

# Perceived Risk Factors and Foreign Direct Investment Inflows in Nepal's Hydropower Sector: A Quantitative Analysis

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**Abstract:** Nepal possesses an estimated hydropower potential of 83,000 MW, yet less than 3,000 MW has been developed, largely due to financing constraints. Foreign Direct Investment (FDI) has been identified as a critical source of capital, but foreign investors face multiple risk factors—environmental, financial, and economic—that may influence investment decisions. This study quantitatively examines the relationship between perceived environmental, financial, and economic risk factors and FDI inflows in Nepal's hydropower sector. Primary data were collected from 30 stakeholders in the Kathmandu Valley, including representatives of FDI-based hydropower companies, government authorities, commercial banks, and independent professionals, using a structured 5-point Likert-scale questionnaire. Descriptive statistics, Pearson correlation, and multiple regression analysis were employed. The findings reveal that while stakeholders perceive moderate-to-high levels of environmental (mean = 3.70), financial (3.51), and economic (3.91) risks, they simultaneously report strongly positive perceptions of actual FDI inflows (mean = 4.44). Correlation analysis showed no statistically significant relationship between any risk factor and FDI inflows ( $p > 0.05$  for all). Multiple regression explained only 1.9% of the variance ( $R^2 = 0.019$ ) and was not statistically significant ( $F = 0.157$ ,  $p = 0.924$ ). None of the three risk factors significantly predicted FDI inflows. Financial and economic risks were significantly correlated ( $r = 0.570$ ,  $p < 0.01$ ), indicating their interdependence. The study concludes that perceived environmental, financial, and economic risks do not determine FDI inflows in Nepal's hydropower sector. Instead, opportunity-driven factors—such as hydropower potential, regional electricity trade prospects, and investment incentives—appear to outweigh risk considerations. Policymakers should focus on enhancing sectoral opportunities rather than solely mitigating perceived risks.

**Keywords:** Foreign Direct Investment, hydropower projects, perceived risk factors, environmental risk, financial risk, economic risk, Nepal

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## 1. Introduction

Nepal possesses one of the world's largest hydropower resources, with an estimated total potential of approximately 83,000 megawatts (MW), of which 42,000 MW has been deemed economically viable using existing technologies and infrastructure (Pandey et al., 2023; trade.gov, 2021). This vast renewable energy potential positions Nepal not only to fulfill its domestic energy needs but also to become a regional exporter of electricity to neighboring energy-deficit countries such as India and Bangladesh. Despite this theoretical abundance, the country has developed less than 3,000 MW of operational capacity, representing a massive underutilization of its natural endowment (Nepal Economic Forum, 2024).

Foreign Direct Investment (FDI) has emerged as a critical source of capital and technical expertise to bridge this financing gap. Hydropower projects are capital-intensive, characterised by long payback periods and substantial risk profiles, making domestic capital alone insufficient for large-scale development. The Government of Nepal has implemented various policy measures to attract foreign investment, including the Foreign Investment and Technology Transfer Act (FITTA, 2019), which permits 100% foreign ownership in hydropower projects and allows repatriation of

profits (NepalLawSunshine, 2025). By fiscal year 2021/22, hydropower accounted for 32.8% of Nepal's total FDI inflows, with cumulative FDI stock reaching NPR 264.3 billion (UrjaKhabar, 2023).

However, foreign investors face multiple risk dimensions when considering entry into Nepal's hydropower market. These include environmental risks related to bureaucratic delays, regulatory inefficiencies, and governance issues; financial risks encompassing exchange rate volatility, inflation, and capital market inconsistencies; and economic risks associated with market size, infrastructure deficits, and macroeconomic stability. Prior research has predominantly examined FDI determinants through cross-country analyses that offer generalized insights but fail to address country-specific nuances in Nepal's unique context (Dahal & Aryal, 2003; Maskey et al., 2006).

