

FINANCING MIX AND PROFITABILITY OF LISTED NON-FINANCIAL FIRMS IN NIGERIA

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Abstract: The study examined financing mix and financial performance of listed non-financial firms in Nigeria. This study employed an ex-post facto research design. The population of the study comprised of 75 non-financial firms quoted on the floor of the Nigerian Stock Exchange. Uniquely so, the population for the study is also the sample used for the research and hence the study used the census sampling technique. This is intended to provide robustness to the estimation result and to ensure that the distribution of firms follows a normal distribution. The time period covering is from 2010-2019. The panel regression was employed for the inferential analysis. The findings revealed that On the overall, the result reveals that the following financial structure variables, Total debt-asset financing ratio (DETA) ratio, Total Equity-asset financing ratio (TETA) ratio and long term debt to equity ratio (LTDE) all have a positive and significant impact on return on equity (ROE) while Long term debt-asset (LTDA), Short term debt-asset (STDA) and Total debt-equity financing ratio (TEDE) have a negative significant effect. The study recommends the need for firms to weigh the cost and benefits of debts and equity and shareholders also have to be actively involved in this process because of the agency cost that comes along with debts. In addition, our results suggest that the effect of financing mix can swing from positive to negative and vice-versa and hence managers and shareholders must understand the conditions that guarantee a positive outcome and ensure their existence as this can help for an optimal financing mix.

Keywords: Financing Mix, firm profitability, Panel regression

Introduction

mix refers to the different options used by a firm in financing its assets. It describes 'the proportion of a company's capital, which is obtained through debt and equity or hybrid securities. Debt consists of loans and other types of credit that is to be repaid in the future, usually with interest. The goal of a company's financial mix decision is to maximize the gains for the equity shareholders. The optimal financial mix is the one that maximizes the price of the stock and simultaneously minimizes the cost of capital thus striking a balance between risk and return. Generally, a firm can go for different levels/mixes of debts, equity, or other financial arrangements (Ardalan, 2018).

Ogbonna and Ejem (2019) pointed out that the relative percentages of financing mix involving debt and equity capital usually change as the company grows. In the long run, debt capital is less expensive than equity. Equity capital is normally the source used by very early-stage companies that do not have the cash flow to make debt payments. Investors who provide equity expect to receive a higher rate of return than lenders would. This higher return is their reward for taking the risk that the company will not succeed. As a company grows and becomes profitable, it can obtain more of its capital from debt sources. This has given birth to different financing structure theories that attempt to explain the variation in capital structures of firms over time or across regions.

The existence of a link between a firm's financing mix and financial performance has been a hotly debated area of accounting research. Soumadi and Hayajneh (2008) have identified possible scenarios relating to the effect of financing mix on firm performance. The first scenario involves positive relation between financing structure and firm performance which indicates when the firms depend on debt as much as firm's needs, it will enhance their performance. The preference for being highly levered is because the cost of debt is less than equity cost and the tax advantage of debt, which would therefore maximize the firm performance. Second scenario is that of an inverse correlation between financing structure and firm performance and this occurs whenever, the firm depends

on debt without employing it into profitable investments or when business and economic uncertainty alter the net present value of investments resulting in bankruptcy risks and poor firm performance. Finally, third scenario is that, there is no relationship between financing structure and firm performance. In this context, cost of debt is relatively stable and the cost of equity is not constant (Soumadi & Hayajneh 2008).

Though this research area has received considerable attention from researchers, there are still some unsettled issues that provides the gap that motivates this research. On the theoretical side, the extant theories have not been unanimous regarding the actual framework for expectations to be made concerning what kind of causality exist between financing mix and firm performance. The theoretical postulates on the relationship between profitability and financing mix are controversial. Using the agency cost theory, studies (Umobong & Ayebanengiyefa 2019; Adeniyi, Marsidi & Babatunji 2020; Ogbonna & Ejem 2019) predicts that higher level of debt is associated with better firm performance. In sharp contrast, using the pecking order theory, other studies such as Abosede, (2020) states that higher profitability companies tend to have lower debt levels and higher retained earnings and this is also the view of the trade-off theory. Hence there is still no unanimous theoretical foundation and thus the area remains open for debates and more enquiry. Empirical results have also been very much reflected this theoretical diversity (Umobong and Ayebanengiyefa 2019; Adeniyi, Marsidi, Babatunji 2020; Ogbonna & Ejem 2019; Yinusa, Ismail, Yulia & Olawale 2019; Nelson & Peter 2019; Abdul, John & Idachaba 2019; Uremadu & Onyekachi 2019). The aim of the study therefore is to examine the implications of financing mix indicators on firm profitability for non-financial firms in Nigeria.

