BANK OWNERSHIP AND FINANCIAL LIBERALIZATION IN PUBLIC AND PRIVATE BANKING SECTORS IN INDIA

Bank Ownership and Financial Liberalization in Public and Private Banking Sectors in India

Vijay S. Jondhale[1] Dr. Sagar S. Jambhorkar[2]

[1]Research Student Singhania University, Pacheri Bari, Jhunjhunu, Rajasthan

[2]Research Supervisor, Singhania University, Pacheri Bari, Jhunjhunu, Rajasthan

Abstract – This paper empirically estimates and analyses various efficiency scores of Indian banks during 1997-2003 using data envelopment analysis (DEA). In spite of gradual liberalisation aimed at strengthening the operational efficiency of the financial system in the 1990s, it is observed that Indian banks are still not much differentiated in terms of input- or output-oriented technical efficiency and cost efficiency. However, they differ sharply in respect of revenue and profit efficiencies. Bank size, ownership, and being listed on the stock exchange are some of the factors that have a positive impact on average profit efficiency, and to some extent, revenue efficiency scores. Finally, the median efficiency scores of Indian banks, in general, and of bigger banks, in particular, have improved during the post-reform period.

-------------------------◆----------------------------

INTRODUCTION

The estimation of efficiency of banking foundations serves two vital purposes. It serves to benchmark the relative efficiency of a singular *bank against the 'best practice' bank(s) and besides, it serves to assess the effect of different strategy measures on the efficiency and execution of these foundations. Since banks give transaction administrations and installment systems, a productive banking system has noteworthy positive externalities, which expands the efficiency of economic transactions by and large. In the Indian setting, we have seen the unfolding of a huge number of financial sector reform measures since the unanticipated 1990s. A critical goal of these measures is to build the operational efficiency of the banking sector all in all, and additionally of distinct organizations. Actually, arrangement creators have unmistakably recognized that inefficiency is an essential component helping the high cost of banking administrations in India.*

Then again, efficiency estimation in this sector is not straightforward on the grounds that it is challenging to characterize and measure both the inputs and yields of a bank. Further, banks may not be homogeneous regarding the sorts of yield really handled. There is additionally the inquiry of the different thoughts of efficiency that might be utilized to register relative efficiency scores of unique banks. We additionally need to figure with the way that there exist various conceivable methodologies to gauge a given measure of efficiency. When the efficiency scores are worked out, the following inquiry emerges as to their observational corresponds, which can toss light on the wellsprings of the watched inefficiency. Proper approaches intended to improve efficiency could be outlined if the extents along which entertainers get

plainly differentiated from non-entertainers are legitimately distinguished. In this paper, we measure efficiency scores of all significant Indian commercial banks with a base level of retail presence in the nation utilizing the nonparametric strategy for information envelopment analysis (DEA). Since public and private sector banks may have distinctive goals and may confront diverse stipulations in admiration of the variables that they can pick, we utilize elective measures of efficiency to analyze their execution. We then endeavor to figure out the conceivable wellsprings of watched inefficiency. An imperative outcome of liberalization is that a bank is presently equipped to head off to the stock market to raise value and accordingly assimilate a more excellent level of danger than some time recently. A corresponding level of market order mixes more excellent responsibility and transparency in the normal operations of the bank and encourages efficiency. Banks of distinctive proprietorship sorts, be that as it may, fluctuate in the degree to which they are laid open to the stock market. Our destination is likewise to look at if liberalization has surely upgraded efficiency and, assuming this is the case, to see if there are systematic contrasts in the impacts of liberalization crosswise over proprietorship classes.

Whatever is left of the paper is organized as takes after. Segment II incorporates a short audit of the pertinent writing. Segment III furnishes a bird's-eye perspective of the Indian banking system as it has developed in the later past and puts the inquiry of efficiency, the principle topic of this paper, in its legitimate viewpoint. Segment IV layouts the nonparametric DEA philosophy and examines different measures of efficiency that we have utilized. The information sources on top of distinguishing proof

of inputs and yields are accounted for in Section V. Area VI talks about the discoveries from the observational analysis. Area VII closes.

REVIEW OF LITERATURE

The literary works on the efficiency of financial foundations is at this point expansive notwithstanding its moderately later source. Various endeavors have been made to study the efficiency of banks in advanced nations. By complexity, studies examining the efficiency of banks in advancing nations, particularly in India, are far fewer.

Of the 130 investigations of financial foundation efficiency recognized by Berger and Humphrey (1997), 116 were distributed between 1992 and 1997. They find that, generally, depository financial institutions/banks work at a twelve-month normal specialized efficiency level of around 77 for every penny (average 82 for every penny). Boondocks inefficiency, now and then called X-inefficiency, at financial foundations represents an extensive segment of the sum costs, is a much more terrific wellspring of execution issues than either scale or item blend inefficiencies, and has an in number experimental cooperation with higher probabilities of disappointments [bauer et al 1998].

The vast majority of the bank efficiency studies dependent upon DEA concentrate on the US or other advanced nations. Around the few bank efficiency contemplates so far that have utilized east Asian banking information are the papers by Leightner and Lovell (1998), Gilbert and Wilson (1998), Shyu (1998) and Hao et al (2001). As respects Indian banks, Bhattacharya et al (1997) utilized DEA philosophy to study the effect of changing measures taken in 1980s on the execution of different classifications of banks. They built a thousand boondocks utilizing information of 70 banks for the period 1986-91. Since the banking sector was overwhelmingly ruled by Indian public sector banks, with new private sector banks yet to develop completely in the Indian banking situation, it is no astound that they establish that Indian public sector banks were best performing. Das (1997) investigated general efficiency - specialized, allocative and scale, of Indian public sector banks and discovered a decrease in generally speaking efficiency. As of late, Rammohan and Ray (2004) looked at the income augmenting efficiency of three classes of banks- public, Indian private and remote banks throughout 1992-2000. They establish that public sector banks were essentially superior to private sector banks on income boost efficiency, yet between public sector banks and remote banks the distinction in efficiency was not huge.

In another group of studies, bank efficiency is measured by a number of financial indicators and compared across various categories of banks. For example, Sarkar et al (1998) considered three bank groups - public, Indian private and foreign - for comparison the purposes. After controlling for effects of a number of concomitant variables, they conducted regression analysis to find the effect of ownership type on different efficiency measures. Rammohan (2002, 2003) also used financial measures for comparing operational performance of different categories of banks in the post-liberalization period. These studies emphasized that the performance gap between Indian public and private sector banks during the post-reform period was narrowing and in the wake of deregulation, public sector banks had improved their performance in both absolute and relative terms.

CONCEPT OF THE INDIAN BANKING SYSTEM

The banking system in India comprises of commercial and agreeable banks, of which the previous represent around 98 for every penny of banking system holdings. In view of the proprietorship design, the commercial banks could be in bunched into three sorts - state claimed or public sector banks (Psbs), private banks under Indian possession, and outside banks. The 27 Psbs command the commercial banking system of India, representing a little more than 80 for every penny of commercial banking assets.2

The macroeconomic, administrative and supervisory schemas under which banks in India work have experienced a significant structural change since 1991 when the Indian reform process started. It may be noted here that in the 1950s, the financial system in India was honestly liberal with restricted control on investment rates and low statutory pre-emption of trusts. The vexing findings of the All-India Rural Credit Survey Committee [rbi 1954] of the discriminatory dissemination of bank credit raised second thoughts about the capability of markets to proficiently apportion resources.3

Accordingly, the government tightened its control over the credit portion process to guarantee sufficient stream of credit into genuinely gainful exercises in similarity with the arrangement necessities. Towards this close, controls on loaning rates were presented, liquidity prerequisites were raised, and a system of advancement banks pander to different fragments of industry and horticulture were secured. The process reached a state of perfection with the nationalization of the 14 biggest commercial banks in 1969 and in this way of other six significant commercial banks4 in 1980.

Throughout the decade accompanying nationalization, there was an unparalleled approach driven development in the extension system of the Psbs. Such development of banking offices was planned to wipe up potential funds, as well as to meet the credit crevices in horticulture, retail exchange and little scale commercial enterprises, subsequently bringing expansive extends of economic action inside the ambit of the composed banking system. In this setting, booked commercial banks are obliged to give to the extent that 40 for

Vijay S. Jondhale[1] Dr. Sagar S. Jambhorkar[2]

every penny of their credit portfolio to the preferred or "necessity" sector.

Also, a few other quantitative and useful restrictions were forced. Throughout 1991, the money hold proportion (CRR) of commercial banks was at the statutory greatest of 15 for every penny, while speculation in government obligation instruments in the structure statutory liquidity degree (SLR) was around 38.5 for every cent5 at its top. Banks had exceptionally constrained access to financial markets. Investment rates on both sides of the monetary record were quite directed. At long last, strict passage boundaries extremely limited competition from new private banks.

A process of liberalization of the financial sector was started in 1991-92, which pointed at making a more enhanced, profitable, proficient and strong banking system [goi 1991]. The underlying logic was to make the banking system more market-situated and to that end, cause a movement in the part of the RBI from micro-administration of banks operations to macro legislation. While these reforms were being actualized, the planet economy additionally seen critical progressions, "harmonizing with the development towards worldwide mix of financial services" [goi 1998]. Against this setting, a second government-named advisory group on banking sector reforms furnished the diagram for the present reform process [narasimham Committee II, Goi 1998]. Huge advancements in the financial system over the period were as takes after:

(a)   Financial repression through statutory preemptions were brought down. Illustratively, at closure March 2003, the CRR remained at 4.75 for every penny (lawful least is 3 for every penny) and SLR at 25 for every penny (legitimate least).

(b)   The managed premium rate administration was disassembled, allowing banks the flexibility to pick their deposit and loaning rates dependent upon the prevailing market conditions.

(c)   Competition was implanted by permitting more liberal entrance of outside banks and allowing working of new private banks.

(d)   A set of micro-prudential measures (capital ampleness requirements, salary distinguishment, stake arrangement and provisioning standards for advances, presentation standards, bookkeeping standards) was stipulated.

Until 1991-92, all Psbs were completely claimed by the government. Since the onset of reforms, a few significant enactments were corrected to empower the state claimed banks to raise capital up to 49 for every penny from the public. The same number as 12 state claimed banks entered the capital market and raised up to around Rs 65 billion till finish March 2002. An emblem of the economic reform process in India has been its 'gradualism', which was the result of India's majority rule and quite pluralistic country in which reforms could be executed just if dependent upon a well-known accord

[Ahluwalia 2002]. In particular, in the context of financial sector reforms, policy measures were initiated gradually with the objectives of aligning them with global standards.

Evidence of competitive pressures on the Indian banking industry can be found in the decline of the 'five-bank asset concentration ratio' from 0.51 in 1991-92 to 0.44 in 1995-96 and thereafter to 0.41 in 2001-02, and the presence of an increasing number of private and foreign banks. Deregulation of the interest rate structure, lowering reserve ratios, increased competition, etc, have facilitated the lowering of interest rates on both sides of the balance sheet and interest spread in line with international standards. In general, deregulation has introduced significant operational freedom in the working of Indian banks. In this context, efficiency assumes critical importance for competitive viability and improved performance in the future. Besides, comparison of efficiency across various ownership categories provides important insights regarding the privatization of banks.

METHODOLOGY

In econometric applications one specifies some explicit form of the production, cost, or profit function to represent the benchmark technology for efficiency measurement. The validity of the derived measures of efficiency, however, does critically depend on the appropriateness of the functional specification. In the nonparametric alternative, one makes a number of fairly general assumptions about the technology but leaves the functional form unspecified. Typically, it is assumed that the production possibility set is convex and both inputs and outputs are freely disposable. In any given context, the correct measure of efficiency can be obtained only if the choice variables of the firm are correctly identified. When there is some ambiguity about what variables the firm can freely choose and what are exogenous variables, one should consider alternative scenarios and compute alternative measures of efficiency. This is what we do in the present study. When the efficiency measures are robust across models, they become more reliable.

Consider an industry producing m outputs from n inputs. An input-output bundle (x, y) is considered feasible when the output bundle y can be produced from the input bundle x. The technology faced by the

Vijay S. Jondhale[1] Dr. Sagar S. Jambhorkar[2]

firms in the industry can be described by the production possibility set

$$T = \{(x, y): y \text{ can be produced from } x\}. \qquad (1)$$

In the single output case, one can conceptualize the production function

$$f(x) = \max y: (x, y) \in T. \qquad (2)$$

In the multiple output case, frontier of the production possibility set is the production correspondence F (x, y) = 1.

The method of data envelopment analysis introduced by Charnes, Cooper, and Rhodes (CCR)(1978) and further extended to non-constant returns technologies by Banker, Charnes, and Cooper (BCC)(1984) provides a way to construct the production possibility set from an observed data set of input-output bundles.

Suppose that (x^j, y^j) is the input-output bundle observed for firm j (j = 1, 2,,,., N). Clearly, these input-output bundles are all feasible. Then the smallest production possibility set satisfying the assumptions of convexity and free disposability that includes these observed bundles is

$$S = \{(x,y): x \geq \sum_{j=1}^{N} \lambda_j x^j; y \leq \sum_{j=1}^{N} \lambda_j y^j; \sum_{j=1}^{N} \lambda_j = 1; \lambda_j \geq 0; (j = 1,2,...,N)\} \qquad (3)$$

The set S is also known as the free disposal convex hull of the observed input-output bundles. One can obtain various measures of efficiency of a firm using the set S as the reference technology. In the following paragraphs we describe how the efficiency of a firm can be measured under alternative assumptions on the choice variables.

DATA AND INPUTS/OUTPUTS CHOICE

For estimation of the efficiency frontier by DEA methodology we need measures of inputs and yields and additionally those of efficiency. With respect to previous, there is no accord in the written works about what constitutes inputs and yields for a banking firm. There are two wide methodologies to this estimation issue. In the processing methodology, banks are recognized to be generating different sorts of records supported with them - credit and deposit accounts. It is the amount of records of different sorts that are taken as measures of yield, generated by the utilization of capital and work. Berger and Humphrey (1992) portray this methodology as a quality included methodology. Under the elective ontermediation or possession approach, a bank is dealt with as a maker of intermediation administrations - in light of the fact that it converts the danger and development profile of trusts accepted from depositors, to speculation or advance portfolios of an alternate danger and development profile, by utilizing work and capital. Yet

banks likewise transform administrations for which particular charges are required, for instance, custodial administrations, and safe deposit administrations for resources, installment administrations and others. Hence as per this methodology, cash worth of advances and non-premium wage are taken as yields, while inputs are work and capital. The treatment of the cash quality of deposits, notwithstanding, remains ambiguous. In the literary works it has been dealt with as a data by a few creators while others categorise it as a yield.

For our study, we have embraced the intermediation approach and acknowledged four inputs - obtained trusts (deposits and different borrowings), number of workers, altered stakes and value. The acquiring part in aggregate risk is honestly little, particularly for Indian banks. Nonetheless, outside banks working in India verifiably support a generally sizeable acquiring portfolio. The costs connected with the first three inputs are separately: cost of acquired stores measured by normal investment paid for every rupee of obtained trusts; normal staff cost and cost of settled holdings measured by non-labour operational cost for every rupee measure of altered possession. Value is acknowledged as semi info without any partnered cost. Therefore, our measures of info turned specialized, cost, and benefit efficiency are all short-run measures as clarified previously. We have utilized three yield measures: ventures, performing advance holdings and other non-investment expense based livelihoods. The utilization of gaining possession as a yield measure is a novel endeavor in the Indian connection, in spite of the fact that a comparative measure has been utilized within the setting of US [barr et al 2000]. As a measure of yield, this is better since just the winning holding helps the income of a bank and not its whole credit possession. The cohorted value pointer for the first two yield measures are individually: normal premium earned on for every rupee unit of speculation, and normal premium earned on for every rupee unit of performing credit holding. For non-engage salary, the aggregate sum itself is taken as a yield in worth terms. Non-engage salary radiates from expense, requisition, business, and so on, and has a reasonably institutionalized estimating component. Subsequently, we have expected that the cost of non-premium salary is solidarity all around the years for all banks.

Rather than taking a solitary measure of efficiency, we have embraced a to some degree all-encompassing methodology of various measures, i e, two measures of specialized efficiency, cost efficiency, income efficiency and benefit efficiency. Given the heterogeneous objectives and demands that apply to banks of distinctive possession in India, a solitary measure of efficiency may not be proper to separate the entertainers from non-entertainers. Before all else, the info utilization, cost structure, managerial example, and so on, differ broadly around public and private banks. Besides, regardless of the absence of opportunity from Indian banks to

Vijay S. Jondhale[1] Dr. Sagar S. Jambhorkar[2]

pick a best measure of work or settled capital, there is significant variety in gainfulness even around state-claimed banks, intimating subsequently that a benefit marker could be utilized to separate banks' execution. Thirdly, numerous public sector banks raised value capital from the stock market through halfway disinvestments by the state in the 1990s and it might not be right to say that amplification of shareholders worth completed not figure in the administration's goal capacity. We do distinguish, in any case, that contrasted with alternate inputs, the level of value is substantially more troublesome to change - particularly in the short-run. Hence, we treat value as semi settled in our estimation of (variable) cost or benefit efficiency.

Our study period blankets seven years starting with financial year 1996-97.6 We additionally chose to incorporate in our information set just those banks, which had no less than three limbs throughout the whole study period. This was carried out to evacuate a lot of people little outside banks, which were working essentially to administration customers of their guardian banks abroad and who may be picking their data and yield blend on contemplations completely unique in relation to all different banks with a critical retail presence in the nation. We additionally chose to bar the territorial rustic banks, which are likewise planned commercial banks in the state sector from our extent of study. These banks are neighborhood banks with their realm of operations limited to one or two adjacent regions and basically give credit to ranchers and little ventures. Since these banks have been framed to meet some social destinations of giving credit to a particular target gather, their incorporation in our information set may accelerate deluding outcomes. In view of this measure, we have chosen 71 banks in the year 1996-97 and 68 banks in the terminal year of our study. We have computed diverse efficiency scores for every year independently. The information for inputs, yields and costs are separated out from different issues of Statistical Tables Relating to Banks in India, Reserve Bank of India.

RESULTS

It is obvious that on the ground of technical efficiency (either the input or the output-oriented measures) there is not much to differentiate between various banks. The median results vary little over the years. In terms of cost- efficiency also, most banks fall in the highest efficiency range with around five to six banks falling in the next lower range. Although there is some yearly variation in the distribution of this efficiency measure, it cannot be considered very significant or as showing any trend. However, for the remaining two measures of efficiency that take into account both input cost as well as output realized, the banks appear to be more differentiated, particularly in respect of profit efficiency. For the latter measure, there are a significant number of banks in the lowest range. It is

also interesting to note that over the years there has been a noticeable improvement in the profit profile of banks, particularly after 1999-2000.

It is not difficult to understand why profit efficiency or revenue efficiency measures are better differentiators of performers and non-performers in the Indian context, as compared to technical or cost efficiency measures. In a policy environment where banks have little leeway to choose their input/output prices, the interbank variation in input or output mix plays a significant role. Thus there is considerable room for improvement in productivity and profitability by efficient management, in the sense of choosing a proper combination of credit and investment portfolios and better resource management in day-to-day operations. That is why we observe a much wider variation in terms of profit and to some extent in revenue efficiency. These results are in sharp contrast to the findings of Bauer et al (1998) who observed that X-inefficiency is the major source of performance problems among financial institutions.

In order to get an idea of the variability of the estimated efficiency measures, first quantiles of efficiency scores. It may be noted that the maximum efficiency scores for each year, irrespective of the choice of the efficiency measure, was estimated to be 1. As expected, the variability in efficiency scores were more pronounced in the case of profit maximization.

To study the effect of different classificatory attributes on the banks' efficiency scores, we look at median efficiency scores of various categories of banks defined along the dimensions of these attributes. As the difference in technical and cost efficiency scores are not perceptibly large, we restrict our observations only to revenue efficiency and profit efficiency scores.

CONCLUSIONS

The separation of performers from non-performers is an avowed objective of efficiency studies based on variants of frontier methodologies. Utilizing the nonparametric strategy for DEA as the logical configuration, this paper experimentally assesses the efficiency scores of banking firms of India - a rising market economy that has seen the unfolding of a reform process in the later past. In the pre-reform period, banks were liable to thorough control over data and yield costs, and to some degree, in the yield blend also. As the building of control measures is gradually yet consistently being destroyed, sharp separation between firms dependent upon efficiency scores is required to develop.

Taking the study period as the most recent seven years of the post- reform period, our exact analysis, in any case, finds that Indian banks are still very little

Vijay S. Jondhale[1] Dr. Sagar S. Jambhorkar[2]

separated as far as data turned or yield arranged specialized efficiency and cost efficiency. This is not sudden in light of the fact that enter and yield costs are yet to be dictated by the free play of market strengths of interest and supply. Most interestingly, Indian banks are getting to be pointedly separated regarding income efficiency and benefit efficiency. This would intimate that even inside the nature, a bank can at present enhance its gainfulness fundamentally, by receiving the best practices watched inside the sector. The effects plainly underscore the requirement for picking a fitting item blend in molding the income and benefit of Indian banks.

The paper likewise analyzes the normal efficiency scores of the Indian banks characterized into diverse assemblies dependent upon various qualities. The effects of this activity give intriguing bits of knowledge into the exact corresponds of efficiency scores of Indian banks. A percentage of the components that are found to have a positive effect on the normal benefit efficiency (and to some degree income efficiency) scores are holding size, possession structure, and the reality of being recorded on the stock exchange. At last, we watch that the average efficiency scores of Indian banks, as a rule, and of greater banks specifically, have enhanced extensively throughout the course of our study period. This conveys an exceptionally positive sign about the impact of the reform process on the execution of the Indian banking sector. Be that as it may, some related issues are worth specifying. In this study, the benchmark of examination has changed from year to year, and enhancing scores, to some degree, could reflect a declining benchmark likewise. The strength of the discoveries of this paper might along these lines be provisional. Future research utilizing bootstrapping system for analyzing the vigor of the evaluated efficiency scores is justified.

REFERENCES

• Ahluwalia, M S (2002): 'Economic Reforms in India since 1991: Has Gradualism Worked?' JournalofEconomicPerspectives, August, Vol 16, pp 67-88.

• Banker, R D, A Charnes and W W Cooper (1984): 'Some Models for Estimating Technical and Scale Inefficiencies in Data Envelopment Analysis', Management Science, Vol 30, pp 1078-92.

• Bauer, P W, Allen N Berger, G D Ferrier, D B Humphrey (1998): 'Consistency Conditions for Regulatory Analysis ofFinancial Institutions: A Comparison of Frontier Efficiency Methods', Journal of Economics and Business, 50(2), pp 85-114.

• Berger, A N, D B Humphrey (1992): 'Measurement and Efficiency Issues in Commercial Banking' in Z Griliches (ed), Output Measurement in the Service Sector, National Bureau of Economic Research, Studies in Income and Wealth, 56, University of Chicago Press, IL, pp 245-79.

• Bhattacharyya, A, C A K Lovell and P Sahay (1997): 'The Impact of Liberalisation on the Productive Efficiency of Indian Commercial Banks', European Journal of Operations Research, Vol 98, pp 332-45.

• Charnes, A, W W Cooper and E Rhodes (1978): 'Measuring the Efficiency of Decision-Making Units', European Journal of Operations Research, Vol 2, pp 429-44.

• Das, Abhiman (1997): 'Technical, Allocative and Scale Efficiency of Public Sector Banks in India' , Reserve Bank of India Occasional Papers, Special Issue, June-September, Vol 18, pp 279-301.

• Gilbert, R Alton and Paul W Wilson (1998): 'Effects of Deregulation on the Productivity of Korean Banks', Journal of Economics and Business, Vol 50, No 2, pp 133-55.

• GoI (1991): Report of the Committee on the Financial System, Government of India, New Delhi.

• Hao, J, C W Hunter and W K Yang (2001): 'Deregulation and Efficiency: The Case of Private Korean Banks', Journal of Economics and Business, Vol 53, No 2, pp 237-54.

• Jalan, B (2002): 'Indian Banking and Finance: Managing New Challenges' , Speech delivered at the Bank Economists' Conference, Kolkata, January 14.

• Leightner, E J and C A K Lovell (1998): 'The Impact ofFinancial Liberalisation on the Performance of Thai Banks', Journal of Economics and Business, Vol 50, No 2, pp 115-32.

• Ram Mohan, T T and S C Ray (2004): 'Comparing Performance of Public and Private Sector Banks: A Revenue Maximisation Efficiency Approach', Economic and Political Weekly, Vol 39, No 12, pp 1271-76.

• Sarkar, J, S Sarkar and S K Bhaumik (1998): 'Does Ownership Always Matter? Evidence from the Indian Banking Industry', Journal of Comparative Economics, Vol 26, pp 262-81.

Vijay S. Jondhale[1] Dr. Sagar S. Jambhorkar[2]