

Understanding Impact of Financial and Non-Financial Measurements in Sudanese Banks' Performance

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Abstract—This paper investigate the practice of the performance measurement system (PMS) within Sudanese banks. The study examined the range influenced the use of 9 financial performance measures across 9 non-financial measures and its impact on over all banks performance. A survey research methodology was used, involved a quantitative approach, structure equation modeling SEM, Factor analysis, descriptive statistics were used to analyze the survey data responses to the main questionnaire. The results showed that Sudanese banks used a diverse set of both financial and non-financial measures, also operated under significant institutional and government controls. Furthermore, the results indicated that some banks use diverse performance measurements to improve their PMS and not as a strategic decision option. Advanced technology; differentiation strategy; competition; uncertainty; and, well trained workforce were found to be factors affecting the extent of performance measurement usage. The study findings indicated that using non-financial measures contributed significantly toward overall organizational performance.

Keywords—Banks, financial and non-financial performance measurements, organization performance, Sudan

I. INTRODUCTION

SINCE the 1980's, academic research has tried to help managers in organizations address the inadequacies in existing performance measurements systems. Existing measurement systems are often insufficient to help managers to recognize changes in the business environments and to capture factors critical to the success of the company [16]. Performance measurement is an important management control tool for business firms in the currently competitive environment. It is directly related to the formation of a firm's core competency and has a significant impact on the firm's growth [39]

Performance measurements considered as the most important issues to maintain the banks performance with its various measurements however are unpredictable measurement of organizational performance- although most researchers [26], [11] measured organizational performance by using quantitative data like return on investments, return

on sales and so forth. The definition of performance has included both efficiency-related measures, which relate to the input/output relationship, and effectiveness related measures, which deal with issues like business growth and employee satisfaction. Additionally, performance has also been conceptualized using financial and nonfinancial measures from both objective and perceptual sources. Objective measures include secondary source financial measures such as return on assets, return on investment, and profit growth. These measures are nonbiased and are particularly useful for single-industry studies because of the uniformity in measurement across all organizations in the sample [36].

Recently, [30] asserted that "if organizations are to realize value and become more sustainable in the longer term, it is crucial to understand how appropriate SPM [strategic performance measurement] practices deliver improved performance" (p.466). It has been very important for managers to know which factors influence an organization's performance in order for them to take appropriate steps to initiate them. However, defining, conceptualizing, and measuring performance have not been an easy task. Researchers among themselves have different opinions and definitions of performance, which remains to be a contentious issue among organizational researchers [1]. The central issue concerns with the appropriateness of various approaches to the concept utilization and measurement of organizational performance [36].

Performance measurement of banking: The definitions of banking performance measurement and the related evaluation indicators selected by previous studies are briefly presented as performance measurement definition Rue and [13] suggest that performance measurement includes the way employees refine their work and how they establish decision-making and the communication processes of improvement plans.

Reference [19] describe performance measurement as a way to review an organization's financial and nonfinancial goals. Numerous performance management topics and examples have been demonstrated in the literature on performance measurement [29]. Traditional performance rankings rely on simple and consistent financial data, such as return on earnings (ROE) and return on assets (ROA) data. However, these performance rankings may not highlight strategies that lead to top performance [13]. Nonfinancial criteria such as customer satisfaction, communities (e.g., "job creation and retention," "spurring com-munity

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revitalization”), and employees (e.g., “employees’ professional training,” “employee stability”) can be vital to a bank’s winning strategy. Using only ROA or ROE for performance ranking does not necessarily indicate which institutions offer the highest returns for their investors, and it does not accurately determine which institutions are the most profitable [2]. Therefore, performance measurement should be integrated with the overall strategy of the business and should include comprehensive criteria (i.e., both financial and nonfinancial indicators) that an organization can establish within its programs, investments, and acquisitions for reaching the desired results. These criteria can help organizations identify performance problems, address root causes, drive improvement activities, and bridge the gap between short-term market or stakeholder expectations and the long-term business or organizational goals/ objectives. In addition, performance measurements must be prioritized and focused so that only the strategic terms of the KPIs for the business are measured.

