COMMERCIAL AND CLIMATE 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 the effect of commercial and climate financing financial models, regulatory environment and financial performance of water and sewerage companies in Kenya. The theoretical framework underpinning the study included the externalities and pecking order theory. The study employed a positivistic research paradigm with a correlational research design. Data was collected using audited financial statements. Data was analyzed quantitatively through regression analysis. Key findings revealed that commercial loans significantly enhanced financial performance, but only when regulatory environment was considered. Climate financing was also linked to better financial performance, specifically in return on equity (ROE) and return on assets (ROA). The study highlighted the importance of regulatory framework, showing a strong, positive, and statistically significant relationship between regulation and financial performance. However, the interaction between climate finance and regulatory environment did not have a significant impact on organizational performance. The study concluded that regulatory frameworks play a crucial role in optimizing the effects of commercial financing. It 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. Furthermore, the study advised aligning climate finance initiatives with financial objectives.

Keywords; *Financial Models, Commercial Financing, Climate Financing, Regulatory Environment, Financial Performance*

INTRODUCTION

Achieving universal access to safely managed water, sanitation, and hygiene (WASH) services by 2030 requires an estimated annual investment of $114 billion, according to the World Bank (Goksu et al., 2019). This amount is nearly three times the current global investment and covers only capital costs for new infrastructure and maintenance expenses. Therefore, it is essential to mobilize additional funding to both reach and sustain universal access. However, investing in WASH is a sound financial decision, as each dollar invested generates a fourfold return in social and economic benefits, also positively influencing other sectors (Pories et al., 2019).

Lohawiboonkij (2019) emphasizes that any shortfall in funding poses a significant barrier to implementing and delivering infrastructure projects. Therefore, it's crucial for projects to secure adequate funds promptly to execute activities essential for their completion and success. The researcher outlines various financing mechanisms for infrastructure projects, including government funding, project finance, government bonds, bank loans, forfeit model and countertrade. The selection of a financing mechanism depends on factors such as the cost and affordability of financing, associated risks, security measures, covenants, and the chosen risk management strategy. Additionally, the availability of finances for infrastructure projects also plays a key role in determining the most suitable financing option.

The lack of a systematic approach to future funding planning undermines investment in the water and sanitation sector, despite the significant role of public funds. In the absence of a clear financing strategy, private investors perceive the sector as high-risk (Goksu et al., 2017). Lenders are reluctant to commit to areas with inadequate planning, uncertain regulations, limited transparency, and unclear accountability. To mobilize repayable finance, it is crucial to implement policy reforms, develop regulatory frameworks, and strengthen institutional structures (Sanitation and Water for All, 2020). These reforms often evolve over time, occurring alongside efforts to secure financing, and can lead to improvements in transparency and governance.

A study by Wasim, Ahmad and Akmalia (2024) explored the moderating role of regulatory quality in the relationship between financial development and both economic growth and volatility. We utilize the Panel Corrected Standard Error estimation method, with additional robustness checks using the Generalized Method of Moments. Our results provide valuable insights into how financial development impacts economic outcomes. In developed countries, regulatory quality enhances the positive relationship between banking-based financial development and economic growth. Therefore, policymakers should focus on maintaining a strong institutional and regulatory framework that fosters both banking and market-based growth. Continuous efforts to improve regulatory quality and implement sound approaches are crucial. In contrast, the study finds no significant moderating effect of regulatory quality on the relationship between financial development and economic growth in developing countries.

Investments in water related projects, as highlighted by the (OECD, 2022), present financing challenges, particularly in Africa. The inherent complexity and unique characteristics of the sector often lead investors to perceive water related investments as riskier and less appealing compared to other sectors. The management of water resources and the provision of water and sanitation services yield a combination of public and private benefits. Many of these benefits, such as enhanced public health and improved ecosystem functioning, are challenging to quantify and monetize, as discussed by the (OECD, 2016).

Van den Berg and Danilenko (2017) state that the water and sanitation sectors in developing nations have traditionally depended on concessional finance sources, often provided by development finance institutions like the World Bank and regional or national development banks. These sources typically offer lower interest rates, longer repayment periods, or other preferential terms compared to what the market could provide. Concessional finance plays a crucial role in enabling governments to fund projects, particularly when the risks associated with commercial lenders are deemed too high.

Numerous financing instruments and processes are already being used for water in order to reduce obstacles relating to the risk return profile and project features of investments related to water (World Bank, 2023). When it comes to non-concessional financing, it is among the most developed (available via a variety of channels, such as public-private partnership models, domestic commercial debt, and equity). However, other subsectors like the development of unconventional water sources, water storage, catchment management, urban

storm water management, flood risk insurance, and irrigation efficiency programs have a lot of unrealized potential (especially for private finance) (World Bank, 2023).

A USAID study conducted in 2020, found that through sustained engagement with potential financiers, 15 Senegalese banks and three multinational banks or investment funds have expressed keen interest in the urban sanitation sector. Alongside the $1 million financing received by Vicas, negotiations for new transactions exceeding $6 million are currently underway with other institutions. It is noteworthy that Senegal boasts a favourable business environment, with the government actively promoting private sector participation in sanitation service delivery.