Literature Review and Hypothesis

Dang, Bui, Dao, and Nguyen (2019) look into the relationship between finance structure and business performance in the Vietnamese Food and Beverage Industry. The dependent variables, which allude to firm performance, are ROA (return on asset), ROE (return on equity), and EPS (earnings per share). DA (debt ratio), STA (short term debt ratio), and LTA (long term debt ratio) are independent variables that represent a firm's finance structure. Some relevant analyses have been shown utilizing an unbalanced panel set of 605 observations from 61 publicly traded businesses in this industry. Following that, financial leverage has a substantial impact on company performance; to be more specific, debt ratios can have a big and favorable impact on ROE, EPS, but have a negative impact on ROA.

Doku, Kpekpena and Boateng (2019) investigate the impact of financing structure on commercial bank profitability in Ghana. The study employed panel corrected standard errors and two-stage least squares estimation methodologies to investigate a sample of 21 commercial banks from 2000 to 2014. The findings reveal that bank financing structure, as measured by the capital-to-asset ratio, is a strong and positive determinant of bank profitability (return on assets and net interest margin). Furthermore, the findings show that the share of client demand deposits has a beneficial impact on bank profitability.

Alhassan (2017) investigated the impact of commercial bank profitability (measured as Return on Assets and Return on Equity) on financing structure (short term loan ratio, long term debt ratio, and total debt ratio). Over a six-year period from 2010 to 2015, the study examined 23 banks and gathered data from their annual reports. Short-term debt ratio and long-term debt ratio are both inversely connected to bank profitability in Ghana, according to regression research. The overall debt ratio, on the other hand, was found to be positively related to bank profitability in Ghana.

From 2007 to 2013, Anafo, Amponteng, and Yin (2015) investigate the impact of financing structure or leverage on the profitability of listed banks on the Ghana Stock Exchange. The data was analyzed using descriptive statistics and various regression models. According to the findings, Short-term debt to total assets (STDTA), was found to have a substantial positive link with profitability as evaluated by return on assets (ROA), return on equity (ROE), and earnings per share in the study (EPS). Long-Term Debt to Total Asset (LTDTA) demonstrated a positive and substantial link with ROA and ROE, but a negative and negligible relationship with EPS. Profitability as evaluated by ROA, ROE, and EPS had a negative and negligible connection with asset growth rate. All profitability indicators, such as ROA, ROE, and EPS, demonstrated a positive and substantial relationship with firm size.

Gill and Biger (2011) investigate the impact of capital structure on the profitability of American service and manufacturing businesses. From 2005 to 2007, a sample of 272 American companies listed on the New York Stock Exchange was chosen. The findings of this study reveal that in the manufacturing business, there is a positive association between (i) short-term debt to total assets and profitability, ii) long-term debt to total assets and profitability, and iii) total debt to total assets and profitability. Grant, Ilse, and Marise (2019) use a panel regression technique to investigate the impact of funding structure on financial performance for sub-Saharan African mobile telecoms firms. It looks at eight companies that have annual reports that are publicly available during the seven-year period from 2010 to 2016. The study demonstrates that financing structure has a mixed impact on financial performance

Maina and Kondongo (2013) evaluated the influence of debt-equity ratio performance of firms listed on the Nairobi Securities Exchange in order to validate MM theory in Kenya. The sample consisted of a census of all firms listed on the Nairobi Securities Exchange from 2002 to 2011. All metrics of performance had a strong negative link with finance structure(DE), according to the study. This finding supported the MM idea that a firm's funding structure is important in affecting its performance. The survey also discovered that companies listed on the NSE utilised more short-term debt than long-term debt.

