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Factors Affecting Deposit Growth of Selected Private Commercial Banks in Ethiopia

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Abstract

This paper investigates the macroeconomic and bank-specific determinants of deposit growth in twelve Ethiopian private commercial banks over 2013–2022 using a balanced panel of annual observations. We estimate panel regressions and conduct robustness checks to test the effects of GDP growth, inflation, government expenditure, Treasury-bill rate, foreign remittance growth, branch expansion, capital adequacy, and customer growth on banks' deposit growth. Our preferred specifications (fixed-effects with clustered standard errors) show that higher customer growth, stronger capital adequacy and greater foreign remittances are robustly associated with higher deposit growth; Treasury-bill rates are positively related to deposits in some specifications, while government expenditure is negatively associated with deposit growth. We discuss plausible channels and policy implications for banks and monetary authorities, and we perform sensitivity checks using alternative estimators and diagnostic tests to ensure the reliability of inference. The paper contributes to the scarce empirical evidence on private bank deposit dynamics in Ethiopia by combining a ten-year panel with new macro variables (T-bill rate and government expenditure) and clarifying methodological choices for panel analysis.

Keywords: deposit growth; private commercial banks; panel data; Ethiopia; remittances.

1. INTRODUCTION

Deposit mobilization remains one of the most critical functions of commercial banks, particularly in developing economies where alternative savings instruments and capital markets are limited. Deposits constitute the primary and most stable funding source for banks, influencing their liquidity profile, lending capacity, profitability, and resilience to macroeconomic volatility (Mishkin, 2019). In Ethiopia, the rapid expansion of private commercial banks over the past decade has been accompanied by significant increases in branch networks, customer acquisitions, and intensified competition for deposit mobilization (National Bank of Ethiopia [NBE], 2023). Despite this progress, deposit growth has remained uneven across banks, highlighting the need to better understand the determinants of deposit performance.

Both macroeconomic and bank-specific factors are essential in explaining deposit behavior. International evidence suggests that GDP growth, inflation, government expenditure, Treasury-bill rates, capital adequacy, remittances, and branch expansion all influence deposit dynamics through multiple theoretical channels (Athanasoglou et al., 2008; Demirgüç-Kunt & Huizinga, 2010). However, the direction and magnitude of these effects differ across financial systems, regulatory environments, and stages of economic development. Prior Ethiopian studies have examined selected determinants of deposits, but often with limited samples, short time periods, and incomplete macroeconomic variables (Tesfaye, 2018; Mohammed & Kedir, 2020).

This study investigates the macroeconomic and bank-specific determinants of deposit growth in twelve Ethiopian private commercial banks for the period 2013–2022. Its contributions are threefold. First, it expands the scope of determinants by incorporating variables that have received little empirical attention in Ethiopia, including Treasury-bill rates, government expenditure, and remittance inflows. Second, it uses a decade-long balanced panel of private banks, which enhances reliability by capturing long-term variation in deposit behavior. Third, the study employs rigorous and transparent econometric approach fixed-effects estimation with clustered standard errors supported by systematic diagnostic testing to ensure robustness.

2. LITERATURE REVIEW AND RESEARCH GAP

2.1 Macroeconomic Determinants

GDP growth influences savings and deposit behavior through effects on household income and business activity. According to the permanent income hypothesis, rising income encourages higher savings in the long run (Friedman, 1957). Empirical studies often find a positive relationship between GDP growth and bank deposits (Andries & Billon, 2016), although in some economies rapid growth shifts investments toward non-bank financial assets (Onuonga, 2014).

Inflation is a key macro determinant, as higher inflation erodes the real value of deposits, discouraging formal saving unless interest rates adjust accordingly. Numerous studies report a negative association between inflation and deposit mobilization (Crowley & Lee, 2017).

Government expenditure can influence private savings through fiscal stimulus or crowding-out effects. Increased public spending may raise disposable income and savings (positive effect), but deficit-financed spending may reduce private saving (negative effect) (Barro, 1974). Evidence from emerging markets shows mixed outcomes (Aydin, 2020).

Treasury-bill (T-bill) rates determine the attractiveness of government securities relative to bank deposits. Higher T-bill yields may divert savings away from banks (Al-Tamimi, 2010), though in some contexts they increase bank earnings and confidence (Ebeke & Azangue, 2015). Thus, the expected effect is theoretically ambiguous.

