

LIQUIDITY AND ADOPTION OF PUBLIC PRIVATE PARTNERSHIPS IN KENYAN PUBLIC UNIVERSITIES

BY

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ABSTRACT

Traditionally the role of infrastructure provision was solely undertaken by the government. However over time most governments especially in the developing world have continued to experience increasing budget deficits in meeting their infrastructure needs. Such increasing budget deficits lead to reduced allocation to public entities such as public universities. In order to bridge this funding gap, private sector players are brought on board through public private partnerships. Kenyan public universities have in the recent past experienced difficulties in meeting their short term obligations as they fall due. This is partly attributable to reduced capitation in comparison to the increasing costs of running the university. The study aimed at assessing how the need for liquidity influences adoption of public private partnerships in Kenyan public universities. The specific objectives of this study were to evaluate the extent to which need for timely payment of short term external and internal liabilities influence the adoption of public private partnerships in Kenyan public universities. The study employed a descriptive research design with a target population of 223 comprising of purposively selected management representatives from nine public universities. The sample size was 143. Data was collected using a structured questionnaire. The response rate attained was 86%. Statistical Package for Social Sciences (SPSS) was employed in data analysis. The findings indicated that need for timely payment of short term internal and external liabilities had a statistically significant influence on adoption of public private partnerships. Based on the study findings it was concluded that need for timely payment of short term obligations had a significant positive influence on the level of adoption of public private partnerships in Kenyan public universities. It is therefore

recommended that Kenyan public universities should make use of public private partnerships in order to maintain a sound liquidity level since it ensures regular small periodic cash out flows as opposed to heavy lump sum cash outflow that is characteristic of traditional funding. Since liquidity is just one of the financial drivers of public private partnerships, it is suggested that other studies could be done on the other drivers.

Keywords: *Liquidity, Adoption, Equity, Debt and Capital*

INTRODUCTION

In the past the role of infrastructure provision was traditionally undertaken by the government. However over time most governments especially in the developing world have continued to experience increasing budget deficits in meeting their infrastructure needs. Such increasing budget deficits lead to reduced allocation to public entities such as public universities. In order to bridge this funding gap, private sector players are brought on board through public private partnerships (Turley & Semple, 2013). Kenyan public universities have in the recent past experienced difficulties in meeting their short term obligations as they fall due. This is partly attributable to reduced capitation in comparison to the increasing costs of running the university. Increased uptake of private funds greatly assists governments to maintain their budget deficits at minimum, even if it is only for a short period (Mouraviev & Kakabadse, 2016). Many countries across the world have employed PPPs as a means of deferring upfront payment hence being able to control their budget deficits without reducing investments in infrastructural development and public services.

OBJECTIVE OF THE STUDY

The study aimed at assessing how the need for liquidity influences adoption of public private partnerships in Kenyan public universities.

LITERATURE REVIEW

Given the continued increase in budget deficits, many governments especially in the developing world have shown an increasing desire in involving the private sector entities in delivering their infrastructure needs (Turley & Semple, 2013). Employment of private funds in financing of infrastructure needs greatly assists governments to maintain their budget deficits at minimum,

