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PRE & POST-MERGER EFFECT ON BANK OF BARODA: A COMPARATIVE INSIGHT

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ABSTRACT
Banking sector is one of the crucial part of nation's economy and also a powerful weapon for the national development as the economic upliftment is rely on the sound financial system. Since Merger & Acquisition use to be a general process of business re-structuring, and use to be development strategy among the strategy, so this paper tries to examine the financial performance of Bank of Baroda before (2015 – 2018) and after (2019) the merger with Dena Bank & Vijaya Bank with the help of two sample independent t-test for unequal means. Further, regression analysis has also been used to forecast the post-merger net profit of Bank of Baroda for the period of 2020 to 2025.

KEYWORDS
banking sector, economic upliftment, merger & acquisition.

JEL CODES
G31, G32, G33, G34.

INTRODUCTION
The Banking system in India started in 1770 and the first bank was the Indian Bank known as the Bank of Hindustan. However, liberalization, economic reforms and others government policies bring an astounding changes in banking industry leading to incredible competitiveness and technological sophistication. In this new era of banking industry every bank wants to be financially strong and operationally efficient and more specifically they want to achieve this growth in a fastest way which can only be possible either through the merger or acquisition. Through this merger banks can scale up its business and gain a large number of customers quickly. It also helps the bank to bridge the business and the technological gap. As a result of this merger efficiency ratios of banks increase and the potentiality of the risk decease.

MERGER & ACQUISITION IN INDIAN BANKING INDUSTRY
The first merger in the history of Indian Banking Industry was happened in 1921 when Bank of Bombay (1840), Bank of Madras (1843) & Bank of Calcutta (1840) were merged and formed the Imperial Bank of India which was later nationalized in 1955 and acquainted as State Bank of India. During the pre-nationalized era i.e. 1961-1968 total 46 mergers were happened. In the nationalization period i.e. from 1969 to 1992 the total numbers of mergers were 13 and during the post economic reform period i.e. 1993 to 2006, total 21 merger were took place, out of which 13 were forced mergers, 5 were voluntary mergers, 2 were convergence of financial institutions into bank and 1 was due to other regulatory compulsion. In the recent period i.e. from 2007 to 2017 total 7 mergers were happened. The government of India (GoI) has announced for merging of banks in 2019, in-order to revive them from the 6 year low economy due to sudden slowed economic growth. Therefore, recently 10 public sector banks were merged into 4. The anchor banks for these mergers are the Punjab National Bank, Canara Bank, Union Bank of India and the Indian Bank. Prior to this announcement, in April 2019, Vijaya Bank and Dena Bank (amalgamating banks) were merged into Bank of Baroda. The government of India announced the merger of Bank of Baroda, Vijaya Bank and Dena Bank on September 17, 2018, to create the country's third largest lender. This amalgamation is the first-ever three-way consolidation of banks in India, with a combined business of Rs 14.82 trillion, making it the third largest bank after State Bank of India (SBI) and ICICI Bank. The new merged Bank of Baroda has advances and deposits market share of 6.9% and 7.4%, respectively, according to a Motilal Oswal report. The retail book of the merged entity will increase to about 20% of total loans due to a higher retail book of Vijaya Bank. The combined entity will have a CASA mix of 33.6%, with a CD ratio of 70.7%, according to the report. After the first anniversary of this merger this present study has been conducted to measure the changes of financial performance between pre-merger period and post-merger period of Bank of Baroda and also to predict the growth of the India's third largest bank in the next 6 years.

BRIEF REVIEW OF LITERATURES
V Radha Naga Sai et al. (2013) evaluated the performance of two selected banks based on the financial ratios from the pre & post merger perspective. As per this study, the banking industry is one of the fast growing industries in India. Through the Mergers and acquisitions in the banking sector, the banks can achieve significant growth in their operations, by minimizing their expenses to a considerable extent and also competition is reduced because mergers can eliminate competitors from the banking industry. Based on the analysis of 4 years pre and post merger financial ratios merger data of Indian overseas bank, they had concluded that Net profit margin, Operating profit margin, Return on capital employed, Return on equity and Debt-Equity ratio there is significant difference but no significant difference with respect to Gross profit margin and through the analysis of 3 years financial ratios pre and merger data of HDFC bank data, they had concluded that Net profit margin, Operating profit margin, Return on capital employed, Return on equity and Debt-Equity ratio there is no significant difference in these ratios before after merger.

Vanitha et al. (2011) evaluated the financial performance, ratio analysis, mean, standard deviation &'t' test have been used as tools of analysis. Their study found that in India merging companies were taken over by companies with reputed and good management.

