The Post Offering Performance of IPOs from the Banking Industry

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Abstract

This paper concentrates on IPOs from the banking sector. The recommendations of the expert committees on the banking sector reform encouraged Indian banks to raise funds from the capital market through IPOs. In a developing country, the role of the banking sector for economic development is undisputed. In view of its importance in economic resource allocation and empirical evidences of IPO underperformance in the developing countries in the background, this paper analyses the banking sector IPOs in detail. The performance evaluations on the basis of stock returns didn't find significant evidences of underperformance for the IPOs from the banking sector. Moreover, the study based on key accounting parameters showed improvement in the performance of the banks in the post listing period. There were no significant differences across ownership groups (public sector banks vis-à-vis their private counterpart) in the IPO pricing and performance.

1.Introduction

The IPO literature emphasizes the information gap between the issuers and investors to be the main cause of the anomalies present in primary equity market. Asymmetric information about the companies' reliability, earning potential and authenticity of the information disclosed remained the major factor driving the uncertainty among the investors. One of the anomalies documented in the IPO markets is referred as underperformance. The available evidences show that the IPO firms stock return performance and operating performance deteriorates in the years after going public. While no unanimous explanations are yet provided for, studies generally held window dressing of accounting figures (to take advantage of investors optimism), agency problem with disperse ownership after going public as the major reasons causing underperformanc.

Within the broad ambit of financial sector, the bank sector constitutes a crucial component of any economy. It acts as the most important intermediary for channelising resources from ultimate lenders to final borrowers. With the ushering of economic liberalization (1992), the banking sector has undergone several changes in line with Narasimham Committee recommendations. These reforms aimed at improving efficiency, introducing transparency and insuring a sound financial footing of the banking sector. One of the major steps in this direction was allowing the public sector banks to go for IPOs, which would dilute the government ownership and bring these banks under market discipline. Many of the public and private sector banks took the IPO route to collect funds in the 1990s. In view of the evidences of perverse underperformance of the IPOs in general (as documented in the IPO literature) and considering the importance of the banking sector in overall development process, this paper devotes itself to a detailed analysis of IPO from the banking sector. The underlying structures of the public sector banks differ considerably from their private counterpart. So, it is of considerable interest to evaluate the changes in the public sector banks vis-à-vis their private counterpart(s) in the post IPO era.

This paper evaluates the stock returns and the operating performance of the Indian banks that made initial public offerings during the last decade (1990s). It investigates the extent of underperformance for the bank IPOs and documents whether there exists any difference between the Public Sector Banks (PSB) vis-à-vis their private counterpart. In an attempt to have a deeper insight, this study also takes up the accounting parameters to evaluate the changes in the post IPO operating performance.

This paper is organized as follows, Section-2 summarizes the available international literature, Section-3 explains why banking sector is distinct from the other sectors. Section-4 describes the data, Section-5 illustrates the methodology and the empirical results, Section-6 concludes the paper.

2. Literature Survey

Jay R. Ritter (1991) was the first to document evidences of underperformance as another empirical anomaly present in the IPO market. Using a sample of 1526 companies that went public in U.S.A. during 1975 to1984, he showed that in the long run IPO firms significantly under-performed as compared to the already listed firms. Ritter used a set of comparable firms matched by size (market capitalization) and industry as benchmarks. By long run under-performance the author meant that an investment of one dollar in an IPO at the end of first day's public trading and retaining it for the next three years would yield the investor a lower return as compared to the investment in an already listed matching firm. Ritter used two measures to evaluate long run performance. He calculated cumulative average returns of the newly listed companies and compared them using various indices as benchmarks. He also used three years buy and hold returns for both IPOs and a set of matching firms. Ritter documented that small and young companies and firms that went public in the heavy volume years performed worse (on average) as compared to a set of already listed companies. Loughran and Ritter (1995) tried to address the unresolved issues of Ritter's (1991) paper and shed more light on the issue of long run under-performance of IPOs by taking a longer time horizon (1970-90) and found evidences of perverse underperformance on the basis of stock returns.

