Int Journal of Social Sciences Management and Entrepreneurship 9(1): 38-53 2025

ISSN 2411-7323

www.sagepublishers.com

PUBLIC PRIVATE PARTNERSHIP AND DONOR FINANCING FINANCIAL MODELS, REGULATORY ENVIRONMENT AND FINANCIAL PERFORMANCE OF WATER AND SEWERAGE COMPANIES IN KENYA

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ABSTRACT

Water and sewerage companies in Kenya play a vital role in delivering clean water and sanitation services, essential for public health and economic development. However, these companies face significant financial challenges, impacting their ability to deliver quality services. The study focused on two main financing models: public-private partnerships (PPP) and donor financing, and the regulatory environment as a moderating factor. The theoretical framework underpinning the study included the agency theory and public good theory. The study employed a positivistic research paradigm with a correlational research design. The study used financial statements for gathering quantitative data from water service providers in Kenya. Data was analyzed quantitatively through regression analysis. Key findings revealed that the PPP funding model had statistically insignificant effect on financial performance and a negative effect on financial performance when moderated by regulatory framework. Donor financing, however, positively impacted financial performance, demonstrating that donor support is crucial for financially sound water companies. The study highlighted the importance of regulatory framework, showing a strong, positive, and statistically significant relationship between regulation and financial performance. While donor loans and regulatory environment had a positive interaction, the lack of statistical significance suggested that this relationship may not be consistent across different contexts. The study recommended that policymakers enhance regulatory frameworks to maintain market stability and improve the financial performance of water sector entities. Regulations should balance oversight with flexibility to prevent excessive bureaucracy. Collaborative efforts between public, private, and philanthropic sectors were also encouraged to address environmental issues and align public-private partnerships with environmental regulations.

Keywords: Financing Models, Public Private Partnership, Donor Financing, Regulatory Environment, Financial Performance

INTRODUCTION

The World Bank estimates that an annual investment of $114 billion is required to achieve universal access to safely managed water, sanitation, and hygiene (WASH) services by 2030 (Goksu et al., 2019). This amount is approximately three times the current global investment and covers only the capital expenses for new infrastructure, excluding ongoing operation and maintenance costs. Thus, there's a need to effectively mobilize additional funding to attain and sustain universal access. However, investing in WASH is financially prudent, as each dollar invested yields a fourfold return in social and economic benefits and can positively impact other sectors (Pories et al., 2019).

Public funds play a significant role in water and sanitation sector investment, yet future funding planning often lacks systematic approaches. Without a coherent financing strategy for the sector, private capital sources perceive water and sanitation as high risk areas (Goksu et al., 2017). Lenders hesitate to engage in sectors with inadequate planning, uncertain regulations, limited transparency, and unclear accountability. Therefore, policy reforms, regulatory frameworks, and institutional structures are vital for mobilizing repayable finance (Sanitation and Water for All, 2020). These reforms often occur iteratively alongside pursuing financing opportunities, which may encourage improved transparency or other reforms.

According to Øvretveit et al. (2018) there exist four primary strategies utilized in blended financing. One of them is result based financing, also known as Performance Based Finance. This model involves attaching financial incentives to the attainment of predetermined outcomes rather than simply activities (Øvretveit et al., 2018). It represents an innovative approach that prioritizes results. This framework encourages the participation of the private sector in public sector investments facilitated by financing from public entities or major NGOs (Instiglio, 2017).

According to World Bank Group (2017), governments can introduce new taxes specifically designated for the water sector. These earmarked taxes channel particular tax revenues towards specific expenditure purposes. For example, in India, a separate tax of 0.5 percent on all taxable services was implemented in November 2015, distinct from the existing service tax, to generate funds for the Swachh Bharat Mission, the national campaign aimed at eradicating open defecation. Between 2015 and 2018, this tax generated $2.87 billion (World Bank Group, 2017).

In 2020, approximately 387 million people on the continent lacked basic drinking water services, and 737 million lacked basic sanitation services. Furthermore, about 811 million people have limited or no access to basic hygiene services (World Bank, 2023). The economic consequences of this situation are profound, highlighting a compelling economic rationale for investing in water infrastructure across the continent. If current trends persist, the Sahel and Central Africa are forecasted to suffer negative GDP impacts of 12% and 7% respectively by 2050 due to climate change's effects on water resources warranting an innovative and sustainable financing model in blend financing (World Bank Group, 2016).

In Uganda, government contributions stood at 22%, while donor finance represented 30% of the total WASH sector spending, with user tariffs and household contributions covering 48% of the funding. Eswatini's water resource management sector, on the other hand, received an average of 51% of its investment from foreign loans between 2015 and 2020. The government's direct contribution to the water sector, primarily via taxes, constituted 43%, whereas foreign grants comprised just 5% of the allocations (UNICEF, 2019). There exists significant potential for enhancing the utilization of taxes for water in Africa, including through the implementation of pollution and resource taxes.

Since 2000, the Kenyan government and development partners have significantly increased overall spending on water (USAID, 2022). Kenya’s National Water Master Plan 2030, which was launched in 2014, estimated that $14 billion in investment in the water supply was needed over the next 15 years (Republic of Kenya 2013b). To increase progress toward the

2030 Sustainable Development Goal for water, a sharp increase in the mobilization of new resources will be required (KPWF, 2022).

Over the past decade, the Republic of Kenya in East Africa has made significant political and economic reforms that have contributed to sustained economic growth, social development, and political stability gains. Despite this progress, however, access to piped water remains low, reaching only 33% of the population (60% in urban and 22% in rural areas) (WHO/UNICEF, 2020). Additionally, as a water-scarce country, with one of the lowest freshwater replenishment rates in the world (647 m3 per capita, which is below the global benchmark of 1,000 m3 per capita) and approximately 80% of land mass classified as arid and semi-arid, Kenya has uneven availability of water in different parts of the country, as well as variable rainfall that leads to frequent droughts and flooding (Marshall 2011; Marigi 2019; KIPPRA 2021).