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). According to the Water Resources Management Authority (2013), Kenya urgently needs comprehensive and well-coordinated investment planning for water and sanitation, given its status as a water-scarce nation with a burgeoning population and rising demand for water resources. The ambitious goal of Kenya's Vision 2030 is to ensure access to water and basic sanitation for all its citizens by 2030. However, achieving this target requires substantial investment, with an estimated cost of Ksh 1.7 trillion, equivalent to over USD 17 billion (as per WRMA 2013). The current government allocation stands at Ksh 592.4 billion, approximately USD 6 billion, as outlined in the Kenya National Water Masterplan 2030. This leaves a significant shortfall of USD 12 billion. Bridging this gap necessitates enhancing sector efficiency, increasing consumer payments through tariffs, and fostering private sector involvement in financing.

Kenya currently lacks the necessary infrastructure for effective water resource management, harvesting, and storage to achieve universal water and sanitation goals (Kenya National Water Master Plan, 2030). A significant obstacle hindering progress in this sector is the inadequate coordination among national and county governments, as well as national and regional institutions, and other stakeholders, especially in investment planning. This results in disjointed infrastructural investments, a lack of synergy, and ineffective targeting to address various needs and inefficiencies. Primarily, the absence of a comprehensive national investment plan undermines the implementation of the national water master plan (Kenya National Water Master Plan, 2030).

Statement of the Problem

Financing models play a critical role in enhancing organizational performance by offering structured frameworks for resource management, promoting stability, growth, and profitability (Ahmed, Nugraha & Hágen, 2023). These models align financial resources with business goals, enabling better operations and mitigating economic uncertainties (Mittal, 2024). Efficient capital allocation is a key benefit (Motanya, 2012). In Kenya, hybrid financing models have positively impacted sectors like road infrastructure (Kirima et al., 2024), hospital development (Kairu et al., 2021), and housing (Mose, 2021).

Access to clean water and sanitation is vital for public health and economic growth (OECD, 2022). However, Kenya faces significant financing challenges, marked by disparities in funding and sustainability issues, such as low operating profit margins and poor returns on assets (World Bank, 2023). Achieving WASH targets by 2030 requires Ksh 1.7 trillion, but the government has allocated only Ksh 592.4 billion, leaving a financing gap of USD 12 billion (Kenya National Water Masterplan, 2030). Closing this gap will require innovative approaches, including private investments, output-based grants, and household contributions.

Despite a strong policy and regulatory framework, Kenya's water service providers continue to struggle financially (Auditor General, 2021-2022). For example, Mombasa Water posted a Ksh 20 million loss in 2022, raising its total accumulated loss to over Ksh 2 billion. Similarly, Kwale Water reported negative working capital of Ksh 6 million, and Machakos Water had unreconciled payables of Ksh 5.6 million. These ongoing financial issues highlight the inefficiency of current financing practices. The persistent challenges in Kenya's water sector underscore the need for detailed studies on financing model effectiveness, barriers to funding, and their impact on financial performance. Addressing these gaps is crucial for guiding policy, attracting investment, and improving water and sanitation services.

Research Objectives

i. To evaluate the effect of commercial financing on financial performance of water and sewerage companies in Kenya.

ii. To establish the effect of climate financing on financial performance of water and sewerage companies in Kenya

iii. To determine the moderating effect of regulatory environment on the relationship between financing models and financial performance of water and sewerage companies in Kenya.

LITERATURE REVIEW

Theoretical Framework

Externalities Theory

The concept of externalities was formally introduced by Arthur Cecil Pigou in his seminal work "The Economics of Welfare" published in 1920. Pigou's analysis laid the foundation for understanding how economic activities can have unintended side effects on third parties, which are not reflected in market prices. Externalities theory posits that economic activities often produce side effects, or externalities, that affect other parties who did not choose to incur that cost or benefit. Externalities can be positive or negative. Positive externalities provide benefits to third parties (e.g., education, vaccination), while negative externalities impose costs (e.g., pollution, noise). The theory suggests that these externalities result in market failure, where the true costs or benefits of goods and services are not reflected in their market prices. To address this, interventions such as taxes, subsidies, or regulations are proposed to internalize these externalities, aligning private costs or benefits with social costs or benefits.

In the case of water and sewerage companies in Kenya, the Externalities Theory provides a useful framework for understanding the interplay between environmental impacts, economic activities, and financial performance. Climate financing models, which include mechanisms such as green bonds, grants, and carbon credits, aim to mitigate the negative externalities and enhance the positive ones associated with water and sewerage services. These models provide financial resources to support projects that improve water infrastructure, promote sustainable practices, and reduce environmental footprints. In the context of Kenya, such financing is crucial due to the country's vulnerability to climate change, which exacerbates water scarcity and affects the reliability of sewerage systems. The Externalities Theory is highly relevant to the climate financing model for water and sewerage companies in Kenya. By recognizing and addressing the external costs and benefits associated with their operations, these companies can leverage climate financing to enhance their financial performance, contribute to environmental sustainability, and support socio-economic development.

The Pecking Order Theory

The Pecking Order Theory was proposed by Donaldson in 1961 and later formalized by Myers and Majluf in (1984). The Pecking Order Theory suggests that companies have a hierarchy of preferred financing sources. They prefer internal financing (retained earnings) first, followed by debt, and finally equity issuance as a last resort. The rationale behind this

order is that internal financing avoids information asymmetry and signalling problems associated with external financing. Debt is preferred over equity because it doesn't dilute ownership and signals positive information to the market about the company's confidence in its future cash flows. Equity issuance is considered a signal of undervaluation and is thus used as a last resort. The theory has been widely accepted and cited in finance literature. Its proponents argue that it provides a simple and intuitive explanation for financing behaviour observed in corporations.