An overwhelming amount of studies have been conducted on the measurement dimensions of organizational performance, and most of them listed financial performance among the measurement indicators because, after all, the benefits of organizational performance will show in the financial results. Given the convenient information delivery and rapid-changing markets nowadays, businesses must not rely on financial performance as the sole factor of survival and competitiveness. That underscores the inadequacy of measuring organizational performance with a single financial-performance [30].

Moreover, [39] and [7]. stated the term “organizational performance” refers to the sum of accomplishments of all businesses units and departments involved with a given organizational goal, set either in phases or on the overall extent. [21] noted emphatically that, instead of excessively relying on financial approaches for meeting strategic targets, businesses should resort to both financial and non-financial approaches. It is therefore imperative that a company’s financial performance be measured in financial as well as non-financial dimensions, the latter including the customer perspective, internal process perspective, and learning and growth perspective.

To sum up the aforesaid arguments, this present study adopts the conceptual definition of organizational performance proposed by [41], and measure corporate performance in the financial and non-financial perspectives stated by Kaplan & Norton from a Balanced Score Card (BSC) point of view. Among others, the financial dimension of organization performance is gauged using ROE and EPS as indicators, with the non-financial dimension gauged in three perspectives: the customer perspective, internal process perspective, and learning and growth perspective.

II. LITERATURE REVIEW

Organizational Performance one of the important issues in business has been why some organizations succeeded while others failed. Organization performance has been the most important issue for every organization, be it profit or non-profit one. It has been very important for managers to know which factors influence an organization’s performance in order for them to take appropriate steps to initiate them. However, defining, conceptualizing, and measuring performance have not been an easy task. Researchers among themselves have different opinions and definitions of performance, which remains to be a contentious issue among organizational researchers (Barney, 1997). The central issue concerns with the appropriateness of various approaches to the concept utilization and measurement of organizational performance [36].

2.1. Definition of Organizational Performance

Researchers among themselves have different opinions of performance. Performance, in fact, continues to be a contentious issue among organizational researchers [1]. For example, according to [2]. Performance is equivalent to the famous 3Es (economy, efficiency, and effectiveness) of a certain program or activity. However, according to [42], organizational performance is the organization’s ability to attain its goals by using resources in an efficient and effective manner. Quite similar [43],[6], defined organizational performance as the ability of the organization to achieve its goals and objectives. Organizational performance has suffered from not only a definition problem, but also from a conceptual problem. This is what [13], [11] stated.

2.2. Financial Measures usage and Organizational Performance

Various traditional financial performance measures are used to evaluate the effectiveness and efficiency by which operating divisions use financial and physical capital to create value for shareholders. They also provide expanded financial information to the interested users through the various components of monthly, quarterly and annual financial reports such as the balance sheet, profit and loss statement, and cash flow statement [44]. On the other hand, starting in the early 1980s, management accounting researchers have identified the increasing irrelevance of traditional control and performance measurement practices [6].

Recently, performance measurement literature has suggested that when monitoring their organizational performance managers tend to place relatively little emphasis on traditional financial measures of performance such as operating income or return on investment. This can be explained in terms of traditional performance measures being unable to satisfactorily reflect firm performance affected by today’s changing business environments [8]. In this context, [2] argued that traditional financial measures are backward-looking since they focus mainly on past results and cannot

reflect the future results of managerial action. Similarly, [7] argued that traditional control systems act against the successful of organizations. This is because traditional financial performance reporting systems do not include information about the drivers of future financial performance [11]. These criticisms refer to recent major corporate collapses in which good financial performance was quickly followed by company failure [11]. However, found that the emphasis on reporting financial measures is positively associated with financial performance. On the contrary, [15] found that greater emphasis on financial performance measures is not significantly associated with organizational performance. In particular, the study found that greater emphasis on financial measures is not significantly associated with measurement satisfaction. The study also found a negative but not significant relationship between greater emphasis on financial measures and ROA, sales growth and one-year stock return [37] found no association between the number of financial performance measures and organizational performance. A study by [17] revealed that financial measures usage does not affect organizational performance. As a result, it can be expected that using traditional financial measures alone in today's business environments will affect organizational performance negatively. Based on the arguments above and findings of previous researchers