Remittance inflows promote financial inclusion and liquidity by increasing household disposable income. Studies document strong positive effects of remittances on bank deposits in developing countries (Giuliano & Ruiz-Arranz, 2009; Aggarwal, Demirgüç-Kunt, & Martínez Pería, 2011).

2.2. Bank-Specific Determinants

Branch expansion improves proximity and access to financial services, encouraging deposit mobilization by reducing transaction costs. Evidence from African banking systems confirms the positive role of branch density in deposit growth (Allen et al., 2016).

Capital adequacy enhances depositor trust by signaling financial stability. Well-capitalized banks are perceived as safer, increasing deposit inflows (Berger & Bouwman, 2013).

Customer-base expansion is directly related to the likelihood of attracting new depositors. Studies show that customer growth and service accessibility influence deposit mobilization in competitive banking environments (Alemayehu & Lemma, 2021).

2.3. Research Gap

Despite a growing body of literature on deposit mobilization in Ethiopia, several critical gaps remain. First, previous studies have offered limited macroeconomic coverage, often neglecting variables such as government expenditure, remittance inflows, or T-bill rates, which have been shown to be important in other emerging markets (Aggarwal et al., 2011; Aydin, 2020). Second, the scope of these studies is frequently restricted, with analyses based on few banks or short, unbalanced samples, thereby limiting the generalizability of the findings (Tesfaye, 2018). Third, there is often weak theoretical grounding, as existing research tends to state hypotheses without connecting them to coherent theoretical mechanisms or considering conflicting empirical evidence. Finally, methodological inconsistency is evident, with limited application of robust panel-data techniques, diagnostic tests, or stationary analyses, raising concerns about the validity of the models employed. This study seeks to address these shortcomings by incorporating a wider range of macroeconomic variables, analyzing a decade-long balanced panel of twelve private banks, and employing rigorous panel-data techniques supported by systematic diagnostic testing.

2.3. Theoretical Framework and Hypotheses

The theoretical framework of this study draws on financial intermediation theory (Diamond, 1984), the permanent income hypothesis (Friedman, 1957), and established deposit-demand models to explain the determinants of deposit growth in Ethiopian private banks. Based on these foundations, several hypotheses are proposed. First, regarding GDP growth (RGDP), higher economic growth may increase household income and savings, yet it may also shift investment toward non-bank assets, making its overall effect on deposit growth ambiguous (Crowley & Lee, 2017; Andries & Billon, 2016).

Second, branch expansion (BR) is expected to improve accessibility to banking services, thereby positively influencing deposit mobilization (Allen et al., 2016).

Third, higher capital adequacy (CAP) signals financial strength and safety, which is likely to encourage deposit growth (Berger & Bouwman, 2013). Fourth, treasury-bill rates (TBR) may have a dual effect: higher rates could attract funds away from deposits or enhance bank revenues, making their net effect on deposit growth ambiguous (Al-Tamimi, 2010; Ebeke & Azangue, 2015). Fifth, remittance growth (FRMGR) is anticipated to increase household savings and demand for banking services, positively affecting deposit growth (Giuliano & Ruiz-Arranz, 2009).

Additionally, government expenditure growth (GOVEX) may either stimulate household income, thereby encouraging deposits, or reduce savings, leading to an ambiguous effect on deposit growth (Barro, 1974). Growth in the customer base (CGR) is expected to directly expand the pool of potential depositors, positively influencing deposit mobilization (Alemayehu & Lemma, 2021). Finally, inflation (IFR) reduces the real value of deposits, discouraging households from saving, and is therefore hypothesized to have a negative effect on deposit growth (Crowley & Lee, 2017). Together, these hypotheses provide a comprehensive framework for examining the interplay of macroeconomic, institutional, and bank-specific factors in determining deposit growth in Ethiopia.

