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THE FUTURE OF INDIAN INVESTMENT ADVISORY FIRMS– A COST EFFICIENCY APPROACH

R. Venkataraman[1], Thilak Venkatesan[2]*

Presidency College, Bangalore
Bharathiar University, Coimbatore

**Corresponding Author's Email: v.thilak@gmail.com*

ABSTRACT

The Indian financial services industry is witnessing a drastic change with Zerodha, operating in technologically advanced platform and other players striving to generate revenue of their old business model. The idea behind zero brokerage and seamless customer services is seen to be disruptive in nature. The cost of operations in the advisory firm varies as market players increase the advisory team in case of a market rally and downsize on the other hand with a fall in the market to cut cost and to remain afloat. The cost of operations in the investment advisory and broking industry is largely based on the research ideas and the manpower to handle clients at the same time. In this context the research was aimed at the cost management practices in the Indian firms. The data was collected through secondary sources, and the tools for the analysis would be efficiency analysis using stochastic frontier analysis. The findings highlight the fact that integrated players are well off in terms of turnover compared to single service providers and the industry views of introduction of block chains would further reduce cost and enhance efficiency in operations.

Keywords: Cost Efficiency, Labor Productivity, Stochastic Frontier, Panel Data

INTRODUCTION

Investment banking (IB) predominantly caters towards raising funds for organizations. A specific domain of IB, i.e. financial consultancy caters to offer advisory for mergers and acquisitions, leveraged finance, restructuring, and trading platforms to a broad section of clientele. The broking service prima facie offered full service broking service in India until 2010 when the traditional model was disrupted by a discount broking model by Zerodha. The full-service model witnessed heavy competition due to a higher brokerage charge. ICICI Securities dominated the market and the shift to the discount model led to the emergence of other services like asset management, Portfolio management, etc.

The discount model today offers the service at the lowest brokerage due to the advancement in technology, internet, and mobile applications. The economics of the operations in the broking industry depends on the stock market cycles. The firms in the broking industry in India compete at a thin margin with majority of the players offering a discount model. The competition is intense in the entire financial services industry with major banks implementing new technology to provide seamless service at ease and all at the lowest cost. Even the major backend process as order matching, verification and compliance would be transparent with block chains. The white paper on Block chain technology by Infosys suggested that OTC market could get redesigned in terms of infrastructure leading to elimination of market participants. The benefit would aid huge costs savings using smart contracts. The settlement risks can be eliminated by block chains to reduce the period of settlement (Krause *et al.*, 2016).

The future of the financial services industry depends on better regulation. With new technology, the benefits the customers derive and the cost effectiveness of the operations with respect to the firms in the industry are looked up as a key to success. This context of the study focuses to use secondary data of all the firms in the broking industry, analyze their efficiency of operations and provide insight to the firms and the policy makers.

The study is organised into the following sections: The second section would cover the review of literature and research gap for the current study. The third section describes the objectives of the study, hypothesis to be tested and model for the study, section four discusses the data analysis and inferences of the topic covered and, finally, the fifth section would conclude the results with implications followed by the scope & implications.

LITERATURE REVIEW

The analysis of studies on efficiency was predominantly

done on banks, both developed and developing countries. The most prominent method of analysis highlighted the data envelopment method of efficiency estimation using the Cobb-Douglas function and the stochastic frontier to identify the trends in efficiency over time. Studies focused on India highlighted private sector banks to be more efficient compared to the Public counterparts (Nandkumar & Singh, 2014). The deregulation of the banking sector was a key determinant leading to the study of performance.

The evaluation of productivity leads to regulate the bank managers and policy makers. A quadrant of efficiency and effectiveness would provide for streamlining employees and orient strategy towards serving customers (Roghanian, Rasli & Gheysari, 2012).The financial reforms prima-facie determines the economic growth of a country. The private sector contributes a higher contribution to the economic growth compared to the public sector (Poshakwale & Qian, 2011). A study on cost and profit efficiency among the banks in Italy observed cooperative banks to be more efficient. The study results were heterogeneous among the banks when classified for size, type and area of operations (Aiello & Bonanno, 2013).

The traditional metrics of financial performance are quite insufficient to measure and thereby there is a need for advance tools such as DEA and frontier analysis. The concept of measuring efficiency emerge from developed countries (Sharma, Sharma, & Barua, 2013). Among the financial services industry stock companies were more efficient than mutual's with respect to the economies of scale (Martin & Michael, 2006).

The maximum likelihood estimates forms the basis of the defining the error term and its distribution in the frontier analysis (Aigner, Lovell & Schmidt, 1977). Advances in information technology proved the improvements in the efficiency of the banking sector was observed significant by the ability to manage resource and gain technical expertise (Arabyat, 2014). Innovation in the financial services substantiates an inverted-U relationship among competition and the technology gap in the banking industry (Bos, Kolari, & van Lamoen, 2013).

Industry reports observe innovation in financial services to have the greatest impact because of the data intensive and platform based service (World Economics Forum, 2015). The traditional advisory firms will have to forcefully evolve to offer sophisticated financial management. Back office is a wildly overlooked opportunity to eliminate process inefficiencies (Dintrans, Bahl & Anand, 2016). Block chain technology in investment banking would involve major changes in large financial institutions and would foresee several market participants becoming redundant and obsolete.

The revenue of large financial institutions are contributed by Over-the-counter which would involve the trading of financial products without any third parties, such as the exchanges (Krause *et al.*, 2016). The disruptive impact of technology in investment advisory firms is least studied and with firms implementing superior technology, the other players in the industry must be competitive to sustain in the industry. Thus, this study focuses on the efficiency of Indian advisory firms over time and aims at implications for the policy makers and the industry participants to the advancement in technology for Investment advisory firms. The key issues that needs to be addressed are the regulation of advanced technology and privacy of data (Hyong & Errol, 2015).

RESEARCH METHODOLOGY

Nature of the Study

The study is analytical, quantitative, and historical. Analytical as it confines to an existing information, quantitative because it attempts to model the variables under study and historical as past data is used for analysis and interpretation. The research is built upon the secondary data from financial year 2012 to 2017.

Objectives of the study

1. To classify the input and output variables in the Cobb-Douglas form.
2. To model stochastic frontier of the efficiency of the firms.
3. To appraise the current level of efficiency and provide insights.

Sampling

The current study is accomplished using secondary data from 2000 to 2017 of 49 stocks from the financial services fee-based index from Capital-line database. Most of the companies had missing values in terms of the variables considered and negative profits leading to a data frame of only 5 companies for 6 years period. The companies considered were AJ Capital, Ajcon, Baja Finserve, Bajaj holdings and HDFC ltd. The variables used for the analysis were Net sales and Profit after tax

for outputs and Total assets, Salaries and wages and equity capital for the inputs. A panel data was formed using the variables for 5 firms and 6 time periods.

The production frontier models were introduced simultaneously by Aigner, Lovell & Schmidt, 1997 and most popularly called the Stochastic frontier analysis (SFA).

The production frontier model can be expressed as;

$y_i = f(x_i; \beta).TE_i$

without the random component. The various terms of the equations;

y_i the observed output of the producer *i*, where I denotes the firms and *i*=1,2, 3..I,

x_i is the inputs used by the producer *I*,

$f(x_i, \beta)$ is the production frontier, where *Beta* represents the vector of technology that is to be estimated.

Te_i is the technical efficiency and is defined as ratio of observed output to maximum feasible output. A value of 1 with respect to TE_i implies that the i-th firm has obtained the maximum feasible output, value less than 1 representing a shortfall, which can hint for improvements. The stochastic component is represented by the random shocks that affect the production process. The shocks arise due to economic adversities and are denoted by;

$\exp\{v_i\}$

Each producer witnesses a different shock, and we assume that the shocks are random and can be described by a common distribution. The stochastic production frontier takes the form:

$y_i = f(x_i;).TE_i.exp\{v_i\}$

Te_i is assumed to be a stochastic variable, with a common distribution function for all producers. TE_i is expressed as an exponential.

$Te_i.exp\{-v_i\}$

where $u_i \geq 0$, since we required $TE_i \leq 1$.

Thus, the frontier takes the following form:

$y_i = f(x_i; \beta).exp\{-v_i\}.exp\{-v_i\}$

Assuming $f(x_i, \beta)$ takes the log-linear Cobb-Douglas form (Greene, 2008), the model can be expressed as:

$$\ln y_i = \beta_0 + \sum_n \beta_n \ln x_{ni} + v_i - u_i$$

The "noise" component v_i is considered normally distributed on both sides, and u_i is the non-negative technical inefficiency component. The focus is to estimate the compound error term, consisting of both v_i and u_i in a specific distribution, which is often called the "composed error model".

The application of the Stochastic Frontier Analysis was observed for both "cost" and "profit" efficiencies. The "Cost frontier" approach attempts to measure how far a firm is from the full-cost minimization (i.e.) in terms of cost-efficiency (Kumbhakar & Lovell, 2000). The Model for the non-negative cost-inefficiency is added in the stochastic specification. When the producers are treated as profit-maximizers, we have "Profit frontier analysis" which examines the case where both output and inputs are decided by the producers. (where level of output is considered as exogenously given).

RESULTS

The data for the analysis was extracted from capital-line database from 2000 to 2017. The data frame was chosen from 2012 to 2017 as most of the firms witnessed negative profits and only five firms were screened for the Cobb-Douglas transformation screened for missing values and negative profits. The variables used for the model were Sales and profit after tax for outputs and Total assets, salaries and wages and equity capital determining the output.

Table 1: Fixed effects Random effects & model selection

Dependent Variable: Gross Profit	Fixed Effects Model		Random Effects Model	
	Coef.	*P.* Value	Coef.	*P.* Value
Total Assets	1.53	0.203	-1.42	0.008
Salary & Wages	1.61	0.0001	1.75	0.0001
Equity Capital	-17.06	0.089	1.8	0.054
P-Value	0.0002 (F-Stat)		0.0001 (Chi-Sq)	
R-Square	0.1586		57%	
No. of Observations	30		30	
Hausman Statistic	0.0401			

The dependent variables post log transformations were Total assets, Salaries and wages and equity capital. The overall model was significant with only salary and wages at 1% level and equity capital at 10% significance. The random effects model was significant with all the variables considered including the total assets.

The model suitability was determined by the Hausman statistics and it implied a fixed effects model specified by the *P*-value of 0.0401. The fixed-effects (FE) approach to estimation allows arbitrary correlation between $x_{it}$and α. Mátyás & Sevestre, (2008).

Table 2: Regression estimates of firms

Firms	Company Name	Co-eff	Technical In-Efficiency
1	AJ Capital	52.855	0.000
2	Ajcon	8.030	0.000
3	Bajaj Finserve	44.058	0.003
4	Bajaj Holdings	47.135	0.075
5	HDFA Ltd	54.325	100.000

The individual firm's coefficients were used to calculate the overall efficiency. The calculation for the overall efficiency was performed using MS-Excel. The Firm-Specific Technical Efficiency Estimates are calculated for technical inefficiency using a COLS procedure like the deterministic frontier. The coefficients are calculated as;

$$\hat{u}_i = \hat{\alpha} - \hat{\alpha}_i, \quad \hat{\alpha} = \max_i(\hat{\alpha}_i) ,$$

The efficient firm is used for normalizing the frontier and the efficiency of the remaining firms are estimated by $\exp(-\hat{u}_i)$, which is consistent as $T \rightarrow \infty$. The efficient firm observed among the five firms was HDFC ltd.

CONCLUSION AND IMPLICATIONS

The fee-based index from capital-line database consist of total 49 companies and it was observed that majority of firm's were facing loss and had missing values to fee-based services. The players that had an integrated financial service were able to generate profits consistently. The input variable defined by salaries and wages was the key determinant of revenue. The output model determined by revenue had meaningful results whereas the model with profits was not determined. The cost of operations can be reduced by implementing advanced technologies which could be disruptive in nature. The discount brokerage model in India was also one of such type. The technology by adopting block chains can avoid significant involvement of middlemen's like the exchanges. With the transition to these technologies, efficiency can be improved even in the OTC markets.

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