2.3. Non-financial measures usage and organizational performance

Firms are increasingly implementing new PMS to evaluate managerial performance and to track non-financial metrics such as customer and employee satisfaction, product and service quality, market share, productivity, and innovation [16], [17] [39] argued that non-financial performance measures are more future-oriented than traditional financial measures, thus managers rely heavily on them in making decisions that will benefit their organizations in future. However, several recent studies linking non-financial measures of performance to organizational performance have produced mixed findings [8]. [16] Did not find a positive relationship between non-financial measures of quality and customer satisfaction and organizational performance. [15] Found that using non-financial measures is associated with improved performance assessed by only a one-year stock return but not with that assessed by ROA, sales growth and a three-year stock return. Furthermore, [8] found that the direct effect of the use of non-financial performance measures on organizational performance is not significant. Recently findings by [17] revealed that using non-financial measures of internal business process and innovation and learning led to improved organizational performance.

In general findings of previous studies [24], [15] revealed a positive relationship between the use of non-financial measures and organizational performance. Based on the arguments above and findings of previous researchers. Besides financial indicators as an evaluation of firm's performance in any industry, other industry-specific measures

of effectiveness may also reflect the success of the organization. These measures include job satisfaction, organizational commitment, and employee turnover [28], [38]. Job satisfaction is defined as a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences [20].

Reference [39] defines job satisfaction as a general attitude toward one's job; the amount of rewards received should at least be equal to the expected. However, according to [13], job satisfaction is associated with five core dimensions: skill variety, task identity, task significance, autonomy, and feedback from the job itself in which leading to satisfaction with supervision, satisfaction with co-workers, satisfaction with work, satisfaction with pay, and satisfaction with promotion.

III. METHODOLOGY

3.1. Research Goal

The aim of the study is to explore relationships between organizational performance and financial performance and non-financial performance in banking industry in Sudan. To test the propositions, a field survey Data were collected through face-to-face interviews with managers and employees in banking industry in Sudan. In this approach 332 useful questionnaires were obtained, structured questionnaires was conducted.

Figure 1 proposes the hypothesized structural model for the study. It consists of two endogenous variables (Financial and non-financial performance measurements) and one exogenous variable (Bank performance).

Figure 1 shows the final latent variables used in this study. Afterwards, three hypotheses are derived from the structural model for the study.

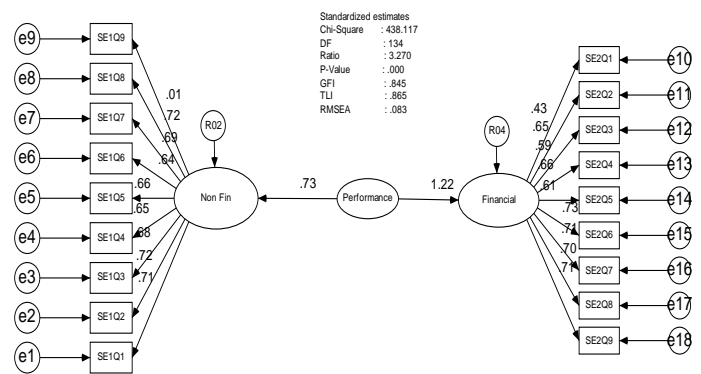


Fig. 1 Hypothesized model

3.2 Hypotheses formulation

H1: Financial measurements is positively related to Organizational performance;

H2: Non-financial measurements is positively related Organizational performance;

H3: Extent of uses financial non-financial measures has significant positive association with organizational performance

3.3. Sampling and instrument

A total of 469 used respondents of bank’s managers from various levels such as chief of department, chief of division and chief of sub division were requested to complete a questionnaire that contained measures of the concerned constructs. The questionnaires were distributed to the respondents by using proportionate stratified random sampling method. A response rate of about 72.5% was collected back corresponding to 332 responses. The approach to testing the hypothesized model is based on that used by [16], [31] measures of Financial (nine items) and non-financial (nine items) are utilized based on past studies [48] and [8]. All the questions use 5-Likert interval scales measurement (5—strongly agree and 1—strongly disagree). There are also eight demographic questions included in the instrument which use ordinal and nominal scale such as age, gender, education, type of the bank, job level, , years in current structure, and time experience in bank, growth rate of the bank.

