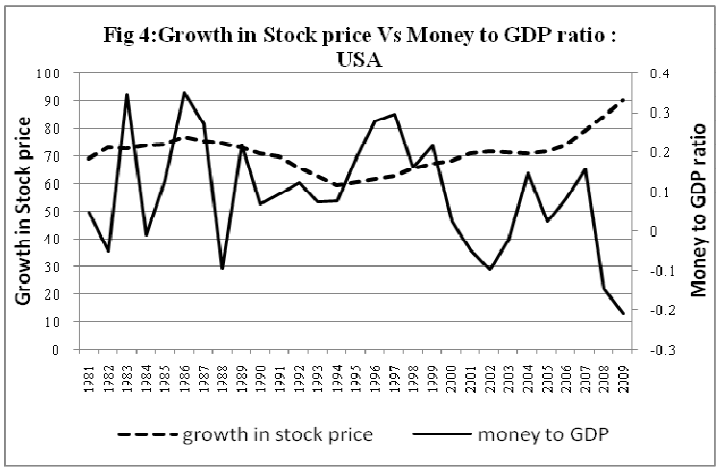


Fig 4:Growth in Stock price Vs Money to GDP ratio : USA
Growth in Stock price
Money to GDP ratio
growth in stock price
money to GDP

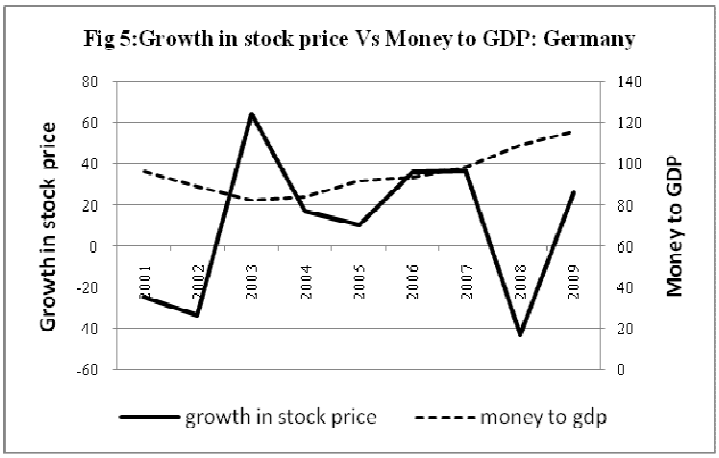
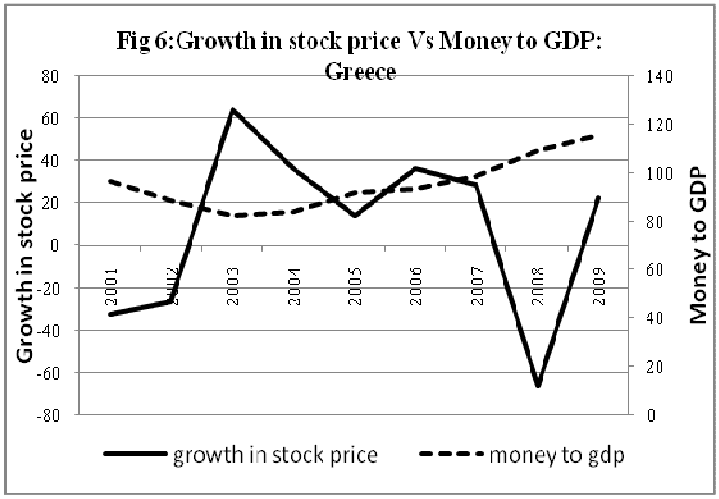


Fig 5:Growth in stock price Vs Money to GDP: Germany
Growth in stock price
Money to GDP
growth in stock price
money to gdp



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