Statement of the Problem

Financing models play a crucial role in enhancing organizational financial performance by providing structured frameworks for resource management, ensuring stability, growth, and profitability (Ahmed, Nugraha & Hágen, 2023). These models align financial resources with business objectives, enabling organizations to optimize operations and tackle economic uncertainties (Mittal, 2024). Efficient capital allocation is one of the fundamental contributions of these models (Motanya, 2012). Studies in Kenya highlight the positive impact of hybrid financing models in various sectors: project financing has improved road projects (Kirima et al., 2024), blended financing has advanced hospital infrastructure (Kairu et al., 2021), and hybrid financing has boosted housing sector development (Mose, 2021). Access to clean water and sanitation is critical for public health and economic growth (OECD, 2022). However, Kenya faces significant financing challenges in this sector, as demonstrated by disparities in funding and financial sustainability issues such as low operating profit margins and poor returns on assets and equity (World Bank, 2023). Achieving WASH targets by 2030 requires an estimated Ksh 1.7 trillion, yet the current government allocation of Ksh 592.4 billion leaves a financing gap of USD 12 billion (Kenya National Water Masterplan, 2030). Bridging this gap necessitates innovative financing approaches, including private investments, output-based grants, and internally generated revenues like household contributions. Despite an extensive policy and regulatory framework, financial performance among Kenya's water service providers remains poor (Auditor General, 2021-2022). For instance, Mombasa Water incurred a loss of Ksh 20 million in 2022, increasing its accumulated loss to over Ksh 2 billion. Similarly, Kwale Water reported a negative working capital of Ksh 6 million, and Machakos Water faced unreconciled payables of Ksh 5.6 million. Nzoia Water exhibited discrepancies in reported assets and liabilities, with unreconciled variances amounting to Ksh 1 million. These recurring losses highlight the inefficacy of current financing practices, despite substantial funding. The persistent financial challenges in Kenya's water sector underscore the need for detailed studies on the effectiveness of various financing models, the obstacles companies face in securing funding, and the impact of these models on financial performance. Addressing these gaps is essential for informing policy decisions, guiding investments, and ultimately improving water and sanitation services across Kenya.

Study Objectives

i. To evaluate the effect of public private partnership financing on financial performance of water and sewerage companies in Kenya.
ii. To determine the influence of donor financing on financial performance of water and sewerage companies in Kenya
iii. To determine the moderating effect of regulatory environment in the relationship between financing models and financial performance of water and sewerage companies in Kenya.

LITERATURE REVIEW

Theoretical Framework

Agency Theory

Agent Theory, often associated with economics and organizational behaviour, explores the relationship between two parties: the principal, who delegates work, or tasks, and the agent, who performs those tasks on behalf of the principal. The theory delves into issues such as information asymmetry, incentive misalignment, and moral hazard, which can arise when the interests of the principal and agent are not perfectly aligned. The author of the principal-Agent Theory is widely attributed to Nobel laureate economist Michael Jensen and his colleague William Meckling. Their seminal 1976 paper, "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure," laid the groundwork for understanding how the separation of ownership and control in firms can lead to conflicts of interest.

The proposition of Principal-Agent Theory revolves around the idea that when one party (the principal) delegates tasks or decision-making authority to another party (the agent), there is a risk that the agent may not act in the best interests of the principal due to differing incentives and information. This misalignment of interests can lead to agency problems, such as shirking, moral hazard, adverse selection, and conflicts of interest.

In the context of public-private partnerships (PPPs) in financing water and sewerage companies in Kenya, Principal-Agent Theory is highly relevant. In such arrangements, the government or public authority (the principal) contracts with a private company (the agent) to provide water and sewerage services. However, because of the nature of these partnerships, where the private company operates with some level of autonomy, agency problems can arise.

Public Goods Theory

Public Goods Theory is rooted in the work of Paul A. Samuelson (1954), who introduced the formal concept in his seminal 1954 paper "The Pure Theory of Public Expenditure." Samuelson proposed that public goods are those goods that are non-excludable and non-rivalrous. This means that individuals cannot be effectively excluded from their use, and one individual's use of the good does not reduce availability to others. The concept of public goods theory was largely formulated by economist Paul Samuelson in the mid-20th century. Samuelson, a Nobel laureate in Economics, introduced the idea in his seminal work "The Pure Theory of Public Expenditure" published in 1954. He proposed that certain goods and services possess two key characteristics: non-excludability and non-rivalrous consumption.

In the context of donor funding models and the financial performance of water and sewerage companies in Kenya, public goods theory can be highly relevant. Water and sanitation infrastructure are often considered public goods due to their non-excludable and non-rivalrous nature. However, the provision of these services can be costly, especially in developing countries like Kenya. Donor funding can play a crucial role in financing the development and maintenance of water and sewerage infrastructure in Kenya. However, critics argue that over-reliance on donor funding may lead to inefficiencies and dependency, potentially undermining the financial performance and sustainability of these companies in the long term. In the case of water and sewerage companies in Kenya, it's important to consider the balance between donor funding and domestic resource mobilization to ensure financial sustainability and efficiency.

Conceptual Framework

Figure 1 introduces a conceptual framework aimed at exploring the effect of financing models on financial performance of water and sewerage companies in Kenya.