Their conclusion emerged from the point of view of financial evaluation is that the merging companies were taken over by companies with reputed and good management. Therefore, it was possible for the merged firms to turn around successfully in the due course. However, it is suggested in the study, the analysis should be done with a bigger sample size before coming to the final conclusion.

Jayaraman et al. (2014) examined the impact by comparing the efficiency of merged banks three years before and after the merger. To validate whether change in efficiency of banks is due to the merger, this study compares the efficiency of merged banks with non-merged banks. Through interval estimation, this paper provided how close or far away the banks are from the efficient frontier. In this particular study, it is concluded that the efficiency of merged banks & the similarity between performance of both merged and non-merged banks during post-merger period shows that the under- or over-performance of merged banks cannot be purely attributed to effect of merger in the post-merger scenario can be improved by optimally utilising the inputs. Though, it is said in the study that it cannot rule out the influence of extraneous factors including global financial crisis in the performance of banks during the post-merger period.

Sinha et al. (2011) examined the Mergers & Acquisitions scenario of the Indian Financial Services Sector. This study pointed out the fact that though companies may have been able to leverage the synergies arising out of the merger or acquisition, but they have not been able to manage their capital structure to improve their liquidity. In this study, the comparison of the pre and post-merger performance of these companies indicates that though Interest Cover (EBIT/Interest) has remained a significant factor contributing to the return on shareholder's funds both before and after the merger, the Profit Margin has also a significant positive effect on the return only after the merger. Thus the ability of a company to service its debt obligations is an important factor affecting the companies return irrespective of whether it is involved in a merger or not but it becomes important to generate higher profits after the merger in order to justify the decision of merger undertaken by the management to the shareholders.

Patel et al. (2016) examined the comparative position of pre & post-merger stock risk-return performance of selected banks. This study covers the comparison of Systematic and unsystematic risk during the pre & post-merger period. According to the study, banks are going for merger due to various objectives such as market share gain, increase geographical coverage, value maximization; create financial synergy and so on. But few times to fulfil this objectives, acquirer banks do not consider few important parameters in target banks which leads to poor financial and stock performance. It is suggested in the study that researchers can undertake further studies in area of merger and acquisition with respect to evaluation of stock performance. Moreover, it can also be studied that the valuation of target bank done by acquire bank has impact on profit and return for acquire bank or not. It is also suggested in the study that, through stock risk analysis, managers can decide the merger deal in such way that it can reduce risk, especially, unsystematic risk, because as unsystematic risk decreases it motivates investors to invest more in bank & vice versa.

OBJECTIVES OF THE STUDY

1. To analyze the pre & post merger financial performances of Dena Bank, Vijaya Bank and Bank of Baroda.
2. To analyze the impact of merger of Dena Bank and Vijaya Bank on the financial performance of Bank of Baroda.
3. To forecast the post merger net profit of the acquirer bank (Bank of Baroda) for the period of 2020 to 2025.

RESEARCH METHODOLOGY

- The researchers have selected the merger of Dena Bank & Vijaya Bank with Bank of Baroda, which took place in 2018 as a convenient sample of this study.
- The performance of the banks has been evaluated on the basis of 10 financial measures:
  a) Credit Deposit Ratio
  b) Cash Deposit Ratio
  c) Return on Net worth
  d) Net Profit Margin Ratio
  e) Capital Adequacy Ratio
  f) Net NPA Ratio
  g) CASA
  h) Basic EPS
  i) Payout Ratio
  j) Return on Capital Employed Ratio
- To analyze the impact of the merger on the financial performance of the acquirer bank (Bank of Baroda), pre-post merger data of the above mentioned ratios have been considered, where the premerger period is 2015 to 2018 and the year just preceding the year of merger i.e. 2019 is considered as a post merger period in this study.
- The concerned data are collected from the secondary sources i.e. moneycontrol.com and Capitaline Database.
- A comparative ratio analysis has been employed to analyze the pre and post merger financial performance of the selected banks.
- Independent t-test at 5% level of significance is carried out to obtain whether there is any significant difference in the financial measures before and after the merger of the selected banks.
- Regression analysis has also been employed to forecast the post merger net profit of Bank of Baroda for the period of 2020 to 2025.