even if it is only for a short period (Mouraviev & Kakabadse, 2016). A number of countries all over the world have employed PPPs as a means of deferring upfront payment hence being able to control their budget deficits without reducing investments in infrastructural development and public services. Public private partnerships are seen by financially constrained governments as being the solution for the provision of the much needed infrastructure services to its citizens (Engel, Fischer & Alexander, 2014). The use of public private partnerships enables governments with otherwise limited capital to be able to invest in additional socially profitable projects that may not have been undertaken were the government to rely solely on its own funds. In general, inadequate funding on the part of government majorly contributes to the need for public sector entities to undertake PPP as a way of delivering certain public goods. It has been determined that the level of development in capital markets in a given country is crucial in determining the availability of sources of financing public infrastructure projects (Pedo et al. 2018). Well-developed capital markets enable the government to easily get finances from the private sector thereby lessening the pressure on its budget. PPP arrangements are known for improving cash flow in addition to freeing up the government's fiscal funds which are then invested in other areas of public service. For public universities, use of PPP in funding of projects frees available funds which can be applied in other areas like research and extension. This is attributed to the fact that instead of high initial capital outlay as is the case in traditional funding, PPP arrangements allow for regular periodic payments. Such an arrangement ensures that cost remains within predicted limits as opposed to situations where there are unpredictable demands for asset maintenance and replacement (Balciouglu, 2017). Over the past years, enrolment in public universities has been on the rise thereby putting pressure on existing physical facilities. Investment in physical facilities calls for huge financial investments which may not be readily available. Channeling of the available cash towards acquisition of these facilities may lead to liquidity problems for the public entity. Such an entity is likely to face financial difficulties in meeting its current liabilities as and when they fall due. In addition, other areas of university functions like research and extension would greatly benefit when the liquidity improves. Besides freeing up funds, engagement of a private partner in delivery of a public good or service can help in generating additional revenue. This is achieved through levying of some user fees for services delivered. In most cases this can be attained more efficiently by the private entity as compared to the public sector (World Bank, 2012). Such additional revenue generated from the project improves the cash flow of the public sector entity thereby enhancing its liquidity. Uptake of PPP is therefore crucial in aiding governments to ensure steady cash flow, which can easily be upset by major investments due to temporary modifications in the budget of a public entity.

The desire to have a constant cash flow devoid of massive capital outlays is a driving factor in adopting PPP. Availability of the appropriate financing ensures both timely and efficient delivery of services (Balcioglu, 2017). These goals are best attained if the public entity engages in a PPP.

Liquidity of an entity can be measured by considering how timely the current liabilities are met. Current liabilities may further be classified into internal liabilities and external liabilities. The external liabilities relate to the amounts payable to those outside the institution while the internal liabilities relate to the amounts payable to those within the institution. For public universities, external short term liabilities include sums payable to suppliers, statutory deductions like NSSF and NHIF, income tax deductions, rent payable for rented premises as well union deductions. If remittance of these external liabilities is done on time then that would signify increased liquidity. Internal liabilities for public universities on the other hand would include staff salaries as well as part-time lecturer payments. When payment for such short term liabilities is prompt, then that would signify improved liquidity. In general, it is expected that since PPP employs external funds from the private sector, then internal sources of funds would remain available to cater for the short term liabilities of the institution. Osei-Kyei et al. (2014) in their study in Ghana agreed that public private arrangements help to reduce the problem of budget constraints for the public sector entities. The overall effect of use of PPP is improved liquidity position of the public entity as evidenced by timely payment of due liabilities.

METHODS

The research adopted a descriptive survey research design. The target population was 223 respondents from nine (9) public universities. A sample size of 143 respondents was used to collect data. A structured questionnaire was employed in data collection. The data collected was presented using descriptive statistics. The collected data was analysed using Statistical package for social sciences (SPSS) where a regression model was generated indicating the influence of the financial value drivers on adoption of PPP. Analysis of variance (ANOVA) was conducted to establish the significance of each independent variable at 95 percent level of confidence.

RESULTS

The objective of the study was to determine the influence of liquidity on adoption of public private partnership in Kenyan public universities.

Descriptive Statistics for Liquidity on adoption of PPP in Kenyan public universities

Descriptive analysis was conducted. The findings from the study were presented in Table 1. The mean and standard deviation for each opinion statement was obtained. The responses were ranked on a scale of 1 to 5 where 1-1.80 represents strongly disagree while 4.20- 5.00 represents strongly agree. From the results it was seen that the need to free up internal sources of funds encourages adoption of public private partnerships in Kenyan public universities as shown by a mean of 4.03 which corresponds to agree on the ranking scale. This means that the need by public entities to have operating cash to meet daily operation expenses is a driving force for adoption of PPP. This is further illustrated by agreement of the respondents that need for timely payment of short term internal liabilities contributes to increase in both the PPP proposals and projects initiated as shown by mean of 3.76 and 3.80 respectively, which correspond to agree on the ranking scale. In addition, it was seen that the desire for timely payment of short term external liabilities led to increase in number of PPP proposals made as well increase in the number of PPP projects initiated as indicated by mean of 3.87 and 3.89 respectively. The means correspond to agree on the ranking scale. This suggests that the need by public entities to defray external liabilities as and when they fall due drives them to adopt PPP as a way of infrastructure provision. By using PPP, they are able to remain liquid enough to meet their operational expenses as opposed to a scenario where the project was funded the traditional way. The use of PPP ensures that there is no immediate heavy cash outlay, hence reducing budget deficits. This finding concurs with the that of Mouraviev and Kakabadse (2016) who found that use of public private partnerships greatly enables the public entities to keep their budget deficits at minimum even if it is in the short run.