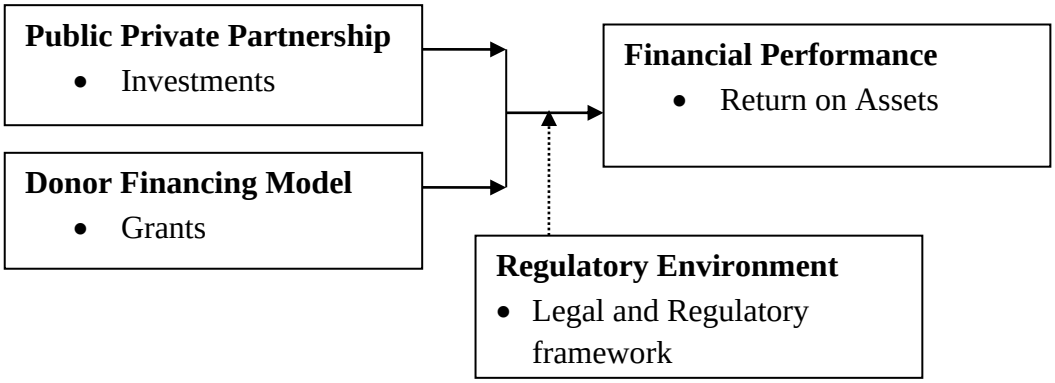

Figure 1: Conceptual Framework of the Study (Author, 2024)

Empirical Review of Literature

Public Private Partnership Financing Model and Financial Performance

The concept of public private partnerships originated in the USA, initially as a collaboration for funding educational programs before expanding to other utilities. By the 1970s, it evolved to denote joint ventures between the public and private sectors for urban renewal projects. According to Buso, Marty, and Tran (2017), it is the responsibility of the central government to provide essential services and infrastructure to the public, but financial constraints have influenced government decisions regarding public investment and expenditure. PPP entails a collaborative effort between the government and private businesses to create and operate taxpayer funded services or businesses through partnership agreements (Lomoro, et al., 2020).

Garrido, Gomez, de los Ángeles Baeza, and Vassallo (2017) examined the impact of EU financial support on Spanish road infrastructure, aiming to enhance economic performance. According to the study, EU backed PPP projects have facilitated the opening up of the economy and yielded substantial returns on investments. The financial assistance from the European Union has played a pivotal role in accelerating development and fostering social, economic, and territorial cohesion. The construction of roads funded by the EU has contributed significantly to regional growth and development by enhancing connectivity with other EU member states. The study underscores that EU funded programs directed towards PPP projects have led to their commendable performance and have significantly boosted economic outcomes in the region.

Naumenkova, Tishchenko, Mishchenko, and Ivanov (2020) opines that projects can also obtain financing from corporate state financing through the public private partnership mechanism. Here, the state or central government invites private investors to co finance projects requested by the public. Private investors gain a stake in the project and recoup their investment from project generated income. Evaluating the merits and demerits of each funding source and mechanism is crucial. Project owners should weigh the advantages and disadvantages of public private partnerships, project financing through stocks, bank financing, and central government financing to make informed decisions.

A study by Bwana, (2018) on the impact of public-private partnership on financial performance of council designated hospitals in Tanzania indicated that Public-Private Partnerships (PPP) exert a slight negative effect on operating margins and growth rates in equity. Conversely, PPP positively and significantly influences the liquidity of County Referral Hospitals. Specifically, there was notable growth in the liquidity position of these hospitals following the implementation of PPP, as evidenced by a significant increase in the current ratio and day's cash on hand. This suggests a marked improvement in the capacity to meet short-term financial obligations.

A study Cheruiyot, Aluoch and Ndungu (2024) on portfolio composition and financial performance of investment companies listed at the Nairobi Securities Exchange, Kenya revealed that returns on investment and equity fund investments were significantly correlated. Financial performance and investments in mutual funds exhibited a modest but constructive correlation. Bond and real estate investments were found to have no appreciable effect on the return on investment for listed investment enterprises. To enhance their financial performance and more effectively mitigate their firm's investment risk, the study recommended that investment company management uphold a well-balanced portfolio of investments.

Donor Financing Model and Financial Performance

According to OECD (2018) ODA, often channelled through multilateral agencies like the World Bank or bilateral cooperation with governments, plays a crucial role in funding various sectors, including the water sector. Developing countries are typically expected to allocate a percentage of their gross national income to ODA, with the aim of addressing development challenges. In the context of the water sector, the World Bank estimates that Development Partners contribute significantly to the sector's budget, indicating the reliance on external funding for water related initiatives. The effectiveness of ODA in the water sector depends on several factors, including governance quality, policy alignment with poverty alleviation goals, the presence of capable and legitimate institutions, financial systems resilience against corruption, and efficient public financial management practices (OECD, 2018).

A study by GIZ (2019) aimed to investigate the impact of ODA funds on the performance of water sector utilities in Kenya. The study assessed the efficacy of OBA Output Based Aid, focusing on its role in supporting water and sanitation providers in Nyeri County. To assess performance, the study utilized Key Performance Indicators (KPIs) outlined by the Water Services Regulatory Board (WASREB). These KPIs likely encompass measures such as access to clean water, sanitation coverage, service reliability, financial sustainability, and customer satisfaction, among others.

A study by Otieno, and Fatoki (2021) revealed that providing donor funding directly to Water Service Providers (WSPs) has a positive impact on their performance. This finding aligns with the principles outlined in the Paris Declaration on Aid Effectiveness, which emphasizes the importance of ownership by the recipients of aid for its effectiveness. When WSPs have the autonomy to execute projects without external interference and maintain high standards of integrity, it leads to enhanced performance. Therefore, donors should align their support with the priorities and strategies of WSPs rather than imposing their own agendas. Additionally, the manner in which funds are disbursed should be reconsidered, with a shift towards providing WSPs with direct funding for project implementation. The promotion of the Output Based Approach is suggested as a mechanism through which donors can effectively support WSPs.

