

Employee Performance Scale: Using (CFA) On Jumhouria Bank in Libya

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Abstract: *The present study seeks to develop a conceptual framework for measuring employee performance in banking institutions by adopting four appropriate dimensions of measurement: Efficiency of the work, Planning the Work, creativity and innovation and Making Efforts. To achieve this goal, we used a confirmatory factor analysis (CFA) through AMOS software. Based on the results, it was found that this model is a valid and reliable model that can be used for measuring employee performance in banking institutions in Libya.*

Keywords: Efficiency of the work, Planning the Work, creativity and innovation, Making Efforts

1. Introduction

Performance measurement is the “Processes involving managers, individuals and teams based on shared understanding, which define performance and contribution expectations, assess performance against those expectations, provide for regular and constructive feedback and inform agreed plans for performance improvement, learning and personal development” (Armstrong & Murlis 2004:8). According to Gibson (1990:58), performance is measured in terms of productivity, job satisfaction, turnover and absenteeism.” For the purpose of this dissertation, the researcher’s definition will be as follows: Performance management or measurement refers to the on-going means by which an organization monitors, documents, corrects or rewards individual and collective employee performance in an organization, using various tools.

Mathis & Jackson (2009) the employee performance is associated with quantity of output, quality of output, timeliness of output, presence / attendance on the job, efficiency of the work completed [and] effectiveness of work completed. Performance is the accomplishment of a given task measured against pre-set standards of accuracy, completeness, cost and speed (Business Dictionary 2010: online).

employee performance measurement is the “Processes involving managers, individuals and teams based on shared understanding, which define employee performance and contribution expectations, assess performance against those expectations, provide for regular and constructive feedback and inform agreed plans for employee performance improvement, learning and personal development” (Armstrong & Murlis 2004:8). According to Gibson (1990:58), “...performance is measured in terms of productivity, job satisfaction, turnover and absenteeism.” For this study, the researcher’s definition will be as follows: Performance management or measurement refers to the on-going means by which Efficiency of Carrying out the Work, Planning the Work, creativity and innovation and Making Efforts, using various tools.

2. Research Objectives

Generally, the study aims to test the validity of the employee performance scale as a latent factor by testing the convergent validity known as the average variance extracted (AVE) for each dimension of the main scale, which are the Efficiency of the work, Planning the Work, creativity and innovation and Making Efforts) as well as the items representing them. It also aimed to test the divergent validity known as shared variance (SV) among the investigated dimensions in order to be relying upon them in carrying out tests of correlations and effects or impact with other underlying factors.

3. Research Methodology

3.1. Population and Sample of the Study

The study population consisted of all employees in the main bank of the republic and its branches in the city of Tripoli, totaling (3100) employees. Initially, 450 samples were preliminary determined to conduct our analysis, while the returned questionnaires valid for the analysis were 381 questionnaires, which all conformed to the requirements of the analysis.

3.2. Research Instrument

The researchers designed a questionnaire to test the construct validity of the factor of employee performance based on some previous studies (Nassazi, 2012; (THI, 2012) ; The first dimension, Efficiency of the work, comprises 5 items, and the second dimension, Planning the Work, consists of 5 items, while the third dimension, creativity and innovation, has 6 items, last dimension making efforts comprises 7 items. Thus totaling a number of 23 items for the questionnaire used for measuring employee performance after testing its external validity (expert judgment). This was achieved by giving the questionnaire to experts in this area.

3.3. Confirmatory Factor Analysis (CFA)

In order to test the validity constructs and the research hypotheses the Structural Equation Modeling (AMOS) model-fitting program is used. The model fit is evaluated by using four indices of the model goodness-of-fit: (1) the comparative fit index (CFI) (2) the chi-square statistics McDonald and Marsh (1990) ; (3) (RMSEA) between (0.08) to (0.10) indicates a mediocre fit Browne and Cudeck (1993) and would not employ a model a RMSEA greater than 0.1 (>0.1) (MacCallum et al., 1996). (4) the minimum value of the discrepancy between the observed data and the hypothesised model divided by degrees of freedom (CMIN/DF) or normed chi-square. Marsh and Hocevar (1985) ;

3.4. Construct Validity

According to Hair, Black, Babin, Anderson and Tatham (2006) the employment of factor loading composite reliability (CR) and average variance extracted (AVE) to determine the convergent validity if it equals to or greater than 0.5 (≥ 0.5). Also, (AVE) reading values should be greater than 0.5 (≥ 0.5) (Fornell and Larcker, 1981).