In the context of water companies in Kenya, the Pecking Order Theory can offer insights into their financing decisions and their implications for financial performance: Water companies may prioritize internal funds generated from operations and government subsidies for financing their capital expenditures and operational needs. This preference may be driven by the desire to avoid external financing costs and signalling problems associated with debt and equity issuance. When internal funds are insufficient, water companies may turn to debt financing, such as bank loans or bonds. The theory suggests that they would prefer debt over equity to maintain ownership control and signal positive information to stakeholders.

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.
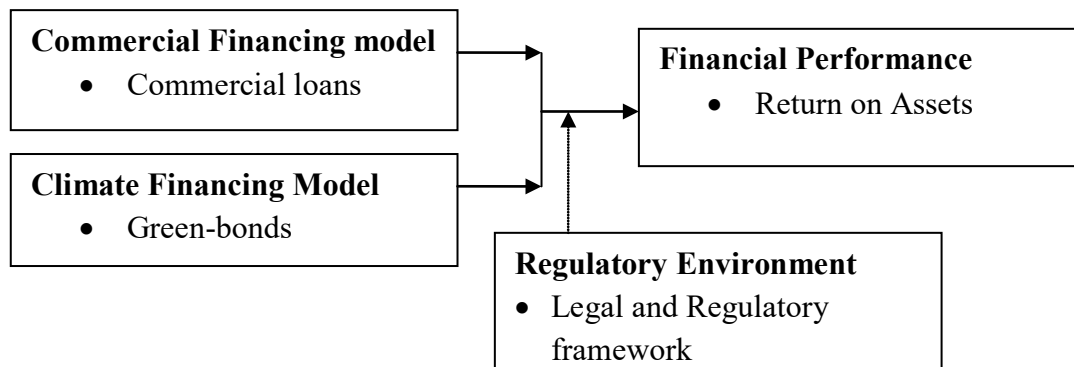

Figure 1: Conceptual Framework of the Study (Author, 2024)
Empirical Review of Literature
Commercial Financing Model and Financial Performance
Kim and Song (2020) opine that Japanese companies can effectively utilize domestic stock issuance as a means of equity financing. Equity financing serves as a significant managerial resource for bolstering shareholders' equity and securing funds to foster the company's expansion and value enhancement. Typical equity financing approaches in Japan encompass methods such as going public, third-party allotments, and rights offers.

A study by Msomi and Olarewaju (2021) examined factors influencing the financial sustainability of SMEs in South Africa used purposive sampling, they gathered primary data from a sample of 300 firms and employed multivariate regression analysis for data analysis. The study found that budgeting, financial awareness, accounting skills, and access to finance had a direct impact on financial sustainability.

Buyinza, Tibaingana, and Mutenyo (2018) analyzed the factors influencing access to credit and its impact on the performance of firms in the East African Community (EAC). Their research employed both simple OLS and probit models, identifying key barriers to credit access such as collateral requirements and costs. The findings indicated that credit access positively contributed to financial performance.

A study by Mumin (2018) investigated the factors influencing the ease of obtaining credit from commercial banks in Kenya. Key factors examined included the profile of SMEs, their financial performance, and the availability of collateral. The research employed a descriptive

design, collecting data from 126 SMEs in Nairobi. Primary data was analyzed using Pearson Correlation and ANOVA. The study found that banks required collateral before extending credit, and many SME owners were denied loans due to insufficient collateral. Additionally, the research highlighted that a lack of management and financial skills posed a barrier to accessing finance.

Climate Financing Model and Financial Performance

The reviewed literature highlights the critical role of financial institutions in fostering a transition to a low-carbon economy through sustainable climate financing and climate risk management (Demekas & Grippa, 2021). However, the review lacks specificity regarding the unique challenges and opportunities associated with climate financing models in the context of the water sector in Kenya. Despite emphasizing the general importance of climate financing, it does not address the interplay between such models and financial performance, leaving a research gap in understanding how tailored financing strategies impact the sustainability and economic viability of water sector projects.

Koetter et al. (2020) highlight that effective financial mitigation, such as robust capital buffers, prudent credit risk management, and liquidity controls, are crucial in enhancing the stability of financial institutions. Their study demonstrates that institutions employing comprehensive mitigation measures are better equipped to withstand economic shocks and maintain continuity in adverse conditions. Additionally, the review underscores how regulatory frameworks and innovative financial technologies further bolster stability by promoting transparency and efficiency in risk mitigation practices.

The literature on climate finance risks reveals diverse outcomes, highlighting complexities and challenges in the field. Blickle et al. (2022) emphasize that climate finance risks encompass financial, policy, and environmental uncertainties, which impact the effectiveness of funding mechanisms aimed at mitigating climate change. Financial risks include volatility in carbon markets and challenges in mobilizing private investment, while policy risks stem from inconsistent regulatory frameworks and governance issues.