Table 1

Descriptive Statistics for Liquidity on Adoption of PPP in Kenyan public Universities

Statement	N	Min	Max	Mean	SD
1. Need to free up internal sources of funds encourages adoption of PPP	121	1	5	4.03	.766
2. Need for timely payment of short term internal liabilities leads to increase in the number of PPP proposals made.	123	1	5	3.76	.888

3. Need for timely payment of short term internal liabilities leads to increase in the number of PPP projects initiated.	123	1	5	3.80	.826
4. Need for timely payment of short term external liabilities leads to increase in the number of PPP proposals made.	122	2	5	3.87	.778
5. Need for timely payment of short term external liabilities leads to increase in the number of PPP projects initiated made	123	1	5	3.89	.822

Key: N= Sample size, Ranking scale for the mean: 1.00-1.80 (Strongly Disagree), 1.80-2.60 (Disagree), 2.60-3.40 (Neutral), 3.40-4.20 (Agree), 4.20-5.00 (Strongly Agree), Min = Minimum, Max = Maximum, SD = Standard Deviation.

Testing Adequacy of Sample for Factor Analysis on Liquidity

Kaiser-Meyer-Olkin (K.M.O) as well as Bartlett's test of Sphericity was conducted to test for sample adequacy for factor analysis for liquidity items. The findings were presented in Table 2. The findings indicate that KMO was 0.849, which is greater than the minimum recommended of 0.5. Similarly at 95% level of confidence the Bartlett's Test of Sphericity was found to be significant with p-value of 0.000 which is less than 0.05. On the basis of these results it was concluded that the items on liquidity were adequate to perform factor analysis.

Table 2

Kaiser-Meyer-Olkin and Bartlett's Test on Liquidity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.849
Bartlett's Test of Sphericity	Approx. Chi-Square	30.177
	Df	4
	Sig.	.000

Factor Analysis for Liquidity

Factor analysis on liquidity was conducted so as to explain the variability among the observations as well as to check if the variables were correlated with a view to eliminating data which was deemed to be redundant. Five (5) items constituting measures of liquidity were subjected to a variance test. All the five (5) items of the measure of liquidity were deemed valid because they had factor loadings above 0.5, which is considered to be the minimum acceptable. As a result, all the five construct items were reserved for further analysis. Outcome of the factor analysis is shown in Table 3. The results indicated that there were two major factors that had greatest influence on liquidity, cumulatively explaining 48.4 percent of the total variation. This meant that, 48.4 percent of the common variance shared by the five constructs could be explained by just two factors. Component 1 explained 26.6 while component 2 explained 21.8 percent. Each of these two major factors (component 1 and 2) had Eigen values greater than 1 implying they had the greatest influence on liquidity, explaining 48.4 percent of the variability.

Table 3

Total Variance explained for Liquidity

Extraction Method: Principal Component Analysis.

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.329	26.583	26.583	1.328	26.554	26.554
2	1.089	21.786	48.369	1.091	21.815	48.369
3	0.978	19.551	67.92			
4	0.855	17.09	85.01			
5	0.749	14.99	100			

To help in interpretation of the two components a rotation component matrix was generated. The results were shown in Table 4. From the rotation matrix coefficients, the major loadings in component 1 refer to items on need for timely payment of short term internal liabilities. These are liabilities such as salaries and other personal claims. Prompt payment of such indicates sound liquidity. The desire for such enhanced liquidity drives a public entity to enter into PPP since less capital outlays are made. Component two has major loadings on items relating to the need for timely payment of short term external liabilities. Such liabilities include dues owed to outsiders such as suppliers. Prompt payment of such liabilities indicates sound liquidity of the public entity.