4. Results

4.1. The Modified Model

From Figure (1) that shows the results of the (CFA) for the proposed model for measuring employee performance, it is evident that the model is free of the illogical correlation since it reaches or exceeds the integer (1). This also indicates that there is not any problems in the (CFA) used for testing the validity of this model that comprises four factors: Efficiency of the work, Planning the Work, creativity and innovation and Making Efforts. As seen in Figure (1) and Table (1), the indicators of agreement between the model and the data exceeded the T-value, thus, implying that there is disagreement between employee performance and the data of the sample since the value of the Chi-Square was (822.590) and the degree of freedom was (132), and the level of significance was ($P=0.000$). In addition, we can see that the normative Chi-Square (Chi-Square /degrees of freedom) was (3.672) being below than (5), and the value of relative strength index (CFI) was (0.891) less than the (0.90). Due to this contradiction between the model and the data, it was necessary to modify the employee performance model in this study.

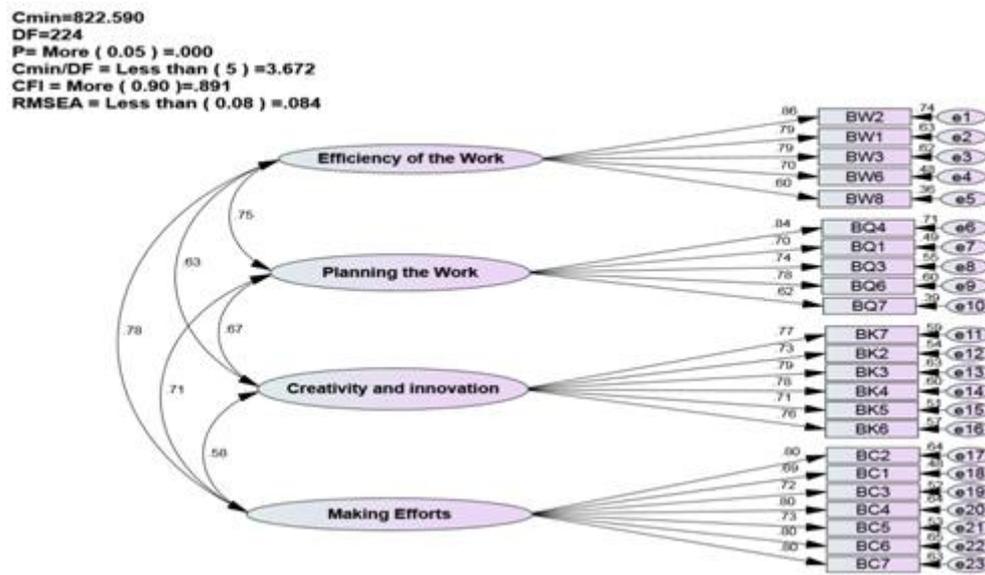


Figure 1: Model employee performance before the amendment

In order to modify this model, we followed was deleting (BW8) of the Efficiency of the Work and also deleting item according (BQ7) of the Planning the. In addition to we followed was deleting (BK5) of the creativity and innovation and (BC1, 3, 5) of the Making Efforts. To what is shown in Figure (2) and to what Amos confirmed by analysis of Amos.

Table 1: Index value of employee performance model before and after modification

Indicators Consistency	index value before modification	index value after modification	Function value on the quality of conformity
Cmin	822.590	250.550	---
df	224	113	---
P	0.000	0.000	Non
Cmin/Df	3.672	2.217	Less than (5)
CFI	0.891	0.964	More (0.90)
Rmsea	0.084	0.057	Less than (0.08)

4.2. Confirmatory Factor Analysis of the employee performance model

The results of the goodness-of-fit of the final revised of the employee performance model showed that normed chi-square (CMIN/DF) was (2.217), the (CFI) was (0.964) and Rmsea was (0.570). Figure (2) shows the adequacy of the final revised of the employee performance model.