Financial institutions are expected to play a pivotal role in transitioning to a low carbon economy by offering sustainable climate financing and managing climate related risks (Demekas & Grippa, 2021). Specifically, banks are tasked with the important role of mobilizing and allocating capital for environmentally friendly initiatives (BIS, 2021; Bank of England, 2018). However, banks face exposure to climate related physical and transitional risks, either directly through their own balance sheets or indirectly through the impact of climate change on various sectors and the broader economy (Grippa et al., 2019). The rapidly evolving landscape of sustainable climate financing also brings financial stability concerns (BIS, 2021a; 2021b).

Regulatory Environment and Financial Performance

Heiss and Kelley (2017) argue that Civil Society Organizations (CSOs) must comply with local regulations to effectively pursue their missions. However, in some regions, regulatory frameworks can be overly restrictive, making it difficult for these organizations to operate successfully. It is not uncommon for governments to implement laws and policies that limit civil society space. For instance, Feng (2017) highlights China's adoption of the 2016 Overseas NGO law, which aims to regulate and provide guidance on the activities of foreign NGOs.

NGOs in different regions have made efforts to promote accountability through self-regulation. Crack (2018) examines this in his assessment of the INGO Accountability Charter's effectiveness, drawing on responses from 11 major international NGOs through 26 in-depth semi-structured interviews. The study suggests that NGOs are often driven to join the Accountability Charter by a combination of normative motivations and self-interest. Similarly, Thrandardottir (2015) argues that peer regulation arises from the need for NGOs to

enhance their accountability standards and address growing concerns about their perceived lack of accountability.

Claire and Arik's (2016) study on measuring the stringency of environmental regulations highlights that most policy debates revolve around the effectiveness of these regulations in achieving environmental objectives or their impact on economic outcomes. Ideally, a stringent measure would consist of panel data that varies both across and within jurisdictions over time. However, many existing measures compare countries or states in a single year, limiting their ability to address key challenges. Environmental issues are highly complex and multifaceted, as are the corresponding regulations.

Oluoch, K'Alol and Koshal (2021) whose research aimed to examine the moderating effect of the regulatory framework on the relationship between strategic leadership and the financial sustainability of NGOs in Kenya was grounded in strategic leadership theory, the study employed a descriptive correlational research design. Correlation analysis revealed a positive and significant relationship with financial sustainability.

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).

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 and β_2 are the regression coefficients of the variables which are:

X_1 is of Commercial Financing Model,

X_2 is Climate 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 are presented in Table 1.

Table 1: Descriptive Results

Variable	Indicator	Mean	Std. Dev.	Coef. of variation	Skewness	Kurtosis
Financing models ('000')	Climate Financing	6664.15	831.98	12.385%	-.055	-.328
	Commercial Financing	520.67	156.76	30.1072%	.27	.535
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	ROA	3.18	0.78	24.5066%	.085	.224
performance	ROE	17.42	4.76	27.3218%	.249	-.806
(%)						
Size(connecti	Class					
ons)	<1000					
	1000> x<35000					
	>35 000					

The variable climate financing shows a range between 4667.59 and 8739.13, with a mean value of 6664.15. The standard deviation of 831.98 indicates moderate variability around the mean. The coefficient of variation (12.385%) is relatively low, suggesting that the data points are fairly consistent and clustered closely around the mean. The skewness value of -0.055 indicates a slight leftward skew, implying a minor prevalence of higher values in the dataset. Kurtosis, at -0.328, indicates a relatively flat distribution compared to the normal distribution. From this observation, we can draw the following observations: The variable climate financing, spans from 4667.59 to 8739.13, with a mean of 6664.15. This suggests a moderate spread in the values, but the central value (mean) represents a middle ground within the range. The standard deviation, 831.98, shows that the values are moderately dispersed around the mean. This is neither extremely wide nor very narrow, indicating moderate variability in the climate financing data. The coefficient of variation (12.385%) is low, which points to the fact that the data points are consistent and not highly spread out from the mean. This implies a stable dataset, with limited extreme fluctuations in values.

The skewness value of -0.055 suggests a very mild negative skew, meaning the dataset has a slight tendency toward higher values, but the effect is minimal. The distribution is close to symmetric. The kurtosis value of -0.328 indicates a platykurtic distribution, meaning the dataset has fewer extreme values or outliers compared to a normal distribution. The distribution is relatively flat with less sharpness at the peak. In summary, the climate financing data appears consistent with moderate variability and a distribution that is slightly left-skewed with fewer outliers.

Commercial financing ranges from 173.65 to 1002.54, with a mean of 520.67 and a standard deviation of 156.76. The coefficient of variation is 30.1072%. The skewness is also 0.270, suggesting slight rightward skew. The kurtosis is again 0.535, indicating a moderately peaked distribution. From the given statistical observations, several observations can be drawn regarding the behaviour of this indicator. The range, spanning from 173.65 to 1002.54, is quite broad, indicating significant variability in the data. The mean value of 520.67 provides a central measure, which is moderately positioned within the range, suggesting that the data is neither heavily skewed toward the lower nor upper bounds. However, the variability is further highlighted by the standard deviation of 156.76, which suggests a substantial dispersion around the mean.