DATA ANALYSIS

TABLE 1: FINANCIAL PERFORMANCES OF DENA BANK, VIJAYA BANK & BANK OF BARODA DURING PRE & POST MERGER PERIOD

Ratios	Pre-merger Period (Average)			Post-merger Period (Average)
	Dena Bank (Acquired Bank)	Vijaya Bank (Acquired Bank)	Bank of Baroda (Acquirer Bank)	Bank of Baroda
Credit-Deposit Ratio	67.02	70.12	67.71	72.87
Cash- Deposit Ratio	5.8225	4.5075	3.6925	4.01
RONW	0.96	8.19	-1.70	0.92
Net Profit Margin	-9.0825	4.64	-0.665	2.05
Capital Adequacy Ratio	11	12.75	12.75	13
Net NPA Ratio	8.25	3.25	4.25	3
CASA	0	0	30.135	34.6
Basic EPS	-10.1275	5.9875	-1	4.16
Payout Ratio	0.027761	0.166847	0.081979	0
ROCE	0	0	1.535	1.78

Observation: In the pre merger period the average Credit-Deposit Ratio of three banks were more or less same but after this merger it can be observed that the Credit-Deposit Ratio of the acquirer bank i.e. Bank of Baroda has been increased slightly i.e.5.61%, which signifies that in the post-merger period the efficiency of the acquirer bank to utilize its resources optimally has been increased. Cash-deposit ratio is the minimum amount of cash balance each branches has to maintain to meet their liabilities and it is usually 0.75% of total deposit. As per the above table it can be observed that in the pre-merger period the Cash-deposit Ratio position of this trio was very high, especially in case of Dena Bank. After the merger it can be noticed that this ratio of Bank of Baroda has been increased in a very low proportion i.e. only 0.32% but on the basis of the ideal norm the in the post-merger era the cash-deposit ratio position of Bank of Baroda is still good. Though in the pre-merger period the RONW of Vijaya Bank was quiet impressive but in case of Bank of Baroda the same was negative but after the merger this negative RONW turns into positive and increased by 2.62%. In case of Capital Adequacy Ratio it can be observed that there is not a significant change between pre and post merger era. Relating to the Net NPA Ratio a positive change can be noticed as this ratio of the acquirer bank is decreased by 1.25% after the merger which signifies that in post-merger era the risk of raising bad quality loan has decreased than the pre-merger period. CASA Ratio explains the proportion of deposits of the bank comes from current and savings deposits, which is generally a cheaper source of fund. Higher the CASA Ratio better will be the operating efficiency of bank. In this case it can be observed that this ratio of acquirer bank has been increased by 4.47% after the merger. Relating to EPS of Bank of Baroda a huge positive change can be observed in the post-merger era though during the post-merger period the payout ratio of the acquirer bank is 0. Lastly, regarding this ROCE, a slight positive change can be observed after the merger.

Hypothesis Testing on the basis of Financial Measures

H_0: There is no significant difference between pre and post merger financial performance.

H_1: There is a significant difference between pre and post merger financial performance.

Table 2.a: CREDIT-DEPOSIT RATIO OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	67.71	3.23	3	0.047	3.20	3.18	H_0 Rejected	1.61
Post-merger	1	72.87	0.00		0.00				0.00

Observation: As the t-statistic $_{(3,\,0.05)}$ = 3.20 is greater than the tabulated value 3.18 so the null hypothesis is rejected here in favor of alternative hypothesis. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is a significant difference between the pre and post merger Credit-Deposit Ratio of Bank of Baroda. Even on the basis of the mean it can also be seen that after the merger of Dena Bank & Vijaya Bank with Bank of Baroda the Credit –deposit Ratio of the acquirer bank (Bank of Baroda) has been increased by 5.16% which reflects that the ability of this bank to make optimal use of available resources i.e. creation of loan assets from the deposits received has been increased slightly after the merger.

TABLE 2.b: CASH-DEPOSIT RATIO OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	3.69	0.024	3	00065	26.67	3.18	H_0 Rejected	0.012
Post-merger	1	4.01	0.00		0.00				0.00

Observation: As the t-statistic $_{(3,\,0.05)}$ = 26.67 is greater than the tabulated value 3.18 so the null hypothesis is again rejected here in favor of alternative hypothesis. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is a significant difference between the pre and post merger Cash-Deposit Ratio of Bank of Baroda. On the basis of the mean it can also be noticed that there is a slight positive change i.e. 0.32%, in the Cash –deposit Ratio of the acquirer bank (Bank of Baroda) after this merger. But comparing to the ideal norm both in case of pre & post merger period the cash-deposit ratio of BOB is quiet impressive.