Due to the paramount importance of water access, the donor community has played a significant role in augmenting government efforts to improve water accessibility in developing nations (Romaniuk, 2017). While this approach has faced criticism, particularly within the framework of dependency theory (Romaniuk, 2017; Ekeh & Emeh, 2013), others have praised it as instrumental in addressing Africa's water challenges (Ekeh & Emeh, 2013). However, there is a notable scarcity of literature examining the relationship between donor funding and the performance of water utilities across much of Africa. For instance, in Kenya, there is a lack of documented studies investigating the impact of donor funding on the performance of water utilities, despite donors contributing over 70% of the water sector budget in developing countries (Ekeh & Emeh, 2013).

Regulatory Environment and Financial Performance

Dabirian, Ahmadi, and Abbaspour (2023) conducted an analysis of how financial policies impact the performance of construction projects in Japan using system dynamics. They developed a System Dynamics (SD) model to assess the influence of various financial

policies on construction project performance. By identifying feedback loops within the cash flow system, they created a dynamic model to predict, plan, and manage different policies, including prepayment, overbilling, loans, incentive payments, delayed payments, and equipment leasing. The results indicate the effects of various policies, such as incentive payments, on estimating project cash flow, which was found to reduce project duration, enhance profitability, and increase financing during project execution.

According to Ullah, Thaheem, and Umar (2017), extensive bureaucratic processes that typically hinder private sector implementation are alleviated within the framework of PPPs, as government involvement streamlines decision making and operational aspects. The PPP strategy effectively addresses the challenges posed by financial constraints, limited contractor availability, cost overruns, and project delays. Through collaborative efforts, both parties contribute to the success of road projects, resulting in a higher rate of project completion and satisfaction.

A study by Xinpeng, Tiansen, Lin, and Jianhua (2020) on the relationship between environmental regulation and financial performance found that environmental regulation has an indirect effect on financial performance through green dynamic capability and sustainable innovation. The analysis of survey data from 355 respondents showed that while there is no direct significant relationship between environmental regulation and financial performance, environmental regulation indirectly influences financial performance via green dynamic capability and sustainability exploitation innovation. Additionally, the study revealed that both green dynamic capability and sustainability exploitation innovation mediate the connection between environmental regulation and financial performance.

A study by Nyagichuhi and Wekesa (2022) found that the aggregate deposits of savings and credit cooperative societies are both sufficient and stable, and their risk-based capital levels are high, which helps prevent undercapitalization. The research also revealed that during challenging periods, these societies seek additional capital from external sources. The study concluded that to enhance asset quality, savings and credit cooperative societies have invested in financial assets and real estate properties. Additionally, the study noted that these societies' loan assets are of high quality, and their credit policies are aligned with performance objectives and asset quality regulations.

METHODOLOGY

The study adopted a positivist research paradigm since the positivists advocate for the use of the scientific method as the best way to acquire knowledge. This method involves formulating hypotheses, conducting experiments, and analysing results to reach conclusions. Because of the nature of the location of the respondents being disbursed across the country, the study adopted a quantitative research approach with a survey correlational Research Design. The unit of observation focused on key financial statements obtained from the websites of all 79 water and sewerage service providers as listed by the Water Resources Authority (2024). Since the water service providers are few (79), the entire study population was used as a study sample (Kothari, 2014).

The study used financial statements for gathering quantitative data from water service providers in Kenya. Quantitative data which was collected was analysed using descriptive statistics running it in SPSS Version 24 software. Multiple regression models in the SEM framework were used to measure the relationship between the dependent and independent variables.

$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + Z + \beta_{1z} + \varepsilon$

Where: Y is the dependent variable (Financial Performance of Water Companies), β_0 is the Y intercept, β_1, β_2 are the regression coefficients of the variables which are:

X_1 is of Public Private Partnership financing model,

X_2 is donor financing model, while ε is an error term at 95% confidence level. Z = the hypothesized moderate variable (Regulatory environment)β is the coefficient of Xí Z the interaction term.

FINDINGS AND DISCUSSION

Descriptive Results

The main goal of the study was to find out the moderating role of regulatory environment on the relation between types of financial models and financial performance of water and sewerage companies in Kenya. The characteristics of the data are summarized in the form of mean, coefficient of variation, standard deviation skewness and kurtosis. The descriptive results in Table 1 provide an insightful summary of the data across several variables, revealing key patterns and variability in the context of financing models, regulatory environment, financial performance, and the size of connections as described in Table 1.

Table 1: Descriptive Results

Variable	Indicator	Mean	Std. Dev.	Coef. of variation	Skewness	Kurtosis
Financing models ('000')	Donor funding	853.55	256.98	29.8673%	.270	.535
	PPP	1707.12	257.00	28.20%	.677	.235
Regulatory environment	Compliance. costs	37857.82	9353.48	24.7069%	-.554	-.027
	Litigations. Costs	12871.66	3180.18	24.7069%	-.554	-.027
	Bills	323.94	95.82	29.5797%	-.027	-.201
Financial performance (%)	ROA	3.18	0.78	24.5066%	.085	.224
	ROE	17.42	4.76	27.3218%	.249	-.806
Size(connections)	Class					
	<1000					
	1000> x<35000					
	>35 000					

The range for donor funding spans from 284.68 to 1643.50, with a mean of 853.55 and a standard deviation of 256.98. The coefficient of variation is higher at 29.8673%, indicating greater relative variability within this indicator. The skewness of 0.270 shows a slight rightward skew, suggesting a tendency toward lower values, while the kurtosis of 0.535 implies a slightly more peaked distribution. The data for this indicator, spanning a range of 284.68 to 1643.50, demonstrates a notable degree of variability, as reflected in the relatively high coefficient of variation at 29.87%. This suggests considerable dispersion around the mean value of 853.55, indicating that the indicator exhibits fluctuations that are meaningful in magnitude relative to its average.