Nelson and Peter (2019) researched the relationship between financing structure and firm performance in Nigeria's microfinance banking market for the period 2009-2018. The findings revealed a negative and insignificant relationship between the Debt to Equity Ratio and return on equity, a positive and insignificant relationship between the Long Term Debt Ratio and return on equity, and a positive and significant relationship between the Total Debt Ratio and return on equity. The F-statistic was also 37.16701 with a probability of 0.026372, indicating that the overall effect of the explained variables on firm performance as measured by return on equity is statistically significant.

Theoretical Review: The Static Trade-Off Theory

This theory looks at the trade-off between tax benefit of debt and the costs of bankruptcy. It argues that while investment decision and firm assets are held constant, an optimal financing structure is attained when the tax benefit of debt equals to leverage associated costs which include financial distress, bankruptcy and agency (Myers, 2001). Firms will use debt as much as possible but watch out for any disadvantage that may arise as a result of a bankruptcy. This is the point at which the tax saving from any additional unit of debt exactly equal to the cost which arises from an increase in the financial distress probability (Sheikh & Wang, 2011). The theory assumes the existence of different target leverage for different firms due to firm's specific factors and also believe that firms are already at their presumed targets (Myers, 2001). The study is anchored on the static trade-off theory and this is so because in the context of this study, this theory implies that for companies to continue to perform financially well and not face distress, their financing structure is germane and hence managers have to ensure an optimal financing structure and this decision according to the theory will depend on the trade-off between tax benefit of debt and the costs of bankruptcy. Hence the theory directly identifies that an optimum financing structure is at the core of corporate survival and this is the focus of the study to examine what kind of financing mix will be beneficial for financial performance of companies

In the light of the above, the study specifies the null hypothesis as follows;

H₀₁: Financing mix has no significant impact on profitability of non-financial listed firms in Nigeria.

Methodology

This study employed an ex-post facto research design. This is a form of research design in which the researcher speculates on the potential causes of an observed result. The population of the study comprises of non-financial firms quoted on the floor of the Nigerian Stock Exchange. As at December 2020, there are 75 non-financial firms quoted on the Nigerian Exchange Group (NXG, 2020). Uniquely so, the population for the study is also the sample to be used for the research and hence the study used the census sampling technique. Secondary data was used for this study. The data was retrieved from corporate annual reports of the sampled quoted on the Nigeria Stock Exchange companies for the period 2010-2020 financial years. The effect of financing mix on financial performance which is the focus of this study was analysed using panel regression. Panel data regression is chosen because of the multidimensional nature of the data which has both time or periodic dimension and also cross-

sectional dimension. Therefore, the model for this study is presented below. The functional form of the model is first presented and then the econometric model is specified;

$$\text{Profitability} = f(\text{Financing Mix}) \text{-----} \text{(i)}$$

$$\{\text{ROA}\}_{it} = \beta_{it} + \beta_1 \{\text{TDTA}\}_{it} + \beta_2 \{\text{LTDA}\}_{it} + \beta_3 \{\text{STDA}\}_{it} + \beta_4 \{\text{TETA}\}_{it} + \beta_5 \{\text{DETE}\}_{it} + \beta_6 \{\text{LTDE}\}_{it} + \varepsilon_{it} \quad (\text{ii})$$

Where: {ROA} = Return on equity measured as ratio of profit after tax to total asset, DETA = Total debt-asset ratio, LTDE= Long term debt-asset ratio, STDA= Short term debt-asset ratio, TETA= Total Equity-asset ratio, DETE= Total debt-equity ratio, LTDA= Long term debt-equity ratio, ε_{it} = error term, $\beta_1 - \beta_6$ = Slope parameters

Presentation of Result

Table 4.1 Descriptive Statistics

	Mean	Max	Min	Std. Dev.	Jarque-Bera	Prob
LTDE	41.92	68.736	0.48399	5496.219	15802696	0.00
DETE	2.6893	202.9019	0.06	116.397	15041785	0.00
LTDA	18.720	192.2804	0.65	27.447	90150.05	0.00
STDA	45.134	376.4143	0.00	36.702	40757.6	0.00
DETA	63.854	395.4504	4.2849	35.586	22903.5	0.00
TETA	19.046	77.1054	0.00	15.403	194.3145	0.00
ROE	10.97	67.14	-0.35	2591.19	15271171	0.00
TOBQ	1.5277	11.2986	0.1241	1.3639	4743.93	0.00

Source: Researcher's Compilation (2022)