4.3. Construct Validity:

4.3.1. Efficiency of the Work

In the present study, lodging for the parameters factor ranged from 0.66 to 0.89, with all parameters was above 0.5 (≥ 0.5). In addition, the AVE reading was 0.62 where the value was greater than 0.5 (≥ 0.5). Consequently, all results fulfilled the AVE, and the reliability discriminant validity of the model. In general, the first Dimension of the employee performance model was fit and fulfilled the construct as depicted in Table (2).

Table 2: Construct Validity of employee performance model- Efficiency of the Work

Code	Items	Estimate	S. E	C. R.	P	Loading	SMC	AVE
BW2	I feel dedication, seriousness and ability to take responsibility.	1.000	-	-	-	0.89	0.80	0.62
BW1	I enjoy professional skill or professionalism and technical knowledge required to carry out the work efficiently.	0.925	0.047	19.737	0.00	0.81	0.65	-
BW3	I do my work according to specific policies and procedures.	0.875	0.047	18.470	0.00	0.78	0.60	-
BW6	I feel satisfied with the work I do in the bank.	0.725	0.050	14.520	0.00	0.66	0.44	-

4.3.2. Planning the Work

In the current study, the lodging for the parameters factor ranged from 0.70 to 0.87, with all parameters was above 0.5 (≥ 0.5).

In addition, the AVE reading was 0.60 where the value was greater than 0.5 (≥ 0.5). Consequently, all results fulfilled the AVE, and the reliability discriminant validity of the factor. In general, the second Dimension of the employee performance model was fit and fulfilled the construct as depicted in Table (3).

Table 3: Construct Validity of employee performance model- Planning the Work

Code	Items	Estimate	S. E	C. R.	P	Loading	SMC	AVE
BQ4	Planning the work before starting its implementation contributes to setting the goals that need to be achieved.	1.000	-	-	-	0.87	0.76	0.60
BQ1	I have the ability to plan my work and its accomplishment according to the planned schedule.	0.804	0.054	14.994	0.00	0.70	0.48	-
BQ3	Planning the work before starting its implementation gives me a sense of comfort.	0.891	0.053	16.831	0.00	0.76	0.57	-
BQ6	Planning the work before starting its implementation increases my ability to focus on the completion of the work assigned automatically.	0.904	0.054	16.797	0.00	0.76	0.57	-

4.3.3. Creativity and innovation

In this study, the lodging for the parameters factor ranged from 0.72 to 0.85, with all parameters were above 0.5 (≥ 0.5). In addition, the AVE reading was 0.60 where the value was greater than 0.5 (≥ 0.5). Consequently, all results fulfilled the AVE, and the reliability discriminant validity of the Dimension. In general, the third Dimension of the employee performance model was fit and fulfilled the construct as depicted in Table (4).

Table 4: Construct Validity of employee performance model- creativity and innovation

Code	Items	Estimate	S. E	C. R.	P	Loading	SMC	AVE
BK7	I am careful or keen to make changes in the working methods of each period.	1.000	-	-	-	0.77	0.59	0.59
BK2	I stay away from repeating what others do in solving work-related problems.	0.904	0.061	14.721	0.00	0.75	0.56	-
BK3	I feel bored of repeating the same procedures in doing the work.	0.917	0.056	16.413	0.00	0.82	0.68	-
BK4	I have the ability to put forward ideas and solutions rapidly to face work-related problems.	0.901	0.059	15.156	0.00	0.77	0.59	-
BK6	I have the ability to express my thoughts fluently and freely.	0.868	0.059	14.648	0.00	0.74	0.55	-