TABLE 2.c: RONW OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	-1.70	117.15	3	-68.91	0.04	3.18	H_0 Accepted	58.57
Post-merger	1	0.92	0.00		0.00				0.00

Observation: As the t-statistic $_{(3,\,0.05)}$ = 0.04 is less than the tabulated value 3.18 so the null hypothesis is accepted here against the alternative hypothesis. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is not a significant difference between the pre and post merger RONW of Bank of Baroda. Even on the basis of the mean it can also be seen that in the pre-merger era it was negative but after the merger it is increased to 0.92 which is not a good return at all though its turns into a so called positive figure. Therefore, it can be infer that the efficiency of the acquirer bank to generate profit from shareholders' capital is not developed much.

TABLE 2.d: NET PROFIT MARGIN RATIO OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	-0.66	77.61	3	-117.59	0.07	3.18	H_0 Accepted	38.80
Post-merger	1	2.05	0.00		0.00				0.00

Observation: As the t-statistic $_{(3,\,0.05)}$ = 0.07 is lesser than the tabulated value 3.18 so the null hypothesis is accepted here against the alternative hypothesis. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is no significant difference between the pre and post merger Net Profit Margin Ratio of Bank of Baroda. Even in imitation of the mean value of both pre & post merger period it can be observed that though after this merger the net profit margin of the acquirer bank turns into a positive figure than a negative one, still this profit margin is quiet low.

TABLE 2.e: CAPITAL ADEQUACY RATIO OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	12.75	0.25	3	0.0196	2	3.18	H_0 Accepted	0.125
Post-merger	1	13	0.00		0.00				0.00

Observation: As the t-statistic $_{(3,\,0.05)}$ = 2 is lesser than the tabulated value 3.18 so the null hypothesis is accepted here. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is no significant difference between the pre and post merger Capital Adequacy Ratio of Bank of Baroda. Even on the basis of the mean it can also be seen that after the merger of Dena Bank & Vijaya Bank with Bank of Baroda, there is a slight increase of 0.25% in the Capital Adequacy Ratio of the acquirer bank (Bank of Baroda) which reflects that there is a very slight difference in the ability of this bank to meet its financial obligations after the merger.

TABLE 2.f: NET NPA RATIO OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	4.25	2.25	3	0.53	-1.11	3.18	H_0 Accepted	1.125
Post-merger	1	3	0.00		0.00				0.00

Observation: As the t-statistic $_{(3,\,0.05)}$ = -1.11 is lesser than the tabulated value 3.18 so the null hypothesis is accepted here. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is no significant difference between the pre and post merger Net NPA Ratio of Bank of Baroda. As per the mean of both pre & post merger era it can be noticed that the Net NPA Ratio is just decreased by 1.25%, but in both of this period this ratio is pretty much higher than the zero which signifies that though after the merger this ratio is slightly decreased but there is a high risk of the raising the bad quality loan is still present like in the pre-merger era.

TABLE 2.g: CASA RATIO OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	30.135	20.49	3	0.68	0.44	3.18	H_0 Accepted	10.25
Post-merger	1	34.6	0.00		0.00				0.00

Observation: As the t-statistic $_{(3,\,0.05)}$ = 0.44 is smaller than the tabulated value 3.18 so the null hypothesis is accepted here. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is no significant difference between the pre and post merger CASA Ratio of Bank of Baroda. But, in general, after merger also, 34.6% is much higher than ideal CASA Ratio & higher CASA ratio after the merger indicates a lower cost of funds, which signifies the better net interest margin and better operating efficiency of the bank.

TABLE 2.h: BASIS EPS RATIO OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	-1	312.58	3	-312.6	0.033	3.18	H_0 Accepted	156.29
Post-merger	1	4.16	0.00		0.00				0.00

Observation: As the t-statistic $_{(3, 0.05)}$ = 0.033 is smaller than the tabulated value 3.18 so the null hypothesis is accepted here. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is no significant difference between the pre and post merger Basic EPS Ratio of Bank of Baroda. In contrast, on the basis of mean after the merger it can be observed that the Basic EPS ratio has improved a lot to 4.16% from -1%.

TABLE 2.i: PAY-OUT RATIO OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	0.082	0.009	3	9.11	-18.22	3.18	H_0 Accepted	0.005
Post-merger	1	0	0.00		0.00				0.00

Observation: As the t-statistic $_{(3, 0.05)}$ =-18.22 is very smaller than the tabulated value 3.18 so the null hypothesis is accepted here. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is no significant difference between the pre and post merger Pay-out Ratio of Bank of Baroda. Even on the basis of the mean it can also be seen that after the merger of Dena Bank & Vijaya Bank with Bank of Baroda, there is no such change in the Pay-out Ratio of the acquirer bank (Bank of Baroda) further it become 0 after this merger.