3.4. Data screening and analysis

The 332 dataset are coded and saved into SPSS version 20 and analyzed using AMOS version 16, Several statistical validity tests and analysis are then conducted such as reliability test and composite reliability tests, validity tests using confirmatory factor analysis (CFA) for construct validity, discriminant validity for multicollinearity treatment, descriptive analysis, correlation and structural equation modeling analysis using AMOS 16.00 (SEM). The steps in SEM analysis are CFA analysis, measurement analysis, testing the fit for the hypothesized structural model, revised model and comparison analysis.

IV. RESULTS

4.1 Demographic Characteristics

On the samples majority of respondents (78.9%) are males, the remaining 21.1% are females. 63.3% of participants in the range 40-54 years age group, other two groups (25-39 years and greater than 55 years) comprise less percentages (12.3% and 24.4% respectively). Most of the respondents are university graduates with bachelor (26.5%), master (29.2%), MBA (22.6%) and PhD (9.3%) degrees. As for working position the biggest group of respondents (36.4%) with other position in the company while 92 respondents (27.7%) are from top management level. Respondents with different positions, such as head of account department, financial manager, account manager, management accountant and assistant finance manager comprise less percentage (6.3% to 7.8%). The numbers of respondents with 6-10 years and 16-20 years of experience in their company are equal (25.0% each); 20.2% of respondents have more than 20 years of experience while 15.4% of them work in the company from 11 to 15 years and 14.2% - less than 5 years. Most of the respondents have degree in accounting (31.6%) and business administration (34.0%). 17.2% of them – economics, 6.6% - finance, 10.5% - others. The biggest part of respondents

(61.4%) works in national banks and the rest 38% - in international banks. A detailed profile is shown in Table 1.

TABLE 1
THE PROFILE OF RESPONDENTS (N=332)

1. Gender			5. Years of Work		
Category	f	%	Category	f	%
Male	262	78.9	Less than 5 years	47	14.2
Female	70	21.1	6-10 years	83	25.0
Total	332	100.00	11-15 years	51	15.4
2. Age Group			16-20 years	83	25.0
Category	f	%	Above 20 years	67	20.2
25-39	41	12.3	Total	332	100.0
40-54	210	63.3	6. Degree field		
Greater than 55	81	24.4	Category	f	%
Total	332	100.00	Accounting	105	31.6
3. Education/Qualification			Business administration	113	34.0
Category	f	%	Economics	57	17.2
Bachelor’s degree	88	26.5	Finance	22	6.6
Master’s degree	97	29.2	Others	35	10.5
MBA	75	22.6	Total	332	100.00
PhD	31	9.3	7. Type of the bank		
Others	41	12.4	Category	f	%
Total	332	100.00	National	204	61.4
4. Working position			International/F oreign	128	38.6
Category	f	%	Total	332	100.0
Top management	92	27.7	8. Growth rate for the last 5 years		
Head of account department	26	7.8	Category	f	%
Financial manager	26	7.8	less than 30	195	58.7
Account manager	22	6.6	31-40	108	32.5
Management accountant	21	6.3	41-50	17	5.1
Assistant finance manager	23	6.9	more than 60	12	3.7
Other	122	36.9	Total	332	100.00

4.2 Goodness of fit indices

Confirmatory factor analysis is conducted on every construct and measurement models (see Table 7). All CFAs of constructs produce a relatively good fit as indicated by the goodness of fit indices such as df ratio (<2); p-value (>0.05);

goodness of fit index (GFI) of >0.90; and root mean square error of approximation (RMSEA) of values less than 0.08 (<0.08). The measurement model has a good fit with the data based on assessment criteria such as GFI, TLI, RMSEA [45]; [46]. Table 3 and Table 5 show that the goodness of fit of generated or re-specified model is better compared to the hypothesized model.

4.3 Confirmatory factor analysis (CFA) results

From the confirmatory factor analysis result in figures 2 and 3, we observed that the factor loadings of all observe variables or items are adequate ranging from 0.71 to 0.81. The factor loadings or regression estimates of and latent to observed variable should be above 0.50 [47]. This indicates that all the constructs conform to the construct validity test. The remaining numbers of items for each construct are as follows:

Financial measurements roles (5 items), non-financial measurements (8 items),

4.4 Bank Performance non-financial Performance Measurements

The first endogenous variable is performance non-financial performance measurements. This latent variable was measured by 9 indicators (see Table 1) by using a 5-point Likert scale ranging from “strongly disagree” to “strongly agree”. A CFA was conducted to validate the measurement of the top management support latent component. Item SE1Q 9 was dropped due to their poor factor loadings. Only eight items had acceptable factor loadings ranging from 0.65 to 0.73 (see Figure 2), which were good. The rest of these items of the latent construct remained in the measurement model.