The standard deviation of 256.98 further supports this observation, reinforcing the idea that the data points are widely scattered, although not excessively so. A closer look at the skewness value of 0.270 reveals a slight rightward skew, suggesting that the distribution is not perfectly symmetrical but rather shows a subtle bias toward lower values. While this skewness is not pronounced, it indicates that the tail on the right-hand side of the distribution is somewhat longer than the left, meaning that higher values, though present, are less frequent.

Additionally, the kurtosis value of 0.535 indicates a distribution that is somewhat more peaked than a normal distribution, though not drastically so. This slight kurtosis implies that the indicator's distribution is concentrated around the mean but with mild outliers, further contributing to its variability. In summary, while the indicator shows moderate dispersion and a slight skew toward lower values, the distribution remains reasonably centred around the mean. The combined effect of these statistics—relatively high variation, minimal skew and mild kurtosis—paints a picture of an indicator that is neither heavily distorted nor perfectly normal, but rather exhibits a controlled degree of variability that is characteristic of data with some outliers and a tendency for lower values.

The study showed that Public-Private Partnerships (PPP) with a Mean: The average funding for PPP is 1,707.12 ('000), a middle-ground option compared to the others. Standard Deviation (257.00): PPP funding shows a standard deviation similar to donor funding, indicating a moderate level of variability. Coefficient of Variation (28.20%): While the variability is high, it is slightly less than donor and commercial financing, signalling a bit more consistency. Skewness (0.677): The relatively high positive skewness implies that a small number of significantly higher values influence the distribution, with most observations falling below the mean. Kurtosis (0.235): With a lower positive kurtosis than donor and commercial financing, PPP funding still exhibits occasional outliers but not as frequently. Conclusion: Public-Private Partnerships offer a more balanced approach with moderate variability. Although subject to high skewness, the relative stability compared to donor and commercial financing makes it a viable middle option for funding.

Compliance costs have a broad range from 13,526.42 to 53,564.99, with a high mean of 37,857.82 and a standard deviation of 9353.48. The coefficient of variation (24.7069%) suggests moderate variability in this indicator. A skewness of -0.554 shows a significant leftward skew, indicating a distribution with higher values being less frequent. The kurtosis of -0.027 suggests a distribution that is close to normal, but slightly flatter. From the given observation regarding compliance costs, we can draw several observations: The costs vary significantly, ranging from 13,526.42 to 53,564.99. This wide range suggests there is considerable disparity in compliance costs among different entities or situations being observed. The mean compliance cost of 37,857.82 indicates that, on average, organizations or entities incur relatively high compliance costs, suggesting this is a substantial financial consideration. The coefficient of variation (24.71%) indicates moderate variability in the data. While compliance costs fluctuate, this variability is not excessive, implying that the cost differences across entities are not extreme.

A skewness of -0.554 indicates that the distribution is skewed to the left. This means that lower compliance costs are more frequent, while higher compliance costs are less common. This could suggest that although many entities incur relatively lower costs, there are a few outliers with notably higher expenses. The kurtosis of -0.027 suggests that the distribution is close to a normal distribution, but slightly flatter. This implies that the tails of the distribution are not heavy, meaning extreme values (either very high or very low compliance costs) are not overly common. Overall, we can conclude that compliance costs tend to be concentrated around lower to moderate levels, with a few instances of higher costs. The moderate variability and near-normal distribution suggest that while there are differences, these are not extreme in most cases.

Similar to compliance costs, litigation costs also display a wide range (4598.98 to 18,212.10), a mean of 12,871.66, and a standard deviation of 3180.18. The coefficient of variation is the same as compliance costs at 24.7069%, reflecting consistent variability within regulatory environment. The skewness (-0.554) and kurtosis (-0.027) values are identical to compliance costs, indicating similar distribution characteristics. From the provided observation on litigation costs, we can draw the following conclusions: Range and Variability: Litigation costs exhibit a wide range, from 4,598.98 to 18,212.10. This significant range shows that there is considerable variability in the litigation expenses incurred, potentially due to differences in the complexity or nature of the cases.

The mean litigation cost is 12,871.66, suggesting that, on average, organizations or entities incur substantial costs in litigation. This figure serves as a central point around which the costs tend to cluster. The coefficient of variation (24.7069%) indicates that the relative variability in litigation costs is moderate. This value, identical to that of compliance costs, suggests a consistent level of fluctuation or dispersion in costs relative to the mean, implying that the factors affecting litigation and compliance costs may have similar levels of intensity.

The negative skewness indicates that the distribution of litigation costs is slightly skewed to the left, meaning a longer tail towards lower-cost cases. This implies that there are more high-cost cases pulling the average upwards, but there are a few extremely low-cost cases.

Kurtosis (-0.027): The kurtosis close to zero suggests that the distribution of litigation costs is approximately normal, without extreme peaks or flatness compared to a normal distribution. There is no strong indication of extreme outliers or highly concentrated data points. Overall, the litigation costs share similar variability and distribution characteristics with compliance costs, reflecting consistent patterns in the regulatory environment's cost structures. The negative skewness suggests that while most cases incur higher costs, there are outliers with lower costs that influence the distribution.