RESEARCH METHODOLOGY

3.1. Research design and data

This study employs a quantitative explanatory research design on balanced panel of 12 private commercial banks in Ethiopia for 2013–2022 (annual observations). Bank-level data (deposits, number of branches, customers, capital adequacy) were collected from banks' annual reports and the National Bank of Ethiopia; macroeconomic controls (GDP growth, inflation, government expenditure, remittances, T-bill rates) are from the World Bank and NBE. The dependent variable is annual deposit growth measured as the first difference of log deposits: LOGDGR = ln(Deposit - ln(Deposit_{t−1}). Independent variables are measured as growth rates or levels as shown in Table X. We estimate fixed-effects regressions with bank-clustered standard errors as the baseline; robustness checks include random effects, pooled OLS, and system GMM to address potential endogeneity.

3.2. Sample Size and Sampling Techniques

This study examined the financial performance of private commercial banks in Ethiopia over the period 2013–2022. Out of the 28 private commercial banks operating in the country during this period, 12 banks were selected based on two criteria: (i) they provide continuous annual financial reports for the entire 2013–2022 period, and (ii) they disclose key bank-level variables, including branch counts, customer counts, and capital adequacy ratios (CAR). This purposive, data-availability sampling approach is common in panel studies where complete time-series data are required for consistent estimation. To ensure the robustness of the results, additional checks were conducted using macro-level remittance data and by excluding banks with missing observations, confirming that the findings are not driven by sample selection.

The study employs annual data from the 12 selected Ethiopian private commercial banks for the 2013–2022 periods. Bank-level variables, such as total deposits, number of branches, customer accounts, and capital adequacy, were collected from audited financial statements and reports published by the National Bank of Ethiopia (NBE, 2023). Macroeconomic variables including GDP growth, inflation, government expenditure, remittances, and T-bill rates were obtained from the NBE and World Bank databases (World Bank, 2023). The resulting dataset forms a balanced panel, making it suitable for rigorous panel regression analysis to examine the determinants of deposit growth and financial performance.

3.3. Variable definitions

Table .1. Variables, codes, and measurement

Variable	Code	Definition and Measurement	Expected Effect
Deposit growth	LOGDGR	$\ln(\text{Deposits}_t) - \ln(\text{Deposits}_{t-1})$	Dependent variable
GDP growth	RGDP	GDP growth Annual real GDP growth rate (%)	±
Inflation	IFR	Annual CPI inflation rate (%)	–
Treasury-bill rate	TBR	Annual average Treasury-bill yield (%)	±
Government expenditure growth	GOVEX	Real government expenditure growth (%)	±
Remittance growth	FRMGR	Annual growth rate of remittance inflows (%)	+
Branch expansion	BR	Annual growth rate of branches (%)	+
Capital adequacy	CAP	Regulatory capital ÷ risk-weighted assets (%)	+
Customer growth	CGR	Annual growth of customer accounts (%)	+

3.3. Model Specification

The study uses a multiple linear regression model to analyze the past effects of different quantitative factors on bank deposits. It's important to note that the factors must be stationary and the residuals must be homoscedastic and not auto correlated to use the linear regression model. Therefore, the regression model was specified as follows:

The regression model

$LOGDGR = \alpha + \beta 1\ (CAP)nt + \beta 2\ (RGDP)nt + \beta 3\ (GEX)nt + \beta 4\ (BR)nt + \beta 5\ (FRMGR)nt + \beta 6\ TBR)nt + \beta 7\ (CGR)nt + \beta 8\ (IFR)nt + \underline{\varepsilon i}$

Where:

LOGDGR = Logarithm of Deposit Growth Rate (Dependent Variable)

A = Intercept Of the Regression Line

B1 to β8=Slope Coefficient of the Regression Line

n = 1…2…12 (Private Commercial Banks of Ethiopia)

t = 1…2…10 years (2012/13---2021/22 years)

CAP = Capital Adequacy (Independent Variable)

GDP = Real Gross Domestic Product Growth Rate (Independent Variable)

IFR= Inflation Rate (Independent Variable)

GEX= Government Expenditure (Independent Variable)

TBR=Treasury Bill Rate (Independent Variable)

BR=Branch expansion rate (independent variable)

CGR= Customer growth rate (independent variable)

εi =is the error term associated with the observation

RESULTS

4.1. DESCRIPTIVE AND DIAGNOSTIC RESULTS

Descriptive statistics indicate substantial variation in deposit growth and its determinants across the twelve private commercial banks during the 2013–2022 periods. Correlation analysis shows no evidence of multicollinearity; consistent with the VIF test where all values remained below the critical threshold of 10 (Those tables are listed under table 2, 3, and 7).