The coefficient of variation (CV) of 30.1072% reinforces the observation of notable variability. This level of variability points to a degree of inconsistency, where fluctuations in the indicator are relatively high in comparison to the mean. Additionally, the skewness of 0.270 reveals a slight rightward skew, which means that a small portion of the data extends toward higher values, though this skew is not pronounced. Finally, the kurtosis value of 0.535 suggests a moderately peaked distribution, meaning the data does not exhibit extreme outliers or heavy tails. The distribution is relatively balanced, with most values concentrated near the mean but still showing some degree of peakedness. Overall, the indicator presents moderate variability and slight skewness, with a distribution that is fairly stable but subject to fluctuations.

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% of 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 the 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.

Standardized Regression Weights Results

Table 2 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 is presented in Table 2:

Table 2: Standardized Regression Weights Results

Hypothesis	Structural path			Estimate	C.R.	P	Decision
Ha1	Performance	<--	Commloan	.010	.072	.942	Unsupported
Ha2	Performance	<--	ClimateF	.263	1.98	.048	Supported
Ha3	Performance	<--	Regulatory environment	.721	4.43	*	Supported

Hypothesis	Structural path			Estimate	C.R.	P	Decision
Ha4	Performance	<--	Commec*Reg	.283	4.05	*	Supported
Ha5	Performance	<--	ClimateF*Reg .	-.073	-1.11	.266	Unsupported
Ha6	Performance	<--	Firm_size	-.104	-.596	.551	Unsupported

Commercial loans (Ha1: Performance <-- Commloan (Estimate: 0.010, C.R.: .072, P: .942) have an insignificant effect on financial performance, as indicated by the very low estimate (0.010) and high p-value (0.942). This hypothesis is unsupported.

Table 2 also revealed that climate finance (Ha2: Performance <-- ClimateF (Estimate: -0.263, C.R.: -1.98, P: 0.048) has a negative and significant relationship with performance, meaning that increased climate finance is associated with reduced financial performance. This hypothesis is supported, though the relationship is negative.

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.

Table 2 further revealed that the interaction between commercial loans and regulatory environment (Ha4: Performance <--CommecReg (Estimate:.283, C.R.:4.05, P:*) had a positive and significant relationship with financial performance. The estimate (0.283) indicates a moderate effect, and the hypothesis is supported.

The interaction between climate finance and regulatory environment (Ha5: Performance <-- ClimateFReg (Estimate: -.073, C.R.: -1.11, P: .266) had a negative and non-significant relationship with performance. This hypothesis is unsupported.

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

Commercial Loans Financing and Performance

The results revealed that commercial loans had an insignificant positive impact on the financial performance of water companies. The results further suggest that the interaction between commercial loans and regulatory environment has a positive and significant relationship with financial performance. Based on the findings, it is evident that this interaction exerts a moderate effect on the financial performance of the institutions studied. This implies that commercial loans, when moderated by an appropriate regulatory framework, contribute positively to the financial outcomes of firms. The regulatory environment plays a crucial role in shaping how commercial loans affect performance, possibly by ensuring compliance, reducing risks, and encouraging more prudent financial practices. The findings indicate that while the interaction between commercial loans and regulatory environment is not overwhelmingly strong, it exerts a meaningful and moderate influence on financial performance. This reflects the balance between access to commercial loans and the regulatory framework, which fosters financial growth.

Commercial loans can positively impact the return on assets (ROA) and return on equity (ROE) of water companies in Kenya by providing capital for growth, such as expanding operations or purchasing new equipment to reduce water loss. Companies with strong credit histories and regulatory compliance can secure loans on favorable terms, boosting performance. However, loans also introduce leverage and risk—high debt levels can lead to financial distress if companies struggle to cover interest payments. The terms of the loans, including interest rates, directly influence profitability, with lower rates improving income and higher rates reducing revenues. Additionally, investing in training for compliance with regulations, such as environmental standards, can enhance company performance. The study was in line with findings by 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. The study findings were in line with studies by Santos et al. (2023) who established that Debt financing offers several advantages for corporate operations, including a stable interest rate, increased financial flexibility, and tax benefits thereby establishing its optimal capital structure, profoundly influencing its financial performance. Further, the study findings are in line with the findings of Akhtar et al. (2021) suggest that firms should incorporate debt into their capital structure up to a certain threshold, as it tends to improve business performance. The study also aligns with studies by Kim and Song (2020) who found that Japanese companies can effectively utilized domestic stock issuance as a means of equity financing. Equity financing serves as a significant managerial resource for bolstering shareholders' equity and securing funds to foster the company's expansion and value enhancement; typical equity financing approaches in Japan encompass methods such as going public, third-party allotments, and rights offers. The study also was in line with Mumin (2018) whose study that investigated the factors influencing the ease of obtaining credit from commercial banks found a significant positive correlation between credit financing and performance. Additionally, the study was correlated to studies by Buyinza, Tibaingana, and Mutenyo (2018) WHO analyzed the factors influencing access to credit and its impact on the performance of firms in the East African Community and the findings indicated that credit access positively contributed to financial performance. While the study concentrated on export-based firms, extending the analysis to private security firms would broaden the scope and enhance the study's relevance.