The aforementioned studies concentrated on post issue stock prices to evaluate long run performance of firms after going public. Jain & Kini (1994), on the other hand, concentrated on accounting data of IPO firms to evaluate their post issue operating performance. They found that IPO firms exhibit substantial decline in the post issue operating performance over a period of six years (extending from the year prior to the IPO). The authors used operating income as the ratio of Profit Before Dividend and Tax to Total Assets (PBDT/TA). The operating cash flow was calculated as the ratio of the profit before dividend and tax (net of capital expenditure) to total asset (PBDT-Capital Expenditure/TA). Using these as measures of operating performance they found deterioration in the IPO companies' performance in the after market period.

Another study by Mikkelson et al. (1997) considered a sample of 283 U.S. IPOs in the years 1980-83. Their study also supported the earlier findings and showed that operating performance of the IPO firms deteriorated in the first ten years after going public. Poor operating performance of the newly listed firms were associated with the sample of small and young companies. The large and old companies displayed a high level of performance before going public, and lower, but non-negative performance afterwards. The authors argued that the poor performance of the small and young firms might be because of high initial operating cost and/or aggressive pricing strategy followed by already established firms. Finally Chun & Smith (2000) found support of IPO underperformance from an emerging economy, Korea. Their study showed that profitability declined for the Korean firms in the initial years after IPO.

The above literature survey could be summarized by saying that IPO firms generally underperform in comparison to the stock index and already listed benchmark firms. Some studies also reported deterioration in the operating performance after listing. Most of these studies found that small and young companies window dress their accounting figures to take advantage of the market sentiments at the time of floating their IPO. Some of the authors emphasized the agency problem associated with dispersed ownership (after listing) to be responsible for subsequent performance deterioration.

3. Indian Banking Industry

While the available literature and findings on the IPO underperformance have already been discussed in the last section, this section devotes itself to the discussion of the banking sector and its distinction from other IPOs in general. The banking industry has its distinct characteristics in comparison with other industries. Considering its importance in resource allocation and economic development in most economies the banking sector has been more regulated than other industries and such regulations have been all the more stringent in developing economics (Kumbhakar & Sarkar, 2002). The banking sector in India, like most other developing countries, is characterized by the predominance of government ownership in the presence of different other ownership groups (private domestic and private foreign). In India, in an attempt to meet the social and economic objectives, the largest private sector banks were nationalized in 1950s and 1960s. The smaller private sector banks and foreign banks were allowed to coexist with the public sector banks.

The banking sector reform initiated in 1992 sought to improve the bank efficiency through entry deregulation, branch delicensing, deregulation of interest rate and allowing the public & private sector banks to raise the equity capital from the capital market. One of the major reasons for allowing public sector banks to access capital market is to support the re-capitalization needs of these banks. The Reserve Bank of India has estimated that given the present growth rate of the economy and the extent of capital adequacy norms, the public sector banks would need Rs.100 billion of additional capital in the coming five years (Jalan 2000). The two possible sources of capital infusion are by governmental infusion of funds and/or allowing the banks to access the capital market. With many demands on government budget and the continuing need for fiscal consolidation, subscription to banks' capital cannot be regarded as a priority claim on the budgetary resources. So the Narasimham Committee Report encouraged Public Sector Banks to access the capital market at home and abroad to meet their re-capitalization need.

Another argument in favour of bank disinvestments envisaged shifting of financial risk to private parties from financial institutions, which ultimately devolves on to the Government (Rajan & Shah, 2002). The proponents of this argument have favoured de-linking the financial institutions from the Government and disinvestments of PSBs are a part of this programme. Lack of sound corporate governance practices are considered to be the basis of many of the banking problems in India. Listing in an organized stock market would bring more capital to the banking sector and the resultant monitoring by investors and shareholders. This coupled with more voting rights given to the shareholders would cause the banks to improve their performance.

The anomalies in the new issue market arise from the asymmetric information between the issuers and the investors. The banking sector posses a special case because of several reasons. All commercial banks in the post reform era have to maintain 8 per cent capital adequacy norms along with income recognition, asset classification and provision requirements in line with the Basel Committee on Banking Supervision's (BCBS) recommendations. Banks are presently required to disclose some of the key accounting ratios, which include returns on assets, CRAR, net NPA to net advances etc. to public. The liberalization measures have also infused much competition through easier entry of private sector banks and foreign banks. There remain some fundamental differences between the public sector banks and their private (especially new private) counterparts. The latter does not have the burden of a large network of branches especially in low diversity business areas, they are also able to introduce technology to upgrade operational efficiency within a short time. However, the recent policy measures attempt to provide a level playing field by ironing out the differences between the Public Sector Banks and their private counterparts. These measures and the importance of the banking sector have made the banking IPO one of the most important and interesting areas of academic and policy oriented research. The availability of accounting data of the banks prior to listing have enabled to test underperformance hypothesis on the basis of accounting data and compare them with the pre listing performance.