The bills indicator ranges from 120.03 to 551.74, with a mean of 323.94 and a standard deviation of 95.82. The coefficient of variation is 29.5797%, reflecting notable variability. The skewness is slightly negative (-0.027), showing a nearly symmetrical distribution, while the kurtosis of -0.201 suggests a slightly flatter distribution compared to the normal distribution. This indicator demonstrates a broad range, spanning from 120.03 to 551.74, with a mean value of 323.94. The range itself suggests considerable spread within the data, while the mean serves as a central tendency, representing an average that captures the indicator's general level. The standard deviation of 95.82 underscores a moderate degree of variability around the mean, meaning that individual observations tend to deviate from the mean by about this amount. When considering the coefficient of variation, which stands at 29.5797%, we observe a notable level of relative variability. The coefficient of variation expresses the standard deviation as a percentage of the mean, offering insight into the consistency of the data; in this case, nearly 30% variation reflects some degree of dispersion.

The skewness, measured at -0.027, suggests the data distribution is nearly symmetrical, with a very slight negative skew. This indicates that the data is almost evenly distributed on both sides of the mean, with a slight lean towards lower values. Importantly, such a near-zero skewness implies that the distribution does not show substantial asymmetry, a desirable quality in many statistical analyses.

Finally, the kurtosis value of -0.201 implies that the distribution is slightly flatter than the normal distribution. In other words, the tails of the distribution are somewhat lighter than expected under a normal curve. This flatter distribution suggests fewer extreme outliers in the data, resulting in a more evenly spread dataset. Together, these statistics paint a picture of a dataset that, while exhibiting some variability, is generally well-distributed and lacks significant skewness or extreme outliers.

ROA shows a range from 1.43% to 5.43%, with a mean of 3.18% and a standard deviation of 0.78%. The coefficient of variation (24.5066%) indicates moderate variability. The skewness of 0.085 suggests a distribution close to symmetrical, while the kurtosis of 0.224 indicates a distribution that is slightly more peaked than normal. The Return on Assets (ROA) data provides key insights into the financial performance and variability of the sample under study. With a range from 1.43% to 5.43%, the data reflects a moderate dispersion in ROA values, suggesting differences in profitability across the entities involved. The mean ROA of 3.18% indicates an overall moderate return on the assets employed.

The standard deviation of 0.78% demonstrates a relatively small spread around the mean, implying that most ROA values cluster reasonably close to the average. The coefficient of variation at 24.51% points to moderate variability in the dataset, meaning the dispersion of returns is not excessively high compared to the mean, which suggests a level of consistency in performance.

Skewness, calculated at 0.085, is close to zero, signalling that the distribution of ROA is nearly symmetrical. This implies there is no strong tendency for ROA values to lean significantly towards higher or lower ends of the range. Additionally, the kurtosis of 0.224, slightly above zero, indicates a distribution that is marginally more peaked than the normal distribution. This suggests that while extreme values in ROA are somewhat limited, the dataset does exhibit a moderate concentration of values around the mean, enhancing the reliability of the central tendency. In conclusion, the ROA distribution reflects a generally stable financial performance across the sample, with moderate variability, near-symmetry, and a slightly peaked distribution that aligns closely with normal expectations.

ROE has a range of 7.72% to 27.05%, with a mean of 17.42% and a standard deviation of 4.76%. The coefficient of variation is 27.3218%, indicating moderate variability. The skewness of 0.249 suggests a slight rightward skew, while the kurtosis of -0.806 indicates a flatter distribution than normal. The Return on Equity (ROE) data, ranging from 7.72% to 27.05%, exhibits a notable spread across the observations. The mean ROE of 17.42% suggests that, on average, firms are generating a return on equity in this moderate range. A standard deviation of 4.76% indicates that the ROE values tend to deviate moderately from the mean, though not excessively so. This is further confirmed by the coefficient of variation of 27.32%, which points to moderate variability in ROE performance across firms.

The skewness value of 0.249 implies that the distribution of ROE is slightly skewed to the right, meaning there are more firms with ROE values below the mean, but a few firms with higher-than-average returns are pulling the distribution slightly to the right. However, this skewness is mild, indicating that the distribution is relatively symmetric. Kurtosis, at -0.806, shows that the distribution is flatter than the normal distribution, indicating fewer extreme values or outliers than would be expected in a normal distribution. This flatter shape suggests that ROE values tend to cluster more around the mean with fewer firms experiencing extreme highs or lows. In conclusion, the ROE data reveals a generally moderate variability with a slight tendency toward higher values and a lack of extreme outliers, making the performance distribution more uniform and centred around the average return.

In water companies' classification, small companies are those companies that have less than 1000 connections and with connections of over 35 000 classified as largest. The size of connections is categorized into three classes: <1000: This class has the highest frequency, with 34 observations making up 54.0% of the total. 1000 > x < 35000: The second class includes 18 observations, accounting for 28.6% of the total. >35000: The final class has 11 observations, making up 17.5% of the total. In analysing the distribution of observations across the three distinct classes, a clear pattern emerges in terms of frequency and proportional representation. The first class, which captures values below 1000, dominates the dataset with 34 observations. This class constitutes 54.0% of the total observations, making it the most prevalent category. The high frequency suggests that the majority of data points are concentrated in the lower range of the distribution, indicating a possible skew toward smaller values or a high occurrence of lower-tier measurements within this dataset. The second class, covering values between 1000 and 35,000, follows with a total of 18 observations, representing 28.6% of the total. While less frequent than the first class, this category still holds significant weight in the dataset. This distribution indicates a moderate presence of mid-range values, showing a balance between the extremes of the data but noticeably less prevalent compared to the first class. Finally, the third class, comprising values above 35,000, has 11 observations, accounting for 17.5% of the total. This represents the smallest group in the distribution, highlighting a tapering off of high-value data points. The relatively low frequency of these observations suggests that larger values are less common in this dataset.