Climate Financing and Performance

The findings reveal a significant but counterintuitive relationship between climate finance and organizational performance. While increased climate finance is linked to reduced short-term financial performance, the relationship remains positive and marginally significant. This can be attributed to the high upfront costs associated with sustainable practices and energy efficiency, which may not yield immediate financial returns. Over time, however, the long-term benefits such as sustainability, enhanced reputation, and risk mitigation may improve performance. Additionally, the evolving regulatory environment surrounding climate finance, including uncertainties in policy and market mechanisms, may disrupt short-term financial outcomes. Effective financing models and a focus on return on investment are crucial for water companies in Kenya to achieve sustainable financial performance, enabling them to meet social goals like providing reliable, quality water. The positive yet statistically marginal relationship between climate finance and performance emphasizes the nuanced trade-offs organizations face. While climate finance aligns with long-term environmental objectives, it presents short-term financial challenges. The study findings were in line with studies by Demekas and Grippa (2021) whose findings revealed that financial institutions are expected to play a pivotal role in transitioning to a low carbon economy by offering sustainable climate financing and managing climate related risks and that banks are tasked with the important role of mobilizing and allocating capital for impactful environmentally friendly initiatives. The study findings were in line with studies by Dabirian, Ahmadi, and Abbaspour (2023) who found that 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. The study differs with the findings by Xinpeng, Tiansen, Lin, and Jianhua (2020) who found that environmental regulation has an indirect effect on financial performance through green dynamic capability and sustainable innovation.

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.

The findings which posit a significant relationship between climate finance and performance, reveal a nuanced and unexpected outcome. The relationship, though positive, is statistically insignificant. This suggests that increased climate finance is linked to a reduction in financial performance, which may appear counterintuitive at first glance. However, these results point to several important considerations for organizations integrating climate finance into their operations. First, climate finance initiatives often require significant upfront investments in sustainable technologies, environmental projects, or compliance with regulatory standards. These initial costs may strain an organization's financial resources in the short term, particularly if the expected returns from these investments are delayed or insufficient to offset the capital outlay. Additionally, organizations might face trade-offs between prioritizing environmental sustainability and maintaining short-term financial profitability.

Business operations and utility companies like water companies work in highly regularized environment. This is necessary in that it helps maintain the balance of ecosystems by regulating activities that could harm the environment. This ensures the survival of various species and the health of natural habitats. Moreover, it is also beneficial to maintain public health standards, and encourages the use of renewable resources and sustainable practices, ensuring that economic development does not come at the expense of the environment. Regulatory environment refers to the degree and strictness of regulatory oversight that organizations face. Theoretically, this can significantly impact their performance in various ways. This study established a significant moderation effect of RI on the relation between different FM and FP.

The positive correlation can be attributed to several factors. First, increased regulatory oversight may compel firms to adopt more robust operational and financial reporting practices, which improves decision-making and fosters investor confidence. Second, regulations often enforce ethical standards and compliance, reducing the likelihood of fraud or mismanagement, thus safeguarding organizational assets. Third, regulatory frameworks create a level playing field by standardizing market practices, reducing unfair competition and enabling more efficient resource allocation.

Conclusions

The results revealed that commercial loans significantly and positively impact the financial performance (FP) of water companies, but this effect is mediated by regulatory environment. This finding suggests that while access to commercial loans provides the necessary financial capital, their direct influence on FP is limited unless these loans are strategically channeled into investments that enhance operational efficiency, infrastructure development, or service delivery capacity. The mediation by regulatory environment highlights the critical role of prudent resource allocation and investment decisions in translating borrowed capital into tangible improvements in performance metrics, underscoring the importance of strategic financial management within water companies.

Climate financing is a critical enabler of financial sustainability for water companies in Kenya, regardless of the risk index environment. By providing dedicated resources to address climate-related challenges, such as water scarcity, infrastructure resilience, and sustainability projects, climate funding bolsters the operational efficiency and revenue streams of these companies. These findings underscore the vital role of climate financing in fostering resilience and profitability, making it a strategic component for water companies navigating both high and low RI scenarios.

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. The results imply that the interaction between climate finance and regulatory environment may not play a crucial role in influencing organizational performance. The non-significant relationship suggests that other factors beyond regulatory policies and financial inputs dedicated to climate-related efforts may be more impactful in determining performance outcomes. It is also possible that the organizations or sectors being studied have not yet felt the full influence of regulatory environment in combination with climate finance, or that existing regulations are not stringent or well-enforced enough to yield significant results.

Recommendations

Commercial Loans and Performance

Policymakers should ensure that regulations surrounding commercial loans are well-crafted and enforced to support financial institutions in maximizing their performance. Financial institutions should be encouraged to continue providing commercial loans as they positively influence performance, especially in an environment with strong regulatory oversight. Regulatory bodies should continuously monitor the financial sector and adjust regulatory measures to ensure they are aligned with the evolving financial landscape. By focusing on regulatory frameworks and supporting lending practices, institutions can maintain steady growth and financial success.

Climate Finance and Performance

The study recommends that organizations carefully assess the timing and scale of climate finance initiatives as strategic alignment between environmental goals and financial objectives is crucial. Moreover, organizations should explore innovative financing models that mitigate the immediate financial burden of climate-related investments, such as green bonds. Policymakers and organizations should assess the efficacy of current regulatory frameworks regarding climate finance. There may be a need for stronger or more clearly defined policies that directly align with performance objectives, ensuring that regulations meaningfully drive improvement.