The above section clearly brings out the need for banks' disinvestments. The policy in favour of banks raising capital through IPO was enacted in 1992. Since then some of the public sector and private banks have gone for IPOs. The table 1 gives the details of these banks and the year of their listing. The IPO literature, on the other hand points toward presence of underperformance of newly listed companies in the developed and developing countries. Considering the importance of sound banking system for resource allocation and smooth functioning of the economy a detail analysis of pricing and performance of banks that went public over the last decade is of paramount importance.

With this in the background, this paper attempts to answer the following questions relating to the IPOs coming from the Indian banking sector:

1. What was the extent of underpricing and underperformance for the IPOs coming from public and private sector banks?
2. How the ex-post accounting variables showing profitability and efficiency changed after listing? Did the banks underperform in terms of accounting measures?
3. Whether there exist any differences between the public sector and private sector banks in terms of stock returns and operating performance in the after market period?

4. Data

The empirical analysis in this paper is divided into two parts. The first part concentrates on the descriptive statistics and univariate regression analysis to examine the underperformance of the banking IPOs. For underperformance this paper has used the Buy and Hold Returns (BHR) defined as

$$BHR_i = \left[\prod_{t=Start}^{j} (1 + r_{it}) - 1\right] \times 100\ \%$$

Where `$r_{it}$` is the raw return of the i_{th} firm for the event month `t`.

This section also compares the underperformance for public sector banks and their private counterparts. The second part concentrates on the ex-post operating performance of the newly listed banks. It evaluates whether the profitability and efficiency parameters in the banking sector have deteriorated in the aftermarket period as suggested by the underperformance of IPO school. This part also examines whether there exist any difference in these performances across the public and private sector banks.

The main data-sources for this analysis are (i) Report on Trend and Progress of Banking in India" (RTP), (ii) Prowess Database brought out by the Centre for Monitoring Indian Economy (CMIE). The detailed descriptions of the variables are as follows:

ROA = Returns on assets, defined as the net profit of a bank divided by average total asset

OPWF = The operating profit of a bank normalized by the working fund.

IIWF = Interest income of a bank divided by the working fund

NPAADV = Net Non Performing Assets (NPA) of a bank divided by net advances

PPE = Profit Per Employee

CRAR_T = Total Capital to Risk Weighted Asset Ratio

SIZE = The issue size of an offer deflated by the GDP deflator over different years.

M_j = Buy and Hold Return (BHR) for 'j' months (where j=1,3,6,12,18,24,30 and 36)

EM_j = Excess Buy and Hold Return (BHR) over the Sensex return for 'j' months (where j=1,3,6,12,18,24,30 and 36)

DPSB = Dummy variable that takes value one if the issue comes from Public Sector Banks, otherwise zero.