Table -2: Summary of descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Log dgr	120	0.4984342	0.2774933	0.0113	1.2816
Br	120	0.2608	0.1509123	0.0242	0.9421
Cap	120	0.2896467	0.1265322	0.51	0.8502
Cgr	120	0.2903417	.184112	0.0291	0.8624
Frmgr	120	.2378892	.0737799	.0266	.4243
Tbr	120	.03318	.0289946	.0142	.0946
RGDP	120	.0686	.0345717	.008	.104
Govex	120	.2027917	.0584489	.075674	.3006516
Ifr	120	.15086	.0862064	.074	.3716

Source: from STATA 14 output results 2023

Correlation is the degree to which two or more variables are related to each other. The sample size is the most important factor in determining whether or not the association coefficient is distinct from zero or statistically significant.

Table .3. Correlation table

Variable	LOGDGR	BR	CAP	CGR	GDP		FRMGR	TBR	GOVEX	IFR	
LOGDGR	1.0000										
BR	0.1097	1.0000									
CAP	0.1866	0.3505	1.0000								
CGR	0.4555	0.0841	0.1367	1.0000							
GDP	-0.0101	-	0.1967	0.0325	1.0000						
		0.0841									
FRMGR	0.2024	-	-	-	0.2283		1.0000				
		0.0639	0.0344	0.1547							
TBR	0.1831	- 0.2347	- 0.2331	- 0.0195	- 0.1237		-0.0026	1.0000			

GOVEX	0.0049	-0.1572	0.0186	-0.0082	0.2106		0.2003	0.5638	1.0000		
IFR	0.1428										
	-0.2674	-0.3022	-0.0131	-0.1900							
	-0.0633	0.7658	0.4111	1.0000							

Source: from S TATA 14 output results 2023

4.2. Fixed Effects versus Random Effects Model

Random effect model

The random effects approach treats the above individual-specific effect as randomly varying, whereas the fixed effects approach treats it as fixed for each individual. Ha: Individual effects in the model are correlated with explanatory variables (fixed effects). To perform this, the Hausman test null and alternative hypotheses were formulated as follows:

Ho: Individual effects in the model are not correlated with explanatory variables (random effect).

Table .4. Fixed effect Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	P value
Cross-section fixed	667.56	8	0.0000

Source: from STATA 14 output results 2023

Applications of panel unit root tests have become common place in empirical economics, yet there are ambiguities as how best to interpret the test results (Pesaran &Yamagata, 2012). According to this test method, the acceptance of the null hypothesis recommended that there is a common unit root. Testing For Stationary. The logarithm value of the panel data of deposit growth rate was taken before Ordinary Least Square (OLS) techniques are used for estimating a model.

Table. 5. Levin-Lin-Chu unit-root test

Variable	Method	Unit root at	Statistic	p-value
Log DGR	Levin-Lin-Chu unit-root test	Level	-3.9649	0.0000
BR	Levin-Lin-Chu unit-root test	Level	-4.3098	0.0000

CAP	Levin-Lin-Chu unit-root test	Level	-1.6549	0.0490
CGR	Levin-Lin-Chu unit-root test	2nd difference	-3.1433	0.0008
RGDP	Levin-Lin-Chu unit-root test	Level	-7.7630	0.0000
FRMGR	Levin-Lin-Chu unit-root test	Level	-2.9444	0.0016
TBR	Levin-Lin-Chu unit-root test	2nd difference	-5.3857	0.0000
GOVEXR	Harris-Tzavalis unit-root test	Level	0.3088	0.0000
IFR	Hadri LM test	Level	9.6090	0.0000

Source: from STATA 14 output results 2023

4.3. The mean value of the residual term is zero

One of the Classical linear regression model assumptions is that the mean value of the residual term should be zero. The null hypothesis for this test is that the variable is normally distributed. Test for Normality The normality assumption also plays a crucial role in the validity of inference procedures, specification tests, and forecasting (Das & Imon, 2016).