Regulatory environment

The organizations should be proactive in adapting to evolving regulatory requirements. Investing in compliance systems, training employees, and improving internal controls can enable firms to maximize the financial benefits associated with regulatory framework. While regulation generally enhances performance, industry-specific approaches should be considered to tailor rules to the unique challenges faced by different sectors. Regulatory environment plays a pivotal role in enhancing financial performance, and both policymakers and organizations should leverage this relationship to promote sustainable economic growth.

REFERENCES

Ahmed, A., Nugraha, D., Hágen, I. (2023). The Relationship between Capital Structure and Firm Performance: The Moderating Role of Agency Cost. *Risks. 11*. 102.

Ali, A. (2022). Financial liberalization, institutional quality and economic growth nexus: Panel analysis of African countries. *Bulletin of Business and Economics (BBE), 11*(3), 37-49.

Akhtar, M., Yusheng, K., Haris, M., Ain, Q. U., & Javaid, H. M. (2021). Impact of financial leverage on sustainable growth, market performance, and profitability. *Economic Change and Restructuring, 55*, 737–774.

Bank of England. (2018). *Transition in thinking: The impact of climate change on the UK banking sector, technical report*. Bank of England, Prudential Regulation Authority.

BIS. (2021b). *Climate related financial risk measurement methodologies*. BIS, Basel, Switzerland.

Blickle, K. S., Hamerling, S. N., Morgan, D. P. (2022). *How Bad Are Weather Disasters for Banks?* Federal Reserve Bank of New York Staff Reports, no. 990

Buyinza, F., Tibaingana, A., & Mutenyo, J. (2018). *Factors affecting access to formal credit by micro and small enterprises in Uganda* (No. 83). ICAE working paper series.

Cheng, Z., Ke, Y., Lin, J., Yang, Z., & Cai, J. (2021). Spatio temporal characteristics of public private partnership research: A bibliometric analysis. *Journal of Cleaner Production, 318*, 128564.

Cheruiyot, S. K., Aluoch, M. O., Ndungu, P. (2024). Portfolio composition and financial performance of investment companies listed at the Nairobi Securities Exchange, Kenya. *International Academic Journal of Economics and Finance, 4*(1), 321-344.

Ching, J., & Phoon, K. (2019). Impact of Autocorrelation Function Model on the Probability of Failure. *Journal Of Engineering Mechanics, 145*(1). doi: 10.1061/(ASCE)em.1943- 7889.0001549

Claire, B., & Arik, L. (2016). Measuring the stringency of environmental regulations. *Review of Environmental Economics and Policy, 10*(1), 47–67. doi:10.1093/reep/rev019

Crack, A. M. (2018). The regulation of international NGOs: Assessing the effectiveness of the INGO Accountability Charter. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, *29*(2), 419-429.

Dabirian, S., Ahmadi, M., & Abbaspour, S. (2023). Analyzing the impact of financial policies on Japan construction projects performance in using system dynamics. *Engineering, Construction and Architectural Management*, *30*(3), 1201-1221.

Dar, S. Q., & Dar, A. A. (2017). The Working Capital and Its Ratios: A Qualitative Study. *International Journal of Statistics and Actuarial Science, 1*(1), 24-30. doi.org/10.11648/j.ijsas.20170101.15

Dayuan, L., Cuicui, C., Lu, Z., Xiaohong, C., Shenggang, R., Yini, Z. (2017). Effects of corporate environmental responsibility on financial performance: the moderating role of government regulation and organizational slack. *Journal of Cleaner Production, 1*(1), 1-44. doi:10.1016/j.jclepro.2017.08.129

Dell, M., Jones, B. F., & Olken, B. A. (2014). What do we learn from the weather? The new climate-economy literature. *Journal of Economic Literature, 52*, 740–798.

De Nahlik, C., & Fabozzi, F. J. (2021). *Project Financing: Analysing and Structuring Projects.* World Scientific.

Feng, C. (2017). The NGO law in China and its impact on overseas funded NGOs. *Cosmopolitan Civil Societies: An Interdisciplinary Journal*, *9*(3), 95-105.

Financial Sector Board (FSB), (2020). *The Implications of Climate Change for Financial Stability.* Basel: Financial Stability Board.

Goksu, Amanda & Bakalian, Alex & Kingdom, Bill & Saltiel, Gustavo & Mumssen, Yogita & Soppe, Gerard & Kolker, Joel & Delmon, Vicky. (2019). *Reform and Finance for the Urban Water Supply and Sanitation Sector*. 10.1596/32244.

Nguyen, A. C. (2023). *Risk Allocation, Decision Rights, and Adaptive Lifecycle Project Management Practices in Public-Private Partnership Highway Contracts in Australia, the Philippines, and India*. Doctoral dissertation, Virginia Tech.

Heiss, A., & Kelley, J. (2017). Between a rock and a hard place: International NGOs and the dual pressures of donors and host governments. *The Journal of Politics*, *79*(2), 732-741.

Hong, H., Li, F. W., & Xu, J. (2019). Climate risks and market efficiency. *Journal of Econometrics, 208*, 265–281.

Jones, T., Foerster, A., & Hammer, S. (2020). Green bonds and their role in climate financing. *Climate Change Economics*, 11(4), 215 233.

https://doi.org/10.1142/S201000781920001X

Kairu, A., Orangi, S., Mbuthia, B., Ondera J., Ravishankar, N., & Barasa, E. (2021). Examining health facility financing in Kenya in the context of devolution. *BMC Health Serv Res* 21, 1086. https://doi.org/10.1186/s12913 021 07123 7

Kenya National Water Master Plan, (2030). *The project on the Development of the National Water Master Plan 2030.* Apan International Cooperation Agency Nippon Koei Co., Ltd.