This study addresses a critical gap in the empirical literature by quantitatively examining the relationship between perceived environmental, financial, and economic risk factors and actual FDI inflows in Nepal's hydropower sector. Drawing upon Dunning's (1977) Eclectic Paradigm, specifically the location advantage theory (L-factor), this research investigates whether stakeholder perceptions of these risk dimensions significantly influence investment inflows. The study's primary objectives are: (1) to assess the perceived levels of environmental, financial, and economic risk factors among FDI stakeholders in Nepal, (2) to examine the relationship between these risk factors and FDI inflows, and (3) to identify which risk factor most significantly influences investment decisions in the hydropower sector. Based on these objectives, three hypotheses are tested: Environmental risk factors significantly affect FDI inflows (H1), financial risk factors significantly affect FDI inflows (H2), and economic risk factors significantly affect FDI inflows (H3).

## **2. Materials and methods**

### **2.1. Research Design**

This study employed a descriptive, cross-sectional, and causal-comparative research design to examine the relationship between perceived risk factors and foreign direct investment (FDI) inflows in Nepal's hydropower sector. The descriptive component assessed the current levels of stakeholders' environmental, financial, and economic risk perceptions. The causal-comparative element tested whether these risk factors significantly influence FDI inflows. A quantitative approach was adopted to enable statistical testing of the three research hypotheses using primary survey data.

### **2.2. Study Area and Population**

The study was conducted in the Kathmandu Valley, Nepal, which serves as the central hub for corporate headquarters, government regulatory bodies, financial institutions, and FDI-related professional services. The target population comprised stakeholders directly involved in or knowledgeable about FDI-financed hydropower projects in Nepal. This included: (a) representatives of FDI-based hydropower companies, (b) officials from government authorities concerned with FDI regulation and hydropower licensing, (c) commercial bank officers handling foreign investment transactions, (d) legal and financial consultants specialising in FDI, and (e) regulatory body representatives from Nepal Rastra Bank and the Nepal Electricity Authority's Power Trade Department.

### **2.3. Sampling Procedure**

A convenience sampling technique was employed due to the specialised nature of the respondent pool and the difficulty of accessing senior executives and policymakers. The sample size was determined based on the study's analytical requirements for correlation and multiple regression analysis, with a minimum of 30 respondents considered adequate for preliminary statistical inference. A total of 30 respondents participated in the survey, representing the following categories: nine from two FDI-based hydropower companies, two from Nepal Rastra Bank's legal department, one from the Power Trade Department of Nepal Electricity Authority, five from commercial banks, one from the Office of the Company Registrar, and nine from independent FDI-based lawyers and financial consultants. Additionally, one non-FDI hydropower company and the Federation of Nepalese Chambers of Commerce and Industry (FNCCI) were included to provide comparative perspectives.

### **2.4. Data Collection Instrument**

Primary data were collected using a structured questionnaire designed on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The questionnaire comprised following sections:

- Demographic information: gender, age, qualification, and organisational affiliation.
- Environmental Risk Factor (4 items): measuring perceptions of bureaucratic quality, corruption, transparency, and regulatory delays.
- Financial Risk Factor (4 items): assessing concerns about exchange rate volatility, capital market stability, availability of financial institutions, and tax incentives.

- Economic Risk Factor (5 items): capturing views on inflation, debt levels, trade deficit, corporate tax rates, and investment security.
- Inflows of FDI (3 items): evaluating respondents' perception of actual FDI inflow trends and enabling conditions.

The questionnaire was developed based on the theoretical framework derived from Dunning's (1977) location advantage theory and adapted from prior empirical studies on FDI determinants in developing countries.

## **2.5. Data Collection Instrument**

The dependent variable was Inflows of Foreign Direct Investment (IFDI), measured as the composite score of three items reflecting respondents' perception of actual FDI inflow levels. The independent variables were:

- Environmental Risk Factor (EF) – measured by four items.
- Financial Risk Factor (FF) – measured by four items.
- Economic Risk Factor (ECF) – measured by five items.

All variables were treated as continuous for regression analysis, with aggregated mean scores per respondent.

## **2.6. Reliability and Validity**

Reliability of the questionnