

# Performance Analysis: SEM Approach to Service Quality in Investment Banks

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**Abstract: Purpose:** The research contribution emphasis on the analysis and interpreting the performance of the Investment banks from the service delivery perspective with regards to the various advisory and financial services rendered to the different groups of clients. **Design:** Cluster sampling technique was applied to collect the primary data from the sample size of 250 respondents working in leading Investment banks across urban Bangalore, Chennai, Pune, Mumbai & Hyderabad. Quality management, Process management, Wealth management & human resource are the variables chosen for the study. Structural Equation Model, Confirmatory Factor Analysis (CFA), Convergent & discriminant validity were the tested conducted using SPSS & SPSS AMOS as the statistical software tools. **Findings:** Composite reliability and Cronbach alpha measured 0.855 & 0.824, respectively. Quality management (0.79) & Process management (0.79) are the most influencing factors in the performance of the Investment banks in rendering excellent service to the clients. Quality, Process, Human resource & wealth management are highly significant in predicting the performance of these banks at 0.01 per cent level. Convergent & Determinant validity analysis resulted that the model developed is a perfect fit (AVE = 0.606, CR = 0.855). **Originality:** Performance measurement is a vital tool in the business of Investment banking in the current competitive world in managing the assets of the high net worth clients. The primary and largest functions of these banks involve trading of securities on the buy & sell side, corporate actions, and advisory services.

**Keywords:** Investment Banking Division (IBD), Structural Equation Model (SEM), Service delivery & Performance.

## 1. INTRODUCTION

Investment banks are the special segment of the banking or financial industry that offers financial and advisory services to the governments, corporate houses, financial institutions and high net worth individuals. Capital raising, corporate actions like mergers & acquisitions, split off, spin-off, rights issue are the key areas of their business operations. They also act as a channel between the investors and the corporations in the financial markets to accomplish the needs of each party. Full-Service investment banks render variety of services comprising of underwriting, M&A, trading of securities, market research, asset management, commercial banking as well as retail banking. However, investment banking division (IBD) is one of the divisions of the banks who offer only underwriting and M&A advisory services to their clients [1].

Structural Equation Model (SEM) enables in testing the theory focused on the overall and relative model fit. The size, direction, and significance of the structural parameter estimates, depicted with single-headed arrows on a path diagram. The average variance extracted (AVE) is a measure of the quantum of deviation that gets captured by a construct with the amount of discrepancy due to measurement error. Composite reliability (CR) is the indicator of the shared discrepancy among the observed variables used as a

factor of a latent variable. Convergent validity refers to the confidence level when the attribute defined is well measured by its indicator. Discriminant validity measures to the extent of un-relatedness amongst the various attributes in the model.

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Performance measurement of Investment banks is imperative for the fact to interpret their operational outcomes, asset quality, management efficiency, liquidity, service quality, capital adequacy, revenue generation, and overall financial condition for the long-term sustainability. Financial statement analysis does facilitate the banks and related stakeholders in getting a fair opinion of their quantitative performance. However, the development of conceptual theory into a model tends to be more effective in perceiving the qualitative performance of these banks.

The data collection for the research was challenging as getting the right information from the respondents were limited and accessing the respondents from the investments was time-consuming. The overall performance of the bank gets considered for the analysis. There is further scope to go deeper for the aspiring researchers in this area to look into the individual service offered by these banks as an area of research. Comparative analysis between the departments of the banks is also another research gap. Research lines on the similar lines of Indian banks can be one of the options.

## 2. Theoretical Framework

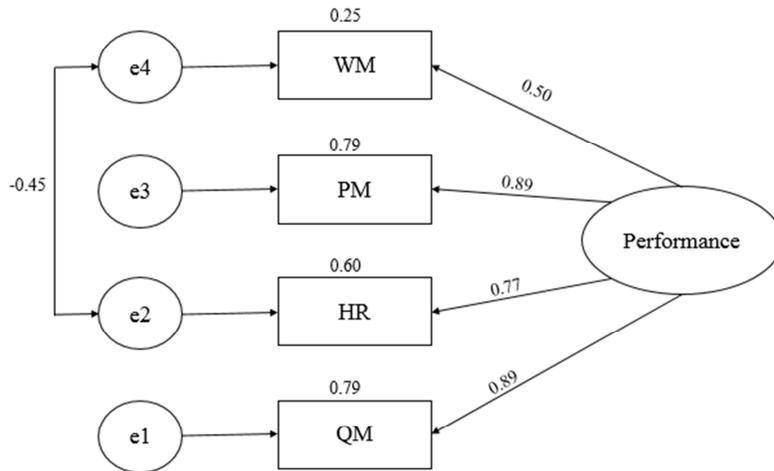
Investment banks are highly competitive and challenging in rendering services to their clients as they cater to both full-service as well as the specific division of services. Wealth management banks play a critical role in the stream of investment banking segment. The performance of these banks was analyzed using Analytical hierarchy process (AHP) and Grey Relational Analysis (GRA) building the fundamental framework on the Delphi method to ensure the application proves to be fruitful to the banking industry [2]. Corporate actions are one of the key functions of a full-service Investment bank rendering advisory and functional services in the area of mergers & acquisitions. The paper confirms that the analytical and technical skills of the investment bankers decide the performance of their services rendered to the various clients [3]. Performance measurement of the banks gets confined to computation and comparison of the financial ratios based on the balance sheet but beyond that as the contemporary banking is very challenging and dynamic due to various factors which require more detailed and logical analysis for better decision making and to prevent from being bankrupt. The author has applied Maqashid Index approach focused on individual education, justice establishment & public interest to compute the measurement of the Islamic banks of Indonesia and Jordon [4]. Return on equity is one the key financial performance indicator of the banks which gets derived from the financial statements of the companies. Return of assets is influencing the performance negatively when compared to ROE when considered with listed companies in National Stock exchange (NSE). The capital structure of the banks and other investment companies ensures to leverage the talent across the performances [5]. Human capital efficiency can be achieved by the banks when the resources hired prove to be effective and possess the expected qualities of intellectual components. The author observed that developmental and investments comprises of qualitative & highly intellectual human resources that influence the performance of the banks and have the highest average value-added intellectual coefficient [6]. The author opines the model developed to ratify the risk-averse attitude of the investment bankers whose strategy is to underprice the new issues so that they are able to decrease the impact of litigations with special reference to the Initial Public Offerings (IPO) since the market is very volatile and don't have to compromise on the expected returns out of the service creating a win-win situation to both the parties [7]. Human capital with qualified and experienced investment bankers with greater credibility is highly sophisticated and create a mark during the phases of the corporate actions facilitating to strike a better deal increasing the returns and the performance of the overall service [8].

### 3. Empirical Research

The nature of the study conducted is exploratory. The ideology of adopting this type of research has paved the way to unfold the concepts beyond the mere analysis of financial statements of Investment banks in estimating the performance. The statement of the problem focusses on various Investment banks performing highly competitive tasks in their banking operations, forming their core service edge. Performance measurement is inevitable to understand their quality and ensure sustainability. Hence, the researcher has attempted to inspect the performance of the considered banks beyond their financial statements. The research intention is to estimate the service trait among the chosen Investment banks. Cluster sampling method was applied to collect the data from the 250 respondents working in the banks chosen for the research. These banks strictly adhere towards the confidentiality of the clients' data, and hence the information was collected from the respondents through the referential contacts across the banks who supported in official data collection. Responses from the respondents, employees of the leading Investment banks operating in urban Bangalore, Chennai, Pune, Mumbai & Hyderabad were collected as primary data through a structured questionnaire where the researcher personally interacted with the respondents during the phase of data collection. The independent variables considered for the study are quality management, process management, human resource and wealth management. Performance is the dependent variable used for the study. Statistical tools used for the study consists of SPSS AMOS (Analysis of Moment Structures) and SPSS (statistical package for social science). Structural Equation Model (SEM) with Confirmatory Factor Analysis (CFA) and Convergent & Discriminant Validity analysis were performed to evaluate and validate the hypothesis developed.

### 4. Results

The Cronbach alpha ( $\alpha = 0.824$ ,  $n = 50$ ) resulted in being adequate internal consistency and better ability of the assessment of the performance of the Investment banks. The Structural equation model is one of the multivariate statistical techniques of developing a suitable model based on the conceptual theory to evaluate and analyze the relationships between various measured dependent and independent variables with latent constructs. This technique has been adopted to evaluate the performance of the Investment banks consisting of quality management, human resource, process management & wealth management as the independent variables. Figure 1 reflects the SEM used and tested for goodness of fit in evaluating the performance of the Investment banks. Observed variables QM (quality management), HR (human resource), PM (Process management) & WM (wealth management) define the quality of service through the latent variable Performance. The changes in the observed variables and their estimations represent the measurement errors e1 (research), e2 (skillset), e3 (technology) & e4 (seeding fund) establishing the relationship between the factor loading and its indicators. These factor terms influence the observed variables to a larger extent while running the model.



**Figure 1: Path diagram of standardized estimates from the model developed.**

Source: Primary Data

Quality management contributes 79 percent, human resource 60 per cent, process management 79 per cent & wealth management 25 per cent of the variance towards the performance. The deviations from the performance by QM is 21 per cent, and HR is 40 per cent, PM is 21 per cent & WM is 75 per cent are affected by the exclusive factors of e1, e2, e3 and e4. The double-headed arrows between e2 & e4 represent the covariance (-0.45) of these error terms performing as a connection between skillset and seeding of fund.

Table 1 reflects the summary of the model fit values based on the accepted limits. The designed model perfectly suits the phenomenon to analyze the performance of these banks to relate the impact of the service quality. The computed probability value ( $p = 0.304 > 0.05$ ) confirming the suitability of the model. The derived value of goodness of Fit Index (GFI = 0.989), Adjusted Goodness of Fit Index (AGFI = 0.894). The computed Normed Fit Index (NFI = 0.990), Comparative Fit Index (CFI = 0.999). It also confirms that the Root Mean square Residuals (RMR = 0.124) and Root Mean Square Error of Approximation (RMSEA = 0.034).

**Table 1. Model fit Summary of Performance**

Indices	Value	Suggested value
Chi-square value	1.057	-
DF	1	-
P value	0.304	> 0.05 ( Hair et al., 1998)
Chi-square value/DF	1.057	< 5.00 ( Hair et al., 1998)
GFI	0.989	> 0.90 (Hu and Bentler, 1999)
AGFI	0.894	> 0.90 ( Hair et al. 2006)
NFI	0.990	> 0.90 (Hu and Bentler, 1999)
CFI	0.999	> 0.90 (Daire et al., 2008)
RMR	0.124	< 0.08 ( Hair et al. 2006)
RMSEA	0.034	< 0.08 ( Hair et al. 2006)

Source: Computed based on primary Data

Table 2 shows the unstandardized coefficients derived from the results of the model where QM is 1.000, HR is 0.990, PM is 1.324 & WM is 0.494 with corresponding

probability values being highly significant at 0.01 per cent level and these variables influence the performance of the banks positively. The standardized coefficient (beta) values of the exogenous variables project QM (0.887), HR (0.775), PM (0.886) & WM (0.500) based on the estimates obtained from the model.

**Table 2. Confirmatory Factor Analysis of Model**

Variables		B	SE of B	$\beta$	t Value	P-Value
QM	← Performance	1.000	0.151	0.887	-	< 0.001**
HR	← Performance	0.990	0.160	0.775	6.542	< 0.001**
PM	← Performance	1.324	0.137	0.886	8.261	< 0.001**
WM	← Performance	0.494	0.151	0.500	3.597	< 0.001**
**Significance at 0.01 per cent level. Source: Computed from primary data.						

Since the “p” values are statistically significant at 0.01 per cent level, the anticipation of QM is 100 per cent; HR is 99 per cent, PM is 132.4 per cent and WM 49.4 per cent towards the better performance of the banks in rendering impressive service.

Table 3 exhibits the computed values of Average Variance Extracted (AVE) by each construct and Construct Reliability (CR). The individual observed variable consisting of QM, WM, HR, and PM gets grouped as service factors in deriving the level of performance among the banks.

**Table 3. Evaluation of Constructed model**

Factors		FL	IR	Delta
QM	← Performance	0.88700	0.78677	0.213
HR	← Performance	0.77500	0.60063	0.399
PM	← Performance	0.88600	0.78500	0.215
WM	← Performance	0.50000	0.25000	0.750
AVE		0.606		
SFL		3.048		
SD		1.578		
CR		0.855		
Source: Computed from the model fit summary of SEM estimates.				

The factor loading of variables QM is 0.887 ( $\delta = 0.213$ ), HR is 0.775 ( $\delta = 0.399$ ), PM is 0.886 ( $\delta = 0.215$ ) and WM is 0.500 ( $\delta = 0.750$ ) with calculated respective IR 0.78677 ( $\delta = 0.60063$ , 0.78500 & 0.25000 respectively). The sum of the factor loadings (SFL) ( $\lambda$ ) is 3.048, sum of delta (SD) is 1.578 and CR is 0.885. Item reliability of the observed variable QM is 0.78677, HR is 0.60063, PM is 0.78500 & WM is 0.25000.

Table 4 shows the calculations of the inner construct correlations (IC) and squared inner construct correlations (SIC) to compare the values between the SIC & AVE of the double arrowed factors connecting human resource and wealth management for the model developed in estimating the level of performance among the banks.

**Table 4. Covariances of the Factors**

Factors		IC	SIC	AVE	
HR	↔	WM	-0.451	0.203	0.606

Source: Computed from the model fit summary of SEM estimates.

The two-headed arrow between HR & WM resulted with Inner construct covariance as  $-0.451$  and computed its squared inner construct covariance (SIC) value as  $0.203$ .

## 5. Findings & Discussion

Reliability test was performed to validate the consistency of the data collected and to proceed further in statistical analysis. The estimated reliability of QM on better performance of these banks is  $0.79$ , HR  $0.60$ , PM  $0.79$  and WM  $0.25$  in rendering exceptional services to their clients. Quality management, process management & human resource are the most significant factors in defining the level of performance among the banks. Therefore, there is a comprehensive performance of these banks based on the observed variables constitutes per cent. Though the threshold values of AGFI & RMR are not within the standard value, the further analysis of the evaluation of the model has confirmed to be highly significant and fits the model when tested with further analysis.

Confirmatory Factor Analysis confirms that Quality management and process management are the most influencing components contributing towards the banking performance due to their standardized co-efficient values (beta) being the highest and wealth management is the least influencing factor. Process & quality management plays a pivotal role in service delivery and influences the levels of satisfaction among the clients with exceptional performance of these banks because their prediction towards the quantum of performance is  $100$  &  $132.4$  per cent when compared with other variables. Positive unstandardized co-efficient projects that Performance of the bank increases by one unit with quality management when increased by  $1.000$ . Investment banks service standards are very sophisticated, ensuring the confidentiality of the clients, excellent human resource with better skillsets, business strategies customized and the compelling process delivery.

Hence, when AVE is compared against SIC ( $0.606 > 0.203$ ). Therefore, the model developed confirms to be the best suitable for estimating the level of performance of Investment banks in offering excellent service to their clients. There is a negative correlation between human resource and wealth management because the optimum portfolio gets constructed on the quantum of the seeding money contributed by the investing client in any one of the globally accepted currencies (US dollar, Euro or Britain Pound). The performance of the portfolio against the benchmark are compared to analyze the returns of the investments which are highly dependent on the analytical skills of the banking employees to a greater level. The human capital at the banks is expected to possess skills like financial modelling, business valuation, pitch book presentations, confidential information transactions, relationship management, sales & business development, and negotiate with various parties.

## 6. Conclusion

Convergent & discriminant validity confirmed that the model developed in analyzing the performance of the Investment banks concerning service delivery is effective since computed AVE = 0.606 ( $> 0.5$ ) is above the threshold value indicating the adequacy of convergent validity. Construct reliability or Composite reliability computed resulted as 0.855 ( $> 0.70$ ) reflecting above the threshold value indicating a high internal consistency with greater reliability on the indicators of the model designed. Hence, the model developed fits perfectly based on the hypothesis developed accepting the null statement. However, the null hypothesis gets rejected in predicting the service quality based on the performance of the banks. Therefore, the research conducted concludes that the theoretical concepts developed prove to be an effective way of estimating the performance of the Investment banks in terms of service delivery and quality rendered to their clients.

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