Kim, J. H., & Song, K. (2020). The choice of SEO method in Korea: Rights vs. public offers. *Journal of Financial Markets, 51*, 100532.

Kirima, N. N., Minja, D., & Muthinja, M. (2024). Effect of project financing on the performance of road infrastructure development projects in Kenya. *Reviewed Journal of Social Science & Humanities, 5*(1), 80-92.

Koetter, Michael & Noth, Felix & Rehbein, Oliver, (2020). Borrowers under water! Rare disasters, regional banks, and recovery lending. *Journal of Financial Intermediation, Elsevier, vol. 43*(C).

KPWF (2022). *Kenya Pooled Water Fund –* (KPWF). 2022. https://kpwf.co.ke/.

Lohawiboonkij, S. (2019). The Best Project Financing Option for Infrastructure Projects in Developing Nations. *PM World Journal, 3*(1), 1-28.

Mati, E., & Mugo, K. (2018). *Transformation Towards Sustainable and Resilient Wash Services Sector and project financing in Kenya: financing strategies for service delivery.* 1st WEDC International Conference, Egerton University, Nakuru, Kenya.

Mittal, S. (2024). Innovative costing methodology for strategic financial planning and resource allocation: Navigating budgetary constraints to drive sustainable growth and business leadership. *Proceedings of The International Conference on Applied Research in Management, Economics and Accounting. 1.* 1-11. 10.33422/iarmea.v1i1.284.

Mose, V. (2021). *Financing Models for Affordable and Adequate Housing in Kenya.* Kenya Institute for Public Policy Research and Analysis. KIPPRA Discussion Paper No. 2592021.

Motanya, D. (2012). Analysis of factors influencing efficient capital allocation at the Nairobi securities (NSE). 10.13140/RG.2.2.13891.81447.

Msomi & Olarewaju (2021). Factors Affecting Small and Medium Enterprises' Financial Sustainability in South Africa. *African Journal of Inter/Multidisciplinary Studies,* 3 (20), 103-117.

Mumin, A. A. (2018). *Factors affecting SME's access to finance from commercial banks in Kenya: a case of Nairobi County* (Unpublished Master's Thesis, USIU).

Nguyen, H. M., Le, Q. T., Ho, C. M., Nguyen, T. C., & Vo, D. H. (2022). Does financial development matter for economic growth in the emerging markets? *Borsa Istanbul Review, 22*(4), 688–698. doi.org/10.1016/j.bir.2021.10.004.

OECD, (2022). Financing a water secure future, OECD studies on water. OECD Publishing, Paris, https://dx.doi.org/10.1787/a2ecb261 en.

OECD (2018). *Development Cooperation Rep 2018: Joining forces to leave no one behind.* Secretary General of the OECD Report, Paris.

OECD, (2016). *OECD Council Recommendation on Water.* https://www.oecd.org/environment/resources/Council Recommendation on water.pdf.

Oluoch, F. O., K'Alol, G., & Koshal, J. (2021). Moderating influence of regulatory framework on the relationship between strategic leadership and financial sustainability of NGOs in Kenya. *The University Journal, 3(2), 13-26.*

Republic of Kenya, (2013). *National Environment Policy*, (2013). http://wwsikii .environment.go.ke/wpcontent/uploads/2014/01/National environment policy 20131.pdf. (USAID, 2022).

Santos, L. L., Gomes, C., & Lisboa, I. (2023). *The impact of macroeconomic factors on the hotel industry through the financial leverage trends: The Portuguese case.* In Information Resources Management Association (Ed.), Research anthology on macroeconomics and the achievement of global stability (pp. 1565–1582). IGI Global.

Thrandardottir, E. (2015). NGO legitimacy: Four models. *Representation, 51*(1), 107–123.

Ullah, F., Thaheem, M. J., & Umar, M. (2017). Public private partnerships in Pakistan: A nascent evolution. *Public private partnerships in transitional nations: Policy, governance and praxis*, *1*, 127-150.

United States Agency for International Development, (USAID) (2022). *Framework for financing water resources management.* DAI Global, USA.

Wasim, U., Ahmad, S. M. Z., Akmalia, M. A. (2024). Exploring the moderating effect of regulatory quality on the relationship between financial development and economic growth/economic volatility for developed and developing countries. *Borsa Istanbul Review, 24*(1), 934–94.

Water Resources Management Agency (2013). *Kenya National Water Master Plan 2030.* Ministry of Environment, Water and National Resources. Ministry of Water and Irrigation, Nairobi, Kenya.

Wiley, B. J., & Navickas, J. (2021). Effect of financial regulation on performance of banking sector in the United States of America. *Journal of Finance and Accounting*, *5*(3), 11–21.

World Bank Group, (2023). *High and Dry: Climate Change, Water, and the Economy*. https://doi.org/10.1596/K8517

Xinpeng, X., Tiansen, L., Lin, S., & Jianhua, W.(2020). Linking environmental regulation and financial performance: The mediating role of green dynamic capability and sustainable innovation. *Sustainability, 12*(1), 1-22. doi:10.3390/su12031007