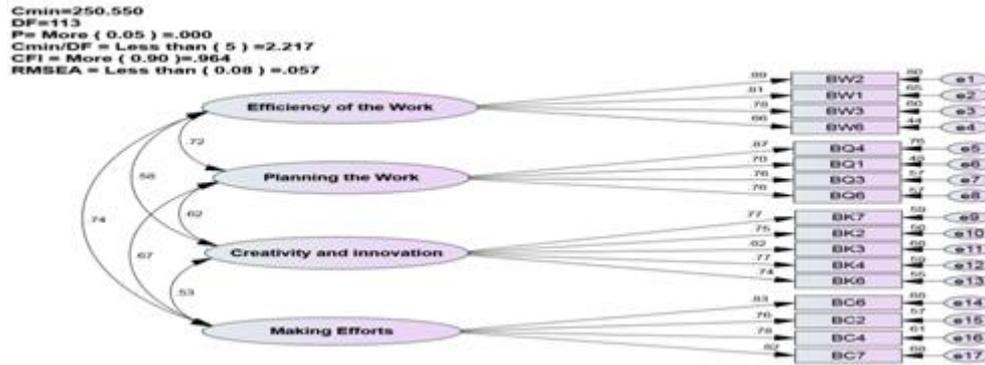


Figure 2: Employee performance model after amendment

4.3.4. Making Efforts

In the current study, the loading for the parameters factor ranged from 0.76 to 0.83, with all parameters was above 0.5 (≥ 0.5). In addition, the AVE reading was 0.64 where the value was greater than 0.5 (≥ 0.5). Consequently, all

results fulfilled the AVE, and the reliability discriminant validity of the Dimension. In general, the third Dimension of the employee performance model was fit and fulfilled the construct as depicted in Table (4).

Table 5: Construct Validity of employee performance model- Making Efforts

Code	Items	Estimate	S. E	C. R.	P	Loading	SMC	AVE
BC6	Feeling proud of the work represents a motivation for me to make extra efforts.	1.000	-	-	-	0.83	0.68	0.64
BC2	I have the desire and willingness to work outside official working hours for fast delivery.	0.944	0.059	16.140	0.00	0.76	0.57	-
BC4	The bank is keen on providing additional benefits to employees to motivate them to make more efforts.	0.954	0.057	16.816	0.00	0.78	0.61	-
BC7	The administration provides those employees who do their work tasks well with an increase in the wages or salaries.	0.987	0.055	18.051	0.00	0.82	0.68	-

4.4. Fornell -Larcker Criterion

As seen in Table (6), the SV among the three dimensions is the result of multiplication of the correlation value by itself and from the results in the same table regarding the AVE.

It is evident that the AVE for every dimension of the employee performance scale was higher than the SV among all the dimensions. Such result suggests that employee performance model met Fornell -Larcker Criterion and achieved the required predictive validity among its four investigated dimensions.

Table 6: Covariance and the contrast between the extracted three-dimensional matrix employee performance scale

No	Latent Variables	Efficiency	Planning the Work	Creativity and Innovation	Making Efforts
1	Efficiency	0.62	-	-	-
2	Planning the Work	0.52	0.60	-	-
3	creativity and innovation	0.34	0.38	0.59	-
4	Making Efforts	0.55	0.45	0.28	0.64

5. Conclusion

This paper achieved the main goal of the study which was to test the validity of a proposed model for measuring employee performance scale among in financial institutions through the use of a CFA as a means to structural equation modeling (SEM-AMOS). This was proposed and developed based on the identified measurement dimensions of the main factor (employee performance) in previous studies Sultan, Th., Nazim, A., Qader, B. and Khan, Z. (2010), and Uzma Hafeez. (2015). The results obtained in the present study especially regarding the validity of the measurement indicated the constructed model in its four dimensions is a valid measurement tool that can be used in measuring the staff's commitment within banking institutions. The model achieved the required convergent validity or the AVE, among its three dimensions which even exceeded (0.50). The study also proved that the model achieved the required divergent validity or SV among its four dimensions where the AVE was higher than the SV for all four dimensions, a result that was in agreement or consistent with Fornell-Larcker Criterion.

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