Table 4

Rotated Component matrix for Liquidity

	Component	
Statement	Timely Payment of Short Internal Liabilities	Timely Payment of Short Term External Liabilities

1. Need for timely payment of short term internal liabilities leads to increase in the number of PPP projects initiated	.842	.063
2. Need to free up internal sources of funds encourages adoption of PPP	.833	.281
3. Need for timely payment of short term internal liabilities leads to increase in the number of PPP proposals made	.730	.029
4. Need for timely payment of short term external liabilities leads to increase in the number of PPP proposals made.	.294	.736
5. Need for timely payment of short term external liabilities leads to increase in the number of PPP proposals made.	.048	.595

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Further, descriptive analysis of the two extracted factors of liquidity (timely payment of short term internal liabilities and timely payment of short term external liabilities) was done. The two factors were identified in the rotation matrix. The analysis indicates the mean, standard deviation and the Cronbach's alpha for two factors. The results are indicated in Table 5. From the results it can be seen that prompt payment of short term internal liabilities achieved a Cronbach's alpha of 0.899 whereas the prompt payment of short term external liabilities had a Cronbach's alpha of 0.817. The results of the study were deemed to be reliable based on the Cronbach's alpha values obtained, which were greater than the recommended minimum of 0.7

Table 5

Analysis of Mean and Reliability of two factors of Liquidity

Component	Mean	Standard deviation	Cronbach's Alpha
Timely payment of short term internal liabilities	4.241	.687	.899
Timely payment of short term external liabilities	4.132	.634	.817

Key: 1.00-1.80=Strongly Disagree, 1.80-2.60=Disagree, 2.60-3.40=Neutral , 3.40-4.20 = Agree, 4.20-5.00 =Strongly Agree

Based on the constructed scales for the two factors, it was observed that the need to meet prompt payment of short term internal liabilities is a driving factor for public entities to enter into public private partnerships as indicated by a mean of 4.241, corresponding to strongly agree on the ranking scale. Prompt payment of short term internal liabilities enables the public entity to continue its operations uninterrupted.

In addition, it was seen that the desire for prompt payment of short term external liabilities motivates public entities to adopt PPP. This was shown by a mean of 4.132 which coincides with agree on the ranking scale. This means that the need by public entities to meet external liabilities as and when they fall due drives them to adopt alternative funding methods that don't drain the current funds available. Prompt payment of external liabilities is critical to a firm in order to ensure continued provision of goods and services by the suppliers. This outcome agrees with that of Mouraviev and Kakabadse (2016) who posit that the use of public private partnerships highly contributes to reduction in government budget deficits even if it is in the short run. This is attributed to the fact that engagement of the private sector helps the public entity to substitute immediate heavy cash outflow in the short run with small periodic payments albeit for a long time. This helps in reduction of budget deficit which would have been worse were there to be heavy immediate cash out flow.

Regression Analysis between Liquidity and Adoption of PPP in Kenyan Public Universities

A multiple linear regression analysis was performed. The result of the analysis was shown in Table 6. The table shows an R^2 result of .245 or 24.5%, which implies that the independent

variable liquidity, accounted for a total of 24.5% of the entire change in the dependent variable, adoption of public private partnerships in Kenyan Public Universities. The remaining 75.5% of the variability in the dependent variable, adoption of public private partnerships in Kenyan public universities, can be explained by other factors that are not included in the model.

Table 6

Model Summary of Liquidity and Adoption of PPP in Kenyan Public Universities

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.495 ^a	.245	.234	1.109

a. Predictors: (Constant), Payment of short term internal liabilities and payment of short term external liabilities

ANOVA for Liquidity and Adoption of PPP in Kenyan Public Universities.

An ANOVA test was conducted and the outcome obtained was shown in Table 7. A model was fitted based on the collected data. From the outcome it can be observed that the model fitted on the data was statistically significant as supported by F value of (5.226, 2, 120) with a p-value of 0.007 which is lower than 0.05, the level of significance. The hypothesis of the study under this objective was that liquidity has no statistically significant influence on adoption of public private partnerships in Kenyan public universities. From the results of the study, the null hypothesis that “Liquidity has no statistically significant influence on adoption of public private partnerships in Kenyan Public Universities” is rejected. Therefore the alternative hypothesis that Liquidity has a statistically significant influence on Adoption of public private partnership in Kenyan Public Universities is accepted. This is based on the fact that the p-value of 0.007 obtained is less than the threshold of 0.05 required to accept the null hypothesis.