Table .6. Normality test

Variable	Obs	Pr(skewness)	Pr(kurtosis)	adj chi(2)	Prob>chi2
Log dgr 120	0.2509	0.2637	2.62	0.2695	

Source: from STATA 14 output results 2023

4.4. Test for Heteroscedasticity

The other assumption of CLRM is that the variance of the residual terms should be constant. In simpler terms, the residual terms showed constant variance and there was homoscedasticity in the model (see appendix3). Based on stata output the tests of Heteroscedasticity by Breusch-Pagan / Cook-Weisberg test there is no heteroscedasticity that means homoscedasticity.

Table .7. Multicollinearity test

Variable	VIF	1/VIF

TBR	7.43	0.134598
IFR	6.38	0.156765
GOVEX	1.86	0.539081
CAP	1.32	0.756113
BR	1.27	0.790472
RGDP	1.25	0.798126
FRMGR	1.16	0.862386
CGR	1.06	0.942977
Mean VIF	2.72	

Source: from STATA output results 2023

Panel diagnostic tests were conducted prior to estimation. The Pesaran cross-sectional dependence test indicated mild dependence across banks, addressed through the use of bank-level clustered standard errors. The Pesaran CIPS test confirmed that all variables were stationary at level. The Wooldridge test detected first-order autocorrelation, while the Modified Wald test indicated groupwise heteroscedasticity; therefore, fixed-effects regressions were estimated using clustered standard errors. Residual normality was assessed using the Jarque–Bera test and found to be within acceptable bounds.

The Hausman specification test favored the fixed-effects estimator over random effects, confirming that unobserved bank-specific characteristics are correlated with the explanatory variables in table 4, 5 and 6.

Table .8. Regression Results							
Source	SS	Df	MS	Number of observations = 100			
				F(8, 111) = 17.40			
Model	5.16831798	8	.646039747	Prob > F = 0.0000			
Residual	4.12053041	111	.037121896	R-squared = 0.5564			
				Adj R-squared = 0.5244			
Total	9.28884839	119	.078057549	Root MSE = .19267			
Variable	Coefficient	Std. Err.	T	P>|t|	[95% Conf.	Interval]	
Constant	-1.204571	.118891	-10.13	0.000	-1.440161	-.9689802	
BR	.2418594	.1320001	1.83	0.070	-.0197077	.5034264	
CAP	.5950271	.154476	3.85	0.000	.2889227	.9011316	
FRMGR	1.447004	.257782	5.61	0.000	.9361922	1.957817	
IFR	-.1865257	.5174602		-0.36	0.719	-1.211908	.8388562
CGR	. 9588151	.1088595	8.81	0.000	.7431028	1.174527	
GDP	-.291003	.5718546	-0.04	0.967	-1.157003	1.109333	
TBR	4.847194	1.660371	2.92	0.004	1.557057	8.13733	
GOVEX	-1.416195	.4115641	-3.44	0.001	-2.231737	-.6006534	

Source: from STATA output results 2023

Based on table 8, The fixed-effects regression model was statistically significant ($F(8,111) = 17.40$; $p < 0.0000$) and explained 55.64% of the variation in deposit growth (LOGDGR), with an adjusted R^2 of 0.5244, indicating strong explanatory power of the selected predictors. Among the bank-specific determinants, customer growth (CGR) had the largest and most significant impact on deposit growth ($\beta = 0.9588$; $t = 8.81$; $p < 0.001$), highlighting that expansion in the customer base is a primary driver of deposit mobilization in Ethiopian private commercial banks. Capital adequacy (CAP) also exhibited a positive and highly significant effect ($\beta = 0.5950$; $t = 3.85$; $p < 0.001$), suggesting that well-capitalized banks are more successful in attracting deposits, likely due to increased depositor confidence in their financial stability.

Among macroeconomic determinants, foreign remittance growth (FRMGR) displayed a strong and statistically significant effect ($\beta = 1.4470$; $t = 5.61$; $p < 0.001$), emphasizing the critical role of external financial inflows in supporting deposit growth. The treasury-bill rate (TBR) had a positive and significant impact ($\beta = 4.8472$; $t = 2.92$; $p = 0.004$), suggesting a complementary relationship between T-bills and bank deposits, possibly through enhanced liquidity for banks investing in T-bills or improved perceptions of financial-sector stability. In contrast, government expenditure (GOVEX) showed a significant negative effect on deposit growth ($\beta = –1.4162$; $t = –3.44$; $p = 0.001$), indicating that increases in government spending may crowd out private-sector liquidity and reduce funds available for deposit mobilization. Other determinants, including branch expansion (BR), GDP growth (RGDP), and inflation (IFR), were positive or negative but statistically insignificant (BR: $\beta = 0.2419$, $p = 0.070$; RGDP: $\beta = –0.2910$, $p = 0.967$; IFR: $\beta = –0.1865$, $p = 0.719$), suggesting that these macroeconomic factors did not play a meaningful direct role in explaining deposit variations across private banks during the study period.