TABLE 2.j: ROCE RATIO OF BANK OF BARODA

Calculation of two sample independent t-test for unequal mean, where, df=3 & level of significance= 0.05

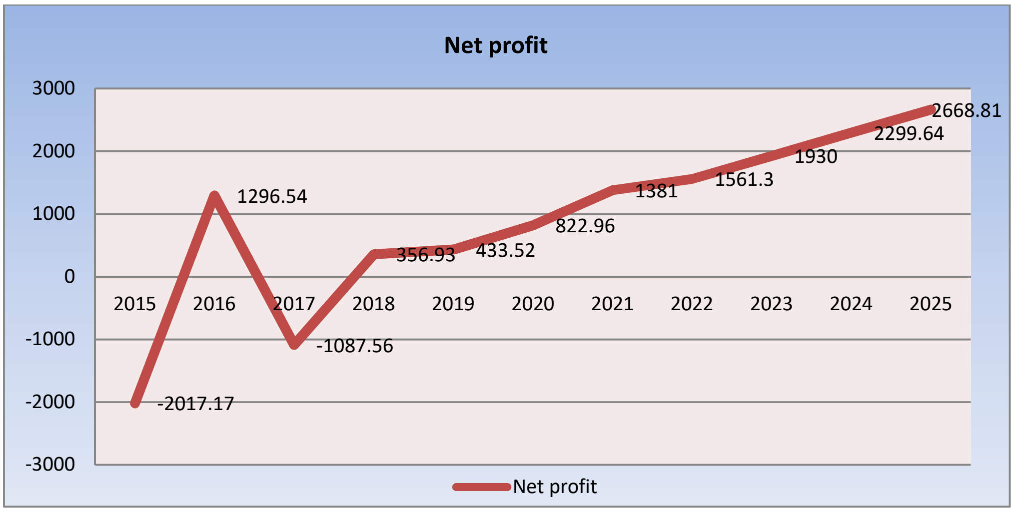
Period	N	Mean	S.D	df	C.V	t-statistic	Tabulated value	Result	Standard error
Pre-merger	4	1.535	0.028	3	0.0182	17.5	3.18	H_0 Rejected	0.014
Post-merger	1	1.78	0.00		0.00				0.00

Observation: As the t-statistic $_{(3, 0.05)}$ = 17.5 is much greater than the tabulated value 3.18 so the null hypothesis is rejected here in favor of alternative hypothesis. Hence on the basis of independent t-test at 5% level of significance it can be conclude that there is a significant difference between the pre and post merger ROCE Ratio of Bank of Baroda. Even on the basis of the mean it can also be seen that after the merger of Dena Bank & Vijaya Bank with Bank of Baroda the ROCE Ratio of the acquirer bank (Bank of Baroda) has been increased only by 0.25% which is very little. Therefore, on the basis of the result it can be concluded that the bank has more or less same efficient level to use its available capital optimally after the merger.

TABLE 3: FORECASTING NET PROFIT OF BANK OF BARODA ON THE BASIS OF REGRESSION ANALYSIS

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Net Profit	-2017.17	1296.54	-1087.56	356.93	433.52	822.96	1381	1561.3	1930	2299.64	2668.81

CHART 1



Observation: On the basis of the past 5 years (2015-2019) the net profit of the acquirer bank (Bank of Baroda) has been forecasted in accordance with the regression tend analysis. The result of the regression trend analysis forecast that though there is an upward trend in the net profit during the next 6 years of the acquirer bank though a fluctuating trend can be observed in the last 5 years. After the merger of the Dena Bank and Vijaya Bank with Bank of Baroda the net profit of that acquirer bank will gradually increase with the passage of the time.

CONCLUSION

The merger of Dena bank & Vijaya Bank with Bank of Baroda create a huge change in the position of Bank of Baroda and its became the 3rd largest bank in India. The comparative ratio analysis of the pre & post merger era is expressing financial performance of the trio dung these two situations. After the 1st anniversary of this merger it can be observed that except the positional change there is no huge significant changes in the performance of the acquirer bank according to this study, as most of the performance indicators are changed very slightly which is not so considerable. Only in case of Credit-Deposit Ratio, Cash-Deposit Ratio & Basic EPS Ratio a significant change can be observed. The regression trend analysis of the acquirer bank forecast that despite of the fluctuating trend in the net profit of Bank of Baroda during the pre merger era, after the merger the net profit of the acquirer bank will follow an upward trend and will increase gradually.

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