Table 7

ANOVA for Liquidity and Adoption of PPP in Kenyan Public Universities

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	27.025	2	13.512	5.226	.007
Residual	310.244	120	2.549		
Total	337.268	122			

To support the ANOVA findings on Liquidity and Adoption of public private partnership in Kenyan Public Universities, regression coefficients were obtained and presented in Table 8. These findings show that Liquidity as indicated by prompt payment of short term internal liabilities and timely payment of short term external liabilities was positively related with adoption of public private partnership in Kenyan Public Universities. These results imply that prompt payment of short term internal liabilities had a positive influence on the level of adoption of public private partnership in Kenyan public universities ($\beta=0.279$; $t=5.403$; $p=0.000$). The p value is lower than 0.05, the level of significance. This finding means that the desire for prompt settlement of short term internal liabilities motivates public entities to engage in PPP arrangements. Such an arrangement makes use of private sector funds to finance the project hence leaving the public entity with sufficient cash to pay for its internal liabilities as and when they fall due. This result is in agreement with the finding of Mouraviev and Kakabadse (2016) who content that use of public private partnerships greatly enables the government to keep their budget deficits at minimum even if it is in the short run. This is enabled by the fact that by engaging in PPP the public entity avoids immediate heavy cash outflow in the short run and instead incurs small periodic payments albeit for a long time. This greatly helps in solving the problem of budget deficit which would have been worsened by heavy immediate cash out flow.

In addition, the findings indicate that the need for prompt payment of short term external liabilities was positively related with adoption of public private partnerships in Kenyan public universities ($\beta=0.168$; $t=3.722$; $p=0.000$). The p value was less than 0.05, the significance level required. This means that the need for prompt payment of external liabilities drives the public entity to invite the private sector to fund its projects. Use of private sector funds improves the liquidity of the public entity thereby enabling it to pay its external liabilities in good time. This

finding is supported by Turley & Semple (2013) who found out that due to the continued tightening of budgets and pulling of the public purse in various directions several governments have increasingly embraced the need to engage the private sector in delivering their infrastructural needs.

Table 8

Coefficients of Liquidity and Adoption of PPP in Kenyan Public Universities

	Unstandardized coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	β		
Constant	0.718	0.050	–	14.360	0.000
Short Term Internal Liabilities	0.281	0.052	0.279	5.403	0.000
Short Term External Liabilities	0.175	0.047	0.168	3.722	0.001

On the basis of the summary presented in Table 50 a linear regression model of the nature, $Y = \alpha + \beta_1X_1 + \beta_2X_2 + e$ was fitted as follows:

$$Y = 0.718 + 0.279X_1 + 0.168X_2 + e$$

Where

Y – Adoption of PPP

X_1 – Timely payment of internal liabilities

X_2 – Timely payment of external liabilities

e – Error term.

This means that holding other factors constant, a unit increase in the need for timely payment of short term internal liabilities of the public entity leads to 27.9 percent increase in adoption of

PPP in Kenyan public universities. On the other hand, other factors remaining constant, a unit change in the need to pay short term external liabilities on time would lead to 16.8 percent change in adoption of PPP in Kenyan public universities. Of the two indicators of liquidity, it can be seen that the need to pay internal short term liabilities on time has greater influence on adoption of public private partnership in Kenyan public universities.