Overall, the data reveals a concentration in lower value ranges, with a gradual decline in frequency as the values increase. This distribution may point to underlying characteristics in the dataset, such as skewness or concentration of lower-end data, which could be relevant in understanding the nature of the population or phenomenon being studied.

Standardized Regression Weights Results

The table provided displays the results of standardized regression weights used to test various hypotheses regarding the relationship between different predictors (independent variables) and financial performance (dependent variable). The levels of interpretation were estimated: This represents the standardized regression coefficient, showing the strength and direction (positive or negative) of the relationship between the predictor and performance. C.R. (Critical Ratio): This is the t-value (or z-value) that tests whether the relationship is statistically different from zero. Higher absolute values suggest stronger statistical significance. P-value (P): This indicates whether the relationship is statistically significant.

Typically, a p-value less than 0.05 suggests statistical significance, denoted by a "*". Decision: This column indicates whether the hypothesis is supported or unsupported based on the statistical analysis. The statistical significance of each relationship was presented in Table 2:

Table 2: Standardized Regression Weights Results

Hypothesis	Structural path			Estimate	C.R.	P	Decision
Ha1	Performance	<---	PPP	.036	.266	.790	Unsupported
Ha2	Performance	<--	Donorloan	.372	5.121	*	Supported
Ha3	Performance	<--	Regulatory environment	.721	4.43	*	Supported
Ha4	Performance	<---	PPP*Reg	-.250	-3.62	*	Supported
Ha5	Performance	<--	Donor*Reg	.111	1.67	.095	Unsupported
Ha6	Performance	<--	Firm_size	-.104	-.596	.551	Unsupported

Public-Private Partnerships (PPP) Ha1: Performance <-- PPP (Estimate: .036, C.R.: 0.266, P: 0.790) have a non-significant** and very weak effect on performance. This hypothesis is unsupported.

Donor loans (Ha2: Performance <-- Donorloan (Estimate: 0.372, C.R.: 5.121, P*) had a strong, positive, and significant effect on performance, with a high estimate of 0.372. This hypothesis is supported.

Table 2 revealed that (Ha3: *Performance <--Regulatory environment (Estimate: 0.721, C.R.: 4.43, P:*) the relationship between regulatory environment and performance is positive and significant. The high estimate (0.721) suggests a strong, positive impact of regulatory environment on financial performance. This hypothesis is supported.

Ha4: Performance (<--PPPReg (Estimate: -0.250, C.R.: -3.62, P*) the interaction between PPP and regulatory environment shows a negative and significant relationship with performance. This suggests that as regulatory environment increases, the effect of PPP on performance diminishes. The hypothesis is supported.

The interaction between donor loans and regulatory environment (Ha5: Performance <-- DonorReg (Estimate: .111, C.R.: 1.67, P: .095) showed a positive but non-significant** effect on performance. While there is a moderate positive effect, the hypothesis is unsupported due to the p-value above the significance threshold (0.095).

Firm size (Ha6: Performance <-- Firm size (Estimate: -0.104, C.R.: -0.596, P: 0.551) has a negative but non-significant impact on performance. The hypothesis is unsupported.

Discussion

Public Private Partnerships and Performance

The study suggests that the relationship between Performance and PPP is not supported by the data. The coefficient value, though positive, is quite small, indicating a weak direct effect of PPP on Performance. The p-value is above the conventional threshold of significance, which suggests that this relationship is not statistically significant. In other words, there is no strong evidence to conclude that changes in PPP significantly influence Performance. Furthermore, the high standardized coefficient implies that while the predictor variable PPP might have some inherent strength in the model, the lack of statistical significance prevents us from confidently asserting a meaningful relationship.

This result suggests that the initial hypothesis, PPP having a direct impact on Performance, is unsupported in the context of this study. Several factors could explain the lack of support for this relationship, such as measurement errors, omitted variables, or a complex interaction between PPP and other latent factors that are not accounted for in the model. Further research might be necessary to explore these dynamics in greater detail, perhaps by incorporating additional variables or considering alternative analytical approaches to capture the potential indirect or mediating effects that PPP could have on Performance.

The study fails to establish a statistically significant relationship between PPP and Performance, leading us to reject the assumption that PPP directly affects Performance in the studied context. Further investigation is warranted to fully understand the interplay between these variables and to refine the theoretical model. The PPP initiatives moderated the positive effect of PPP initiatives on FP of water companies in Kenya. Thus, indicating the importance of enhanced PP capacity building and finances that are in line with the existing environmental regulations. One of the aims of PPP is to "fill the gap" left by capacity building. Unlike capacity building, which focuses on the employees who are directly involved in the project implementation, the private partners would impart knowledge and training to the institution as a whole. The private partners are instrumental in identifying institutional weaknesses and create training to spread the knowledge, working with WSPs staff. While this is a commendable idea, most WSPs are not equipped to put the "knew knowledge" into practice. Major capital infusion would undoubtedly be needed for projects like modernizing out-dated production facilities to increase efficiency, implementing new quality control techniques, purchasing new maintenance equipment, and developing durable materials. This is the reason behind it. The findings indicate concurance with studies by study, Ullah, Thaheem, and Umar (2017) found that there is a pressing need for partnerships between governments and the private sector in road construction and maintenance projects. The study further is in agreement with studies by Garrido, Gomez, de los Ángeles Baeza, and Vassallo (2017) in whose studies that examined the impact of EU financial support on Spanish road infrastructure, established a significant positive relationship between the PPP financing and economic performance. The study also was in line with studies by Naumenkova, Tishchenko, Mishchenko, and Ivanov (2020) whose studies found that projects can also obtain financing from corporate state financing through the public private partnership mechanism where the state or central government invites private investors to co finance projects requested by the public. The study further is in agreement to studies by Khmel and Zhao (2016) who conducted a study focusing on the mechanisms project owners and developers could employ to secure funding for highway infrastructure construction projects. The researchers concluded that implementing a financial strategy assisted project managers in attracting capital, thereby enhancing project capacity.