TABLE III
MODEL FIT INDICES FOR BANK PERFORMANCE NFPMS CONSTRUCT

Indices	Value	Indices	Value
Chi-Square	19.914	GFI	0.985
DF	20	TLI	1.000
Ratio	0.996	RMSEA	0.000
P Value	0.463		

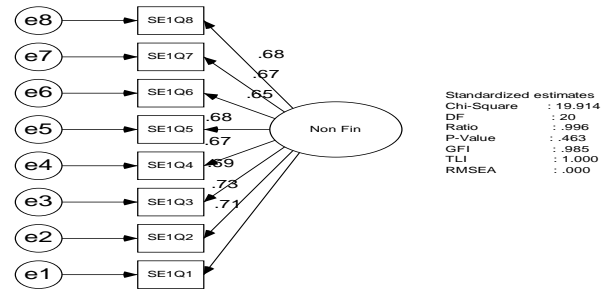


Fig. 2. Measurement model for performance non-financial performance measurements

4.5. Bank Performance Financial Performance Measurements

The second endogenous variable is performance financial performance measurements. This latent variable was measured by 9 indicators (see Table 4. 15) by using a 5-point Likert scale ranging from “strongly disagree” to “strongly agree”. A CFA was conducted to validate the measurement of the performance financial performance measurements Item SE1Q 1, SE1Q 7 SE1Q 8 and SE1Q 9 were dropped due to their poor factor loadings. Only five items had acceptable factor loadings ranging from 0.52 to 0.81(see Figure 3), which were good. The rest of these items of the latent construct remained in the measurement model.

TABLE II
ITEMS MEASURING BANK PERFORMANCE NFPMS

Construct	Code	Statement
Bank Performance NFPMS	SE1Q 1	Do you believe that you offer the best Quality of products and services or programs compared to others - differentiation
	SE1Q 2	In your opinion do your bank have a good success rate in launching new product, services and programs- market completion
	SE1Q 3	Your bank have a good level of customer satisfaction in our bank
	SE1Q 4	Your bank have an acceptable Level of innovation in our bank Advanced built-up technology
	SE1Q 5	Your bank have (perceived environmental uncertainty)Adaptive strategy to the changing conditions of the environment
	SE1Q 6	Your bank have enough number of satisfied employee – well trained
	SE1Q 7	Your bank have Organizational reputation in banking sector
	SE1Q 8	Your bank have Business growth during the three – five past years
	SE1Q 9	Your bank have good overall financial non-financial performance during the three past years (if using BSC)

TABLE IV
ITEMS MEASURING BANK PERFORMANCE FPMS

Construct	Code	Statement
Bank Performance FPMS	SE2Q 1	CALE (Capital adequacy, Assets, Liquidity (also called asset liability management), Earnings)
	SE2Q 2	CAMEL (Capital adequacy, Assets, Management Capability, Earnings, Liquidity (also called asset liability management), Sensitivity (sensitivity to market risk, especially interest rate risk)
	SE2Q 3	Ratio analysis
	SE2Q 4	Cash flow Analysis
	SE2Q 5	ROA (performance) is significantly above the average in last 3-5 years
	SE2Q 6	Total assets turnover (efficiency) is significantly above the average in last 3-5 years.
	SE2Q 7	Return on Investment (ROI) is significantly above the average in last 3-5 years
	SE2Q 8	Margin on sales/ Profit margin (effectiveness) is significantly above the average in last 3-5 years.
	SE2Q 9	Return (ROE) is significantly above the average in last 3-5 years.