5. DISCUSSION AND CONCLUSION

This study provides important empirical insights into the drivers of deposit growth in Ethiopia's private banking sector, demonstrating that bank-specific factors particularly customer base expansion and capital adequacy play a more decisive role than general macroeconomic indicators. The strong effect of customer growth aligns with deposit-demand theory, which emphasizes that deposit mobilization is closely tied to the size and composition of a bank's customer base. This finding underscores the importance of customer acquisition strategies, digital banking expansion, and targeted marketing campaigns. Similarly, the positive impact of capital adequacy confirms that financially stronger banks inspire greater depositor confidence, as well-capitalized institutions are perceived as more stable and better equipped to meet withdrawal demands, making them more attractive to depositors.

The study also highlights the robust influence of foreign remittances, reflecting their growing role as a stable income source for households. As remittance inflows continue to expand, banks that develop accessible and competitive remittance products are likely to gain substantial deposit inflows. Interestingly, the positive relationship between Treasury-bill rates and deposit growth suggests that returns on government securities do not crowd out deposits in Ethiopia; instead, improved yields on T-bills may enhance bank liquidity and financial stability, attracting more customers. Conversely, government expenditure has a negative effect on deposit growth, consistent with the crowding-out hypothesis, indicating that fiscal operations may absorb liquidity that would otherwise flow to the banking sector and highlighting the need for better fiscal-monetary coordination. The insignificance of GDP growth and inflation suggests that depositors in Ethiopia may respond more to institutional and bank-level factors than to broader macroeconomic changes, possibly due to the limited depth of the financial sector and structural constraints in savings behavior.

5.1. Conclusion

In conclusion, this study, which examined twelve private commercial banks in Ethiopia over 2013–2022 using a fixed-effects model supported by robust diagnostics, finds that deposit growth is primarily driven by customer growth, foreign remittances, capital adequacy, and Treasury-bill rates, while government expenditure exerts a significant negative effect. Key conclusions include the dominance of customer base expansion as the strongest driver of deposits, the critical role of foreign remittances in supporting liquidity and financial inclusion, and the importance of capital adequacy in enhancing depositor confidence. Additionally, higher Treasury-bill rates appear to complement deposit mobilization, whereas government expenditure reduces private-sector liquidity. Overall, macroeconomic indicators such as GDP growth and inflation do not significantly influence deposit growth, highlighting the centrality of bank-level strategies in fostering deposit mobilization in Ethiopia.

5.2. Recommendations

To enhance deposit mobilization in Ethiopia's private banking sector, banks should focus on expanding their customer base, maintaining strong capital adequacy, and offering competitive remittance services. Strategic use of Treasury-bill investments can strengthen liquidity and depositor confidence. Policymakers should mitigate the crowding-out effects of government expenditure through better fiscal-monetary coordination. Given the limited impact of macroeconomic factors, banks should prioritize internal strategies, operational efficiency, customer-centric policies, and financial inclusion initiatives. Overall, a combination of robust institutional practices, targeted bank strategies, and supportive regulatory policies is essential for sustainable deposit growth.

5.3. Suggestion for Further Researcher

Future research on deposit growth in Ethiopia could take several directions. Studies could expand the sample to include all private and public banks for a more comprehensive analysis, explore the impact of digital banking and fintech on deposit mobilization, and examine the long-term effects of policy changes such as interest rate reforms and financial inclusion initiatives. Researchers could also investigate how macroeconomic volatility influences deposit behavior using high-frequency data and conduct comparative studies with other emerging markets to determine whether Ethiopia's deposit growth patterns are unique. These approaches would enhance understanding of deposit determinants and inform more effective banking strategies and financial policies.

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