The descriptive statistics for the variables in this study is presented in table 4.1 and as observed, LTDE stood at 41.92 which indicate a very high proportion of long term debt as a ratio of total equity with maximum and minimum values of 68.746 and a minimum of 0.4834 respectively. The standard deviation is large at 5496.219 and indicates that significant dispersion of LTDE of the individual firms from the mean. DETE ratio has a mean of 2.689 with maximum and minimum values of 202.90 and a minimum of 0.06 respectively. The standard deviation stood at 116.39 indicates the extent of dispersion of DETE of the individual firms from the distribution mean. LTDA ratio has a mean of 18.720 with maximum and minimum values of 192.28 and a minimum of 0.65 respectively. The standard deviation stood at 27.45 indicates the extent of dispersion of LTDA of the individual firms from the distribution mean. STDA ratio has a mean of 45.134 which indicates that on the average non financial firms in the sample of STDA is higher than LTDA with maximum and minimum values of 376.41 and a minimum of 0.00 respectively as some firms at a certain time within the period coverage of the study had no short term debts. The standard deviation stood at 36.702 indicates the extent of dispersion of STDA of the individual firms from the distribution mean.

DETA ratio has a mean of 63.854 and hence indicates that on the average proportion of total debt to the firm's total asset is far higher than the proportion of the firms total debt to total equity (DETE) with maximum and minimum values of 395.45 and a minimum of 4.285 respectively. The standard deviation stood at 35.586 which indicate the extent of dispersion of DETA of the individual firms from the distribution mean. TETA ratio has a mean of 19.046 which shows the proportion of total equity to total assets with maximum and minimum values of 77.105 and a minimum of 0.00 respectively. The standard deviation stood at 15.403 which indicate the extent of dispersion of TETA of the individual firms from the distribution mean. ROE has a mean of 10.97 with maximum and minimum values of 67.14 and a minimum of -0.35 respectively. The standard deviation stood at 2591.19 which indicate the extent of dispersion of ROE of the individual firms from the distribution mean. TOBQ has a mean of 1.5277 with maximum and minimum values of 11.29 and a minimum of 0.1241 respectively. The standard deviation stood at 1.3639 which indicates the extent of dispersion of TOBQ of the individual firms from the distribution mean. The Jacque-bera statistic p-value ($p < 0.00$) indicates the absence of outliers in the series

Table 4.2. Correlation Statistics

Probability	LTDE	DETE	LTDA	STDA	DETA	TETA	ROE	TOBQ
LTDE	1							
Prob.								
DETE	0.4935	1						
prob	0.000							
LTDA	-0.028	-0.034	1					
prob	0.4456	0.3487						
STDA	-0.014	-0.012	-0.41	1				
prob	0.2114	0.479	0.000					
DETA	-0.036	-0.039	0.344	0.5121	1			
prob	0.332	0.2917	0.00	0.000				
TETA	0.025	0.0296	-0.19	0.1923	0.049	1		
prob	0.4974	0.4212	0.00	0.00	0.183			
ROE	-0.983	-0.992	0.034	0.014	0.04	-0.03	1	
prob	0.00	0.00	0.355	0.7121	0.274	0.49		
TOBQ	-0.006	-0.005	-0.01	0.1965	0.192	-0.08	-0.01	1
prob	0.8791	0.8943	0.704	0.000	0.00	0.03	0.863	

Source: Researcher's compilation (2022)

Table 4.2 shows the correlation statistics for the variables and the focus for the study is the correlations between financing mix indicators and financial performance using both accounting (ROE) and market (TOBQ) measures. The results reveals that ROE is positively correlated with LTDA ($r=0.034$) though not significant ($p=0.355$), with STDA ($r=-0.014$) though not significant ($p=0.7121$) and with DETA ($r=-0.036$) though not significant ($p=0.332$). In the same vein, ROE is also negatively correlated with DETA ($r=-0.04$) though not significant ($p=0.274$). Furthermore, ROE is negatively correlated with LTDE ($r=-0.983$) significant ($p=0.000$) and with DETE ($r=-0.992$) and significant ($p=0.00$). The results reveals that TOBQ is positively correlated with STDA ($r=0.1965$) and significant ($p=0.000$) and with DETA ($r=0.192$) and significant ($p=0.000$). On the contrary, TOBQ is also negatively correlated with LTDE ($r=-0.006$) though not significant ($p=0.8791$), with DETE ($r=-0.005$) though not significant ($p=0.8943$), with LTDA ($r=-0.01$, $p=0.704$) and with TETA ($r=-0.08$) and significant ($p=0.03$). Though providing some insight into the nature of the relationship between the independent and dependent variables, the correlation analysis is limited in its inferential abilities as the technique does not necessarily imply causality between the variables in a strict sense. Regression analysis is more suited for this purpose. Prior to the presentation of the regression estimation, the multicollinearity test result is first presented.