TABLE V
MODEL FIT INDICES FOR BANK PERFORMANCE FPMS CONSTRUCT

Indices	Value	Indices	Value
Chi-Square	0.385	GFI	1.000
DF	5	TLI	1.015
Ratio	0.077	RMSEA	0.000
P Value	0.996		

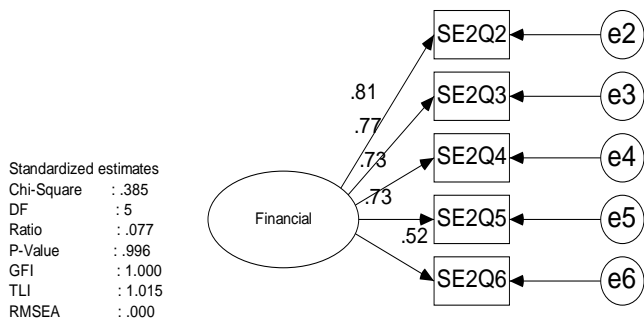


Fig. 3 Measurement model for performance financial performance measurements

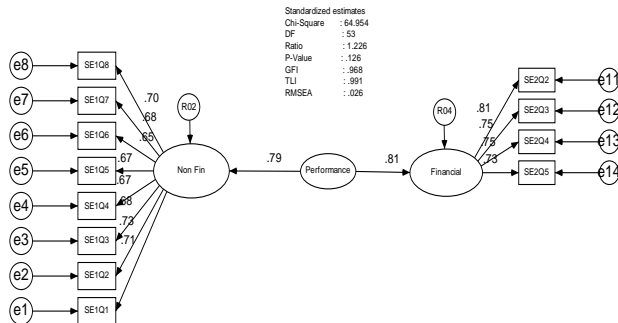


Fig. 4 After CFA Performance

TABLE VI

REPORTED VALUES OF MODEL FIT FOR THE INITIAL STRUCTURAL MODEL

ModelFit Measures	Recommended Values	Values	Conclusion of the final model
BS	$P \geq 0.05$	$P = 0.000$	Fit
$(\chi^2)/df$	≤ 3.00	134	Fit
GFI	≥ 0.90	0.845	Not fit
TLI	≥ 0.90	0.865	Not fit
RMSEA	≤ 0.10	0.085	Fit

TABLE VII

REPORTED VALUES OF MODEL FIT FOR THE FINAL STRUCTURAL MODEL

Model Fit Measures	Recommended Values	Values	Conclusion of the final model
BS	$P \geq 0.05$	$P = 0.426$	Fit
$(\chi^2)/df$	≤ 3.00	53	Fit
GFI	≥ 0.90	0.968	Fit
TLI	≥ 0.90	0.991	Fit
RMSEA	≤ 0.10	0.026	Fit

V. DISCUSSION

Hypotheses results and Discussion

Since the hypothesized model (Figure 1) does not achieve model fit ($p < 0.000$), therefore, the clarification of hypotheses result is based on generated or re-specified model (Table 3, 5 and 7 and Figure 4). Figure 4 shows that hypothesis H1 is asserted, i.e. financial performance measurements have a positive and direct impact on banks performance [23]. Has

found similar finding. This relationship was found to be significant with the standardised regression weight of 0.96; hence the hypothesis was supported by the data, at 0.01 level of significance. Also H2 is supported i.e. non-financial performance measurements are positive direct effect on the bank performance past studies have obtained the similar result [48]; [8]. According to the result and the model fit showed in table (7) H3 is supported by the data, at 0.01 level of significance. The findings are in line with many studies which show that there is a positive relationship between financial performance measurements and organisational performance [1], [17]. Reference [15]. Also with other studies have obtained the similar result [16], [19], [17], and [13].

VI. CONCLUSION

This survey, which was conducted in banking industry in Sudan, shed light on the relationships among financial and non-financial performance dimensions and indicators on banks performance. Hypotheses were tested with data collected from a sample of managers and senior employees of banks operating in Sudan by using structural equation modelling (SEM). Results financial performance is significantly related to the banks performance, which in turn impacts, ultimately leading to higher banks performance. Beside non-financial is directly related to bank performance. These findings were mostly consistent with the literature on the effects of financial and non-financial on organizational performance measures such as financial indicators. The effect financial and non-financial together on organizational performance outcomes is rare, which appreciates this survey. Thus it might be expected that the survey contribute to academic literature on management accounting. Beside results may guide executives in service industries for designing service strategies and plans. However, this survey is conducted in banking industry; findings might not be transferable to all types of industries. Thus, it is recommended that further researches can be conducted in other service industry contexts for the generalizability of findings.

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