DISCUSSIONS

The aim of the study was to assess the influence of liquidity on adoption of public private partnership in Kenyan public universities. To find out whether adoption of public private partnership in Kenyan public universities was significantly influenced by liquidity, a regression analysis was conducted with two liquidity indicators (payment of short term internal liabilities and payment of short term external liabilities) as independent variables against PPP adoption as dependent variable. The regression results indicated the presence of a positive influence of liquidity on adoption of PPP in Kenyan public universities. In addition the analysis of variance (ANOVA) indicated that the relationship that existed between liquidity and adoption of public private partnerships was significant. The results of the study agree with those of Engel et al. (2014) who found out that employment of public private partnerships is instrumental in deferring upfront payments thereby helping public entities to control their budget deficits. This guarantees that they are able to pay for their short term liabilities as and when they fall due. The results in Mouraviev and Kakabadse (2016) are also in concurrence with the study findings that use of public private partnerships greatly enables the government to keep their budget deficits at minimum even if it is in the short run. The ability of public private partnerships to employ funds from the private entities helps the public entity to remain with enough cash to pay for its short term financial needs. The overall effect of employment of funds from the private sector is to ensure there is no immediate lump sum cash outflow from the public entity. This finding is further supported by Turley & Semple (2013) who assert that due to the continued tightening of budgets and pulling of the public purse in various directions, several governments the world over have continued to show the desire to involve the private sector in delivering their infrastructure needs. Involvement of private sector funds helps to free up internal funds thereby increasing the liquidity of the entity leading to timely payment of liabilities. The results of this study are supported by the stakeholders' theory which requires that the interests of each party should be considered (Kumaraswamy, 2015). In forming a PPP arrangement, the public entity brings on board a private partner to bring in cash to alleviate its budget constraints. This ensures

that the public entity remains with sufficient funds to meet its day to day operations as well as meeting its short term liabilities when they fall due. This ability to meet its short term liabilities is attributed to improved liquidity due to bringing on board of a private partner. These findings are in agreement with Balcioglu (2017) who carried out a study in Turkey in which it was found that public private partnerships possess the ability of ensuring that funds are availed at appropriate time thereby guaranteeing efficient delivery of services. Funds availed by the private sector allows the public entity to utilize its other funds to meet recurrent expenditure needs on time. Such expenditure or liabilities arise from either internal or external creditors. The study findings are also supported by those of Turley and Semple (2013) who reported increased use of public private partnerships as a result of increasing budget deficits and pulling of public purse in various directions. This has had the effect of straining the government's ability to meet its short term liabilities on time. Resorting to public private partnerships is therefore meant to reduce this strain since the public entity will exchange upfront lump sum capital outlay with periodic payments thereby remaining with adequate funds to meet its recurrent expenditure. The study findings are in agreement with the results in Pedro et al. (2018) in which it was found that countries which operate in well-developed capital markets can easily raise funds for public private partnerships, thereby being able to pay for their financial needs as they fall due. The study findings are also supported by the arguments of Osei-Kyei et al. (2014) in a study carried out in Ghana in which it was found that use of public private partnerships in delivery of products and or services reduces the burden of public sector budget constraint. Reduced budget constraint enables the public entity to adequately service its short term financial obligations when they fall due. When a public entity is less constrained financially, its ability to defray short term liabilities is enhanced. Such short term liabilities in the case of public universities could be salaries for staff, statutory deductions, union dues as well as remittance of Sacco deductions. Externally such obligations could include payment of creditors as well as external part timers. In the recent past, public universities have experienced cuts in capitation from the exchequer leading to financial constrains as evidenced by accumulation of debts. Employment of public private partnerships would therefore defer heavy upfront capital outlay in preference for periodic payments. This would greatly enhance the ability of such a public entity to meet its short term financial liabilities.

CONCLUSION

From the findings of the study liquidity showed a positive correlation with adoption of public private partnerships in Kenyan public universities. Its influence on the level of adoption was statistically significant. From the regression model it can be concluded that liquidity as indicated by timely payment of internal liabilities positively influenced adoption of public private partnerships in Kenyan public universities. This means that need for liquidity is a major factor that drives adoption of public private partnerships. Public universities therefore adopt PPP in order to remain liquid so that the routine operations are not disrupted by huge cash outflows associated with infrastructure projects.

RECOMMENDATIONS

It is recommended that a public entity should always conduct thorough analysis of the benefits to be derived from a public private partnership before opting for one. This can be attained by evaluating the specific drivers that would motivate the individual public entity to engage a private sector player to fund the delivery of a public good or service. To avoid illiquidity in the future, it is recommended that public sector entities should only accept PPPs in situations where future cash inflows will be adequate to meet the financial demands of the private sector players with regard to repayment of principal and the corresponding interest charges. This will ensure that short term gains in terms of enhanced liquidity do not affect future cash flows of the public entity.

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