4.3. Multicollinearity Test

C	NA
LTDE	1.541322
LTDA	1.066266
STDA	1.593864
DETE	1.064160

DETA	1.922447
TETA	1.896128

Source: Researcher's compilation (2022) using Eviews 10.

In this study, the variance inflation factor test is constructed to test for multicollinearity. Basically, the VIF explains how much of the variance of a coefficient estimate of a regressor has been inflated, as a result of collinearity with the other regressors. Essentially, VIFs above 10 are seen as a cause of concern as observed, none of the variables have VIF's values more than 10 and hence none gave serious indication of multicollinearity. The VIF test results for the variables reveal that all the variables have VIF values far less than 10. For example, LTDE (1.541), LTDA (1.593), STDA (1.064), DETE (1.922), DETA (1.066) and TETA (1.986). Thus, the VIF confirms that the threat of multicollinearity is non-existent and hence the results are expected to be robust and reliable.

Table 4.4. ROE and Financing Mix Regression Result

	Dependent Variable: ROE		
	Fixed effects		Random effects
C	8.1301 (6.0211) {0.1174}		33.001*** (6.559) {0.000}
LTDE	0.1618*** (0.046) {0.000}		0.09271** (0.0452) {0.0407}
LTDA	-10.422*** (0.812) {0.000}		-14.8291*** (2.5323) {0.000}
STDA	-9.9137*** (0.8477) {0.000}		-14.7365*** (2.3026) {0.000}
DETE	-27.694*** (1.689) {0.000}		-26.436*** (2.1918) {0.000}
DETA	10.8157*** (0.8590) {0.000}		14.8305*** (2.0835) {0.000}
TETA	0.123** (0.0618) {0.0471}		0.7638* (0.3964) {0.0544}
R ²	0.827		0.9846
Adjusted R ²	0..585		0.9844
χ^2 Hausman	47.953(0.000)		
F-statistic	39.488		7822.0
Prob(F-stat)	0.000		0.000
Durbin-Watson	1.52		1.94
Model Diagnostics			
χ^2 Hetero	0.0962	χ^2 Norm	0.463
χ^2 Serial/Corr	0.116	χ^2 Ramsey-Reset	

Source: Researcher's compilation (2022) ***sig @1%, ** sig @ 5% and *sig @ 10%

The relationship between financing mix and ROE measure of corporate financial performance is presented in table 4.4. Both the fixed effects, the random effects estimations are presented. The χ^2 Hausman statistic and p-value (47.95, p=0.00) indicates that the fixed effects model estimation is the appropriate estimation for the model indicating the existence of significant correlations between firms specific disturbances and the beta's. Therefore, the fixed effects estimation is more robust and appropriate and is used for the discussion of the results. The R² for

the fixed effects regression stood at 0.827 with indicates that financing mix is able to account for about 82.7% of systematic variations in the dependent variable with an adjusted value of 58.5%. The F-stat is 39.44 (p -value = 0.00) is significant at 5% and suggest that the hypothesis of a significant linear relationship between the dependent and independent variables cannot be rejected. It is also indicative of the joint statistical significance of the model.

The analysis of coefficients reveals that LTDE ratio has a positive (0.1618) effect on the ROE which statistically significant at 1% ($p=0.000$). The result implies that an increase in the proportion of long term debt to total equity results in an increase in return on equity and hence the results confirms that long term debt can be beneficial in improving corporate financial performance. On the contrary, LTDA ratio has an inverse effect (-10.422) effect on the ROE which statistically significant at 1% ($p=0.000$). The result implies that decrease in the proportion of long term debt to total assets results in an increase in the return on equity and hence the results seem to suggest that lowering LTDA could be an optimal decision. Similarly, STDA ratio has an inverse effect (-10.422) effect on the ROE which is also statistically significant at 1% ($p=0.000$). The result implies that decrease in the proportion of short term debt to total assets results in an increase in the return on equity and hence the results seem to suggest that lowering STDA could be an optimal decision for firms in the distribution.