Donor Funding and Performance

The hypothesis that donor loans have a strong, positive, and significant effect on performance is supported by the empirical findings. The statistical analysis indicates a substantial positive influence of donor loans on performance outcomes. Additionally, the critical ratio confirms that this effect is statistically significant. This suggests that access to donor loans contributes to enhanced performance, likely by providing essential financial resources that facilitate operational efficiency, expansion, or the improvement of services.

The interaction between donor loans and regulatory environment demonstrated a positive, albeit non-significant, effect on organizational performance. Specifically, the estimated coefficient suggests a moderate positive relationship between these variables, indicating that as donor loans and regulatory environment increase, organizational performance tends to improve slightly. However, the critical ratio and the p-value reveal that this relationship does not reach statistical significance, as the p-value exceeds the commonly accepted threshold for significance testing.

This result suggests that while there is a positive trend, the interaction between donor funds and regulatory environment is not robust enough to confidently claim an effect on performance within the studied sample. It is essential to interpret these findings with caution, as they may point to the need for further investigation rather than a definitive conclusion.

From a practical standpoint, the findings imply that access to donor loans provides organizations with the necessary financial resources to enhance operational efficiency, facilitate expansion, and improve the quality of services or products. These loans likely serve as a catalyst for growth by alleviating financial constraints, enabling the acquisition of assets,

upgrading technology, or funding strategic initiatives. As such, the study suggests that donor loans play a crucial role in boosting organizational performance, confirming the hypothesis.
The donation finances from donor funding organizations for water are channelled through the Water service Trust Fund (WSTF) The Water Fund was initially created as the Water Services Trust Fund under the Water Act of 2002, with the goal of financing water and sanitation projects for impoverished and low-income rural and urban communities. The study established positive significant impact on FP of water companies in Kenya moreover, the impact is not significantly moderated by regulatory environment, studies by Otieno and Fatoki (2021) found that donor funding issued as Output Based Approach (OBA) leads to improved performance of water companies in Kenya providing the evidence of the importance of water companies to create an image of deserving company for these scarce but critical funding. The study is line with study by GIZ (2019) whose study found that funds contributed positively to the performance of water sector utilities in Kenya. Further, the study aligned well with findings by Otieno, and Fatoki (2021) whose study revealed that providing donor funding directly to Water Service Providers (WSPs) has a positive impact on their performance. The study too was in line with studies by Romaniuk (2017) who established that due to the paramount importance of water access, the donor community has played a significant role in augmenting government efforts to improve water accessibility in developing nations.

Regulatory Environment and Performance

The hypothesis that the relationship between regulatory environment and performance is positive and significant is supported by the empirical evidence. This suggests that an increase in regulatory environment is associated with a strong and positive effect on financial performance. The strength of the coefficient implies that organizations operating in environments with stringent regulations tend to perform better financially, likely due to enhanced transparency, accountability, and risk management.

Conclusions

There is no direct effect of public private partnerships on financial performance. Furthermore, regulatory environment moderately and negative effects the relation between PPP funding and FP of water companies. The negative moderating effect of regulatory environment is an indication that the increase in regulatory environment dampens the influence of PPP funding on FP of water companies. These would further imply the PPP activities did not lime with regulatory environment activities to create a desired performance outcome. The present study, by finding no direct effect of PPP on FP, contributes to this on-going discourse, emphasizing the importance of examining mediating and moderating variables to fully understand the dynamic interplay between public-private collaborations and firm-level performance indicators.
Although the data concludes that although there is a positive interaction between donor loans and regulatory environment with respect to organizational performance, the lack of statistical significance implies that this relationship may not hold consistently across different contexts. The finding could suggest that other variables or conditions may moderate or mediate the effect of donor loans and regulatory frameworks on performance. It is possible that the influence of regulatory environment may depend on sector-specific regulations, the nature of donor loans, or the managerial capacity of the organizations receiving these funds.
The analysis demonstrates a strong, positive, and statistically significant relationship between regulatory environment and financial performance. Regulatory framework is an essential driver for ensuring that firms adhere to best practices, which in turn enhances their financial outcomes. This finding aligns with the view that a well-regulated market promotes stability, investor protection, and sustainable growth.

Recommendations

Public Private Partnerships Financing and Performance

Public Private Partnerships funding has an indirect impact on the financial ability of water and sewerage companies to fulfil their mandate. Funding from PPP activities and RI together suppress the FP of water companies. This indicates that the two cannot sustain an organization's financial performance. Cooperative frameworks bringing the public, private, and philanthropic sectors together to address environmental issues must be established in order to align public partnerships with environmental regulations.

Donor Financing and Performance

Policymakers should create enabling environments that attract donor investments, such as clear regulatory frameworks and incentives for donors to support sectors in need. Additionally, ensuring that loan terms are favourable for the borrowing organizations is crucial for long-term sustainability. Governments, institutions, and organizations should prioritize strengthening relationships with donors. This includes ensuring transparency, accountability, and efficiency in the use of donor loans to foster trust and encourage continued support.

Regulatory environment

The study recommends that policymakers should continue to enhance regulatory frameworks to maintain market stability and improve financial performance in the water sector entities. It is crucial that regulations be designed to balance oversight with operational flexibility to avoid excessive bureaucratic burdens on firms. Regulatory agencies must enforce compliance uniformly across industries to ensure that all firms benefit from the positive impact of regulation on performance.

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