5. Empirical Findings.

Table-1: Bank IPOs over 1990s

Banking IPOs	*Offer Date*	*Listing Date*	*Offer Price*	*Listing Price*
State Bank Of India	15-Dec-93	24-Oct-94	100.00	187.50
Federal Bank Ltd.	21-Mar-94	3-Jun-94	90.00	235.00
Global Trust Bank Ltd.	25-Aug-94	8-Nov-94	10.00	65.00
Oriental Bank Of Commerce	5-Oct-94	19-Dec-94	60.00	85.00
Bank Of Punjab	6-Mar-95	22-May-95	10.00	26.00
HDFC Bank	14-Mar-95	26-May-95	10.00	40.00
Dhanalakshmi Bank Ltd.	18-Mar-96	12-Dec-97	50.00	30.50
Dena Bank	28-Oct-96	20-Jan-97	30.00	27.00
Bank Of Baroda	5-Dec-96	24-Feb-97	85.00	79.50
Bank Of India	21-Feb-97	5-May-97	45.00	60.70
Corporation Bank	3-Oct-97	5-Dec-97	80.00	91.20
Indusind Bank Ltd.	25-Nov-97	29-Jan-98	45.00	39.30
State Bank Of Travancore	8-Dec-97	11-Mar-98	600.00	600.00
Jammu & Kashmir Bank Ltd.	13-May-98	3-Aug-98	38.00	31.15
City Union Bank Ltd.	22-Jun-98	7-Sep-98	35.00	21.00
U T I Bank Ltd.	21-Sep-98	27-Nov-98	21.00	17.00
South Indian Bank Ltd.	22-Sep-98	17-Dec-98	32.00	18.00
I D B I Bank Ltd.	9-Feb-99	12-Apr-99	18.00	17.00
Times Bank Ltd. [Erstwhile]	30-Jun-99	20-Sep-99	10.00	14.70
Centurion Bank Ltd.	20-Sep-99	6-Dec-99	10.00	12.35
Syndicate Bank	25-Oct-99	27-Dec-99	10.00	13.05
Indian Overseas Bank	25-Sep-00	12-Dec-00	10.00	10.10
Vijaya Bank	27-Nov-00	9-Jan-01	10.00	9.00
Andhra Bank	14-Feb-01	4-Apr-01	10.00	9.00

Offer price is the price at which an IPO company offers its share to public. Listing price is the first trading days closing price

For this analysis, data for 24 banks (both PSB and Private) that went public in 1990s were used. The newly listed bank's name, their offer date, offer price, listing date, issue amounts were obtained from the CMIE monthly reviews. The monthly data on their stock returns (from their month of listing to the next three years[1]) were downloaded from the Prowess dataset. The accounting data (as described above) are obtained for the year 1996-97 to 2001-2002 from Report on Trend and Progress of Banking(RTP) in India[2].

5.1 Short & Long Run Returns of the Bank IPOs

This paper now takes up the short and long run performances of the bank IPOs. To do so, 'j' month(s) buy and hold returns (where j=1,3,6,12,18,24,30 and 36) were

[1] For some banks, which haven't completed three years, the latest available month was included for the calculation of BHR.

calculated for the newly listed banks. The j^{th} months' buy and hold return represents the amount that an investor gets back if he invests Re.1 in a particular script and holds it for the next 'j' month(s).

The Table-2(a) reports the average BHR for the banks over different intervals of time. The figures for the All Banks reported negative values but none of these averages were significantly different from zero. None of the average BHR for the public sector and private sector banks was significant at 10 per cent level. In an attempt to check whether the market adjusted buy and hold return is a better indicator of the banks' performance the Sensex adjusted buy and hold returns were calculated and the averages for the whole sample and the sub-samples are reported in the Table-2(b).

Table-2(A): Summary Statistics for the Buy and Hold Returns (Raw Returns)

Variables	All Banks		Public Sector Bank		Private Banks	
	Mean	P-value (μ=0)	Mean	P-value (μ=0)	Mean	P-value (μ=0)
M_1	5.29	0.45	-1.28	0.72	8.75	0.40
M_3	-3.11	0.51	0.28	0.97	-4.90	0.42
M_6	-6.24	0.35	-5.06	0.65	-6.86	0.43
M_12	-4.15	0.61	-14.47	0.15	1.27	0.91
M_18	4.23	0.66	-4.47	0.70	8.36	0.54
M_24	8.80	0.55	-21.47	0.14	22.26	0.28
M_30	2.41	0.84	-18.78	0.15	11.83	0.47
M_36	-3.38	0.75	-21.46	0.15	4.52	0.75

M_j = Buy and Hold Return (BHR) for 'j' months (where j=1,3,6,12,18,24,30 and 36)

Table-2(B): Summary Statistics for the Buy and Hold Returns (Sensex Adjusted Returns)

Variables	All Banks		Public Sector Bank		Private Banks	
	Mean	P-value	Mean	P-value	Mean	P-value
EM_1	5.29	0.64	-2.02	0.63	5.65	0.56
EM_3	-3.11	0.12	-2.00	0.76	-9.60	0.11
EM_6	-6.24	0.21	-2.69	0.73	-11.06	0.21
EM_12	-4.15	0.41	-6.02	0.48	-7.15	0.55
EM_18	4.23	0.80	4.71	0.76	-5.76	0.64
EM_24	8.80	0.65	-13.15	0.48	-1.31	0.92
EM_30	2.41	0.54	-17.30	0.40	-1.94	0.88
EM_36	-3.38	0.17	-28.57	0.16	-8.41	0.51

EM_j = Excess Buy and Hold Return (BHR) over the market return for 'j' months (where j=1,3,6,12,18,24,30 and 36)

The index adjusted buy and hold returns repeated earlier findings of Table-2(a), none of these coefficients were significant even at 10 per cent level. The BHR calculated

[2] These crucial ratios were reported in RTP from 1996-97 onwards and data upto 2001-02 were available at the time of the study

for the public sector banks and the other private banks showed similar results, none of the mean values were significant at the ten percent levels. This study based on stock returns do not support the underperformance hypothesis for the banking sector IPOs. It is a major departure from the available international evidences on IPOs in general. In an attempt to examine whether the buy and hold return performance differed across the ownership groups, this section undertakes mean test. This is done by regressing BHR(j) on DPSB dummy. The null hypothesis is

$H_0 : \mu_{psb} - \mu_{ob} = 0$ against alternative hypothesis,

$H_1 : \mu_{psb} - \mu_{ob} \neq 0$

Where 'μ_{psb}' is average underperformance of the public sector bank issues and 'μob' for the private banks. This is done by regressing underperformance over a dummy variable 'DPSB' (taking value one if the IPO is from a public sector bank, otherwise zero). The regression equation is given below

$UD = \alpha + \beta(DPSB) + \upsilon$

The expected value of 'UD' conditional upon whether the issues are from PSB is give by

$E(UD/psb) = \alpha + \beta$, similarly

$E(UD/ob) = \alpha$

So the difference between μ_{psb} and μ_{ob} turns out to be

$E(UD/psb) - E(UD/ob) = \beta$

if β is significantly different from zero than the average underperformance for PSB is different from their private counterparts.

Table-3 reports the value of the β coefficient and its significance when each of the buy and hold returns (over different intervals of time) was used separately as a dependent variable. The results (Table-3) show none of these estimated coefficients were significantly different from zero at ten percent level. It also indicates that there was no significant difference in the stock return performance of public sector banks as compared to the private sector banks.

Table-3: Banking IPOs Performance Across Ownership Groups (Sensex Adjusted Returns)

Variables	*Public Sector Bank Vs Private Banks*		
	Coefficient	P-value	Remarks
EM_1	-7.67	0.57	No significant difference between two groups
EM_3	7.59	0.42	No significant difference between two groups
EM_6	8.36	0.54	No significant difference between two groups
EM_12	1.13	0.94	No significant difference between two groups
EM_18	10.47	0.62	No significant difference between two groups
EM_24	-11.84	0.62	No significant difference between two groups
EM_30	-15.35	0.52	No significant difference between two groups
EM_36	-20.16	0.38	No significant difference between two groups

EM_j = Excess Buy and Hold Return (BHR) over the market return for 'j' months (where j=1,3,6,12,18,24,30 and 36)

To summarize, this analysis based on stock returns does not confirm the underperformance hypothesis for the banking sector. The mean test results also suggest that the stock return performance did not differ across different ownership groups (PSB and OPB).

5.2 Post Listing Operating Performance of Bank IPOs

The analysis based on stock returns could not provide conclusive evidences on the aftermarket performance of banking sector IPOs. To get a deeper insight, this section concentrates on the ex-post operating performance of the newly listed banks. The model specification closely follows Chun and Smith (2000) approach as given below,

$$Y_{it} = a(i,t) + \sum_{j=1}^{4} b_j IPO_{(t-j)} + b_5 IPO_{t-n} + u(i,t)$$

where a(i,t) is the constant term that incorporates the time specific effect and the firm specific effects[3]. Y_{it} is the variable capturing operating performance for i^{th} bank and for t^{th} period. IPO_{t-j} is a dummy variable equal to one if the year *t-j* is the IPO year and IPO_{t-n} equal to one if the IPO took place before five years and above. In this model the b_1 coefficient captures the difference in performance of the IPO companies in the first year as compared to the pre issue years. So a positive and significant b_1 would imply that the performance of the IPO company has improved in the first year after IPO as compared to the pre issue years. The b_5 coefficient, on the other hand, would give the performance of

[3] In the fixed effect model the constant term is written as $a(i,t) = a + a(i) + \lambda(t)$, which incorporates the constant, group effect and time effect.

the bank IPOs in the five years and above after they got listed, compared to the pre-issue years. A continuous improvement in the performance would require $b_5>b_4>b_3>b_2>b_1$ condition to be satisfied.

The model specification also allows one to control for unobserved bank and time specific effects. This type of model is popularly known in the literature as two factors (individual and time specific) models and could be fixed or random depending on how one models the individual and time specific effects. The former presupposes that the differences across units (individual and time) can be captured by differences in the constant term, while the later assumes both the effects to be randomly distributed and captured in the error term [Green 2000]. Since this study concentrates on all the banking IPOs over the last decade, we consider the fixed effect model, which is specified as follows

$$Y_{it} = a_0 + \sum_i a(i)Z_i + \sum_t \lambda(t)V_t + \sum_{j=1}^{4} b_j IPO_{(t-j)} + b_5 IPO_{t-n} + u(i,t)$$

where a_0 is the model constant, Z_is are firm specific dummies and V_t s are time or year specific dummies. The time dummies are included to control for any time specific variation over the period under consideration[4]. As described earlier, $IPO_{(t-i)}$ represents a dummy variable, which is one if the year under consideration is i^{th} year after the bank has gone for its IPO. $IPO_{(t-5)}$ is a dummy variable, which takes value one in the year under consideration, is equal to or more than five years since the bank's IPO. The error structure *u(i,t)* for the fixed effect model is similar to the OLS regression model.

Following Sarkar, Sarkar and Bhaumik's (1998), operating performance of the bank was captured using both profitability and efficiency measures. To capture profitability of the newly listed banks, returns on assets (ROA), operating profit (OPWF) and interest income (IIWF) (as defined in section 6.3) were included in the model. The

[4] "Notice that the fixed effect model has an overall constant as well as a 'group' effect for each group and a 'time' effect for each period. The problem of multicollinearity – the time and group dummy variables both sum to one – is avoided by imposing the restriction $\Sigma_i a(i) = \Sigma_t \lambda(t) = 0$. A full set of estimates is produced for the two-factor model in the same fashion as for the one factor model. The model is described in standard textbooks such as Judge, etc.al. (1985) or Greene (1997)."—LIMDEP, Version 7, User manual, pp-338-9

efficiency measures included non-performing assets (NPAADV, a decline in this variable would represent the improvement in the bank's performance after IPO), Profit Per Employee (PPE) and Total CRAR. These profitability and efficiency indicators were then used as dependent variables in the above model to measure the post IPO performance of the newly listed banks.

As mentioned in the literature survey, the empirical findings on IPO performance (Jain & Kini (1994) Mikkelson) have shown that the new companies underperform in the post listing period. The underperformance is captured by deterioration in accounting parameters of the newly listed companies, on average. The objective of this study is to test empirically the changes in accounting parameters of the banks that went for IPO and thereby draw inferences on the post listing performances of these banks. Table-4 reports the Panel regression results of the model specified above. The 'b*j*' coefficients (that report the change in operating performance in the j^{th} year after the IPO) demonstrates that the return on assets (ROA) has actually improved in the two years immediately after IPO. This is evident from table-4 where b_1 (0.25) and b_2 (0.23) are positive $(b_1 > b_2)$ and are significant at 10 per cent level. However, the coefficients of ROA showed declining values that have lost their significance over the years. The OPWF has also followed the same path and shown an improving trend over the first few years. This is evident from the positive values b_1 (0.21), b_2 (0.23) and b_3 (0.33) reported in Table-4, which were significant at 10 per cent level $(b_1 < b_2 < b_3)$. This result also indicates that the operating profit has actually improved over the years since IPO. However, the coefficients lost their significance after the fourth year. But, there was no significant impact on the interest income (normalized by working fund) as none of the coefficients 'b*j*' reported in the table were significant at the ten percent level. The insignificance of these coefficients might indicate the variability of interest income across the banks. Turning to the efficiency indicators, the 'b*j*' coefficients of the model when net NPA (normalized by total advances) was used as an independent variable maintained negative signs. This is suggestive of reduction in non-performing assets of the banks in the post listing period. However, only 'b_5' was significant at the ten percent level. Moving over to the other two measures of efficiency, namely the profit per employee (PPE) and the total CRAR, none of the 'b*j*' coefficients were significantly different from zero at ten percent level. From

Table-4 it appears that unlike international evidences for the newly listed companies in general, the IPOs coming from the banking sector in India did not underperform in terms of their accounting parameters. Rather some of the key accounting parameters (namely return on assets, operating profit) showed improvement in performance in the post listing period.

One question remained unanswered in the above analysis. Was there any difference in the post listing performance over the ownership groups i.e. between private and public sector banks? In an attempt to provide an answer to this, the above analysis is appended by introducing an interactive dummy, DPSB. As described earlier it takes value 1 if the IPO is from public sector banks or zero otherwise. With the introduction of this dummy variable, the model takes the form

$$Y_{it} = a(i) + \lambda(t) + \sum_{j=1}^{4} b_j IPO_{(t-j)} + b_5 IPO_{t-n} + \sum_{j=1}^{4} b_{j-pub} IPO_{(t-j)} * (DPSB) + b_{5-pub} IPO_{t-n} * (DPSB) + u(i,t)$$

As in the Table-4 *'bj'* indicates the coefficient of the IPO dummy for the j^{th} year after listing. The coefficient of the newly introduced interactive dummy 'bj_Pub' is the same dummy variable $IPO_{(t-j)}$ multiplied by DPSB. 'b_1_Pub' captures the ownership group effect within the class of listed banks. If among the listed banks, the public sector banks have performed differently then the coefficients of the interactive dummy variables would take significant values and signs of these coefficients would show the direction of such changes. The Table-5 shows the magnitude, direction and the significance of 'bj_Pub' coefficients when each of the banking performance and efficiency ratio is used as dependent variable. When ROA was used as an explanatory variable the results show that the *'b_j'* coefficients maintained positive values for the first three years after IPO. However, these coefficients ceased to be significant at 10 per cent levels. Moving over to the differences between the PSB and their private counterpart the 'b_j_Pub' coefficients maintained positive sign, though none of them were significant at the ten percent level. When operating profit (OPWF) was used as an explanatory variable the values of b_2 (0.31) and b_3 (0.39) were positive with ($b_2 < b_3$) and were significant showing that there were signs of improvements in operating profit in the second and third years after IPO. However, none of the interactive dummy coefficients were significant at ten percent

level. Similarly when the other ratios (namely INTWF, NPAADV, PPE and CRAR_T) were used as dependent variables none of the interactive dummy coefficients were significant at ten percent level. The results in the Table-5 indicated no significant difference between the PSB and the private banks when the banks' accounting parameters were used as the dependent variables in the panel model. So Table-5 indicates that the post IPO performance of the banking sector IPOs did not depend on the ownership groups as none of the interactive dummy variables were significantly different from zero at ten percent level.

These findings could be summarized by saying that unlike the international evidences for the newly listed firms, the IPOs coming from Indian banking sector did not underperform. Rather some of the post IPO operating performance indicators showed signs of improvement in the years immediately after IPO. Moreover, the findings of this section indicate no significant difference between the IPOs coming from the public sector banks and their private counterparts. As mentioned earlier the deterioration in the post listing operating performance is mainly associated with small and young companies that window dress the accounting figures and tap the primary market in the boom periods to collect as much money as possible from the investors. Banking sector is distinct from other sectors in many ways. It is regulate in India as in many other developed and developing countries. In the post reform period steps were taken to improve accounting standard in line with international practices, make banking system more transparent and enforce competition in the banking sector. These measures might have reduced some amount of uncertainty among the investors' (as compared to the IPOs from the other sectors). The liberalization measures coupled with the market monitoring and RBI supervision might have prevented the commonly observed underperformance for banking sector IPOs. Rather, some of the key accounting parameters showed improvements in the post listing period.

Table-4: Profitability and Efficiency Indicators Showing the Ex-Post Operating Performance of the IPO Banks

	Performance Measures						*Efficiency Measures*					
	ROA		OPWF		INTWF		NPAADV		PPE		CRART	
	Coeff.	P-value	Coeff	P-value	Coeff	P-value	Coeff	P-value	Coeff.	P-value	Coeff.	P-value
b_1	0.25	0.08	0.21	0.16	0.06	0.84	-0.93	0.21	-1.73	0.42	0.95	0.19
b_2	0.23	0.09	0.23	0.10	-0.04	0.88	-1.12	0.12	-0.96	0.64	0.50	0.48
b_3	0.07	0.62	0.33	0.02	-0.03	0.91	-1.61	0.13	-1.96	0.34	0.05	0.95
b_4	-0.06	0.72	-0.04	0.79	-0.27	0.41	-0.97	0.23	-1.33	0.57	0.55	0.50
b_5	-0.02	0.92	0.32	0.11	-0.35	0.35	-1.45	0.10	-0.67	0.80	0.38	0.68
Constant	0.82	0.00	1.94	0.00	10.30	0.00	7.00	0.99	4.24	0.01	11.76	0.00

Table-5: Difference in Ex-Post Operating Parameters Across Ownership Groups

	Performance Measures						*Efficiency Measures*					
	ROA		OPWF		INTWF		NPAADV		PPE		CRART	
	Coeff.	P-value	Coeff	P-value	Coeff	P-value	Coeff	P-value	Coeff.	P-value	Coeff.	P-value
b_1	0.29	0.15	0.20	0.36	0.49	0.25	-0.35	0.76	-1.89	0.53	1.22	0.23
b_2	0.22	0.20	0.31	0.09	0.00	0.99	-0.77	0.41	-0.59	0.82	0.15	0.87
b_3	0.01	0.99	0.39	0.03	-0.13	0.73	-1.66	0.05	-2.24	0.39	-0.86	0.33
b_4	-0.25	0.25	-0.09	0.68	-0.14	0.75	-1.27	0.26	-0.70	0.83	-0.39	0.72
b_5	-0.04	0.85	0.47	0.05	-0.11	0.82	-2.31	0.04	-0.21	0.95	0.66	0.57
b_1-Pub	-0.06	0.84	0.01	0.99	-0.82	0.16	-0.98	0.52	0.41	0.92	-0.40	0.78
b_2-Pub	0.07	0.80	-0.18	0.54	0.02	0.99	-0.74	0.61	-0.37	0.93	1.18	0.40
b_3-Pub	0.25	0.34	-0.17	0.56	0.38	0.49	0.42	0.78	1.41	0.72	2.69	0.15
b_4-Pub	0.47	0.13	0.09	0.79	-0.18	0.77	0.69	0.67	-0.80	0.86	2.42	0.12
b_5-Pub	0.13	0.72	-0.42	0.28	-0.55	0.47	2.38	0.19	-0.43	0.94	-0.39	0.84
Constant	0.80	0.00	1.94	0.00	10.28	0.00	6.97	0.00	4.11	0.05	11.69	0.00

Estimated coefficients of the Panel regression. The coefficients of the bank and time dummies are not reported here. 'IPO_{t-j}' is a dummy variable equal to one if the year *t-j* is the IPO year and IPO_{t-n} equal to one if the IPO took place before five years. The coefficient of 'IPO_{t-j}' reports the change operating performance in the j^{th} year after the IPO. 'bj-Pub' is the coefficient of the interactive term ('IPO_{t-j}' multiplied by DPSB). 'bj-Pub'captures the ownership group effect within the class of listed banks. DPSB is the dummy variable which takes value one if the IPO is from Public sector bank, otherwise zero.

6. Summery and Conclusions

Financial systems in the developing countries are predominantly bank based and it plays significant role in efficient allocation of resources. Considering the importance of banking sector in overall economic development and the recommendations of expert committees in favour of banks going public, this paper attempts short and long run performance evaluation of the Indian banks that got listed during 1990s.

This exercise didn't find any conclusive evidence of underperformance for the bank IPOs on the basis of buy and hold returns. The analyses on the basis of the operating performance suggest that there were no significant underperformance. The analysis on the basis of the operating performance suggested that there were no significant underperformance. Rather some of the key accounting indicators (e.g. returns on asset, operating income) showed signs of improvement in the post-listing years. The analysis also documented that performance didn't differ significantly across the ownership groups. These results are unlike the international and Indian experience of long run underperformance of IPOs in general. The difference might be because the supervising authority, the RBI, was successful in reducing the general practice of window dressing of accounting figures before listing, as well as in limiting the agency problem (shift from concentrated to dispersed shareholding pattern) that often cause underperformance. Market monitoring along with the new policy measures may have actually helped to improve some of the key accounting parameters for the banking IPOs in the post listing period.

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