Furthermore, the analysis of coefficients reveals that DETE ratio has an inverse effect (-10.422) effect on the ROE which is also statistically significant at 1% ($p=0.000$). The result implies that decrease in the proportion of total debt to total equity ratio results in an increase in the return on equity and hence just like in the case of STDA and LTDA, the results seem to suggest that lowering DETE could be an optimal decision for firms in the distribution. In the case of DETA ratio, the coefficient is positive and significant at 5% (10.8157, $p=0.000$). The result implies that an increase in the proportion of total debt to total assets results in an increase in return on equity. Similarly, TETA ratio has a positive (0.123) effect on the ROE which statistically significant at 5% ($p=0.000$). The result implies that an increase in the proportion of total equity to total assets results in an increase in return on equity and hence the results confirms that increasing equity can be beneficial in improving corporate financial performance. The model diagnostics reveal that χ^2_{Hetero} p -value ($p>0.05$) implies the null hypothesis of homoscedastic behaviour of the errors is accepted and the $\chi^2_{\text{Serial/Corr}}$ p -value ($p>0.05$) also reveals the null hypothesis of no serial correlation in the residuals is accepted. In addition, $\chi^2_{\text{Ramsey-Reset}}$ p -value ($p>0.05$) reveals that the model is correctly specified.

On the overall, the result reveals that the following financial structure variables, Total debt-asset financing ratio (DETA) ratio, Total Equity-asset financing ratio (TETA) ratio and long term debt to equity ratio (LTDE) all have a positive and significant impact on return on equity (ROE) while Long term debt-asset (LTDA), Short term debt-asset (STDA) and Total debt-equity financing ratio (TEDE) have a negative significant effect. Thus the null hypothesis that financing mix has no significant effect on firm profitability is rejected, The finding is in tandem with Doku Kpekpena and Boateng (2019) Abdullah & Tursoy (2019), Adeniyi, Marsidi, Babatunji (2020) Yinusa, Ismail, Yulia and Olawale (2019), Adeniyi, Marsidi, Babatunji (2020) but is in contrast with Umar et al. (2012). One plausible explanation for the positive association between financing structure and firm performance is the benefits of the tax shield and the lower costs of issuing debt compared to equity. On the hand, the following financing mix variables such as Long term debt-asset (LTDA), Short term debt-asset (STDA) and Total debt-equity financing ratio (TEDE) all display a negative relationship with profitability. The finding is in tandem with Uremadu and Onyekachi, (2019), Amponteng, & Yin (2015) Binh and Tram (2020), Adekunle (2009) but in contrast with Ebaid (2009).

Conclusion

The goal of a company's financial mix decision is to maximize the gains for the equity shareholders. Generally, a firm can go for different levels/mixes of debts, equity, or other financial arrangement. The relative percentages of financing mix involving debt and equity capital usually change as the company grows. In their attempt to maximise the overall value, firms differ with respect to capital structures. The study investigated the effect of financing mix threshold on financial performance of listed non-financial firms in Nigeria. The findings reveal that **(i)** Total debt-asset financing ratio has a significant effect on financial performance for listed non-financial firms in Nigeria. **(ii)** The result reveals that a decrease in the proportion of long term debt to total assets results in an increase in the return on equity. **(iii)** A decrease in the proportion of short term debt to total assets results in an increase in the return on equity **(v)** Furthermore, Total Equity-asset financing ratio (TETA) ratio has a positive effect on the ROE which statistically significant at 5%. **(vi)** The result implies that decrease in the proportion of

total debt to total equity ratio results in an increase in the return on equity and hence just like in the case of STDA and LTDA, the results seem to suggest that lowering DETE could be an optimal decision for firms in the distribution. The study recommends the need for firms to weigh the cost and benefits of debts and equity and shareholders also have to be actively involved in this process because of the agency cost that comes along with debts. In addition, our results suggest that the effect of financing mix can swing from positive to negative and vice-versa and hence managers and shareholders must understand the conditions that guarantee a positive outcome and ensure their existence as this can help for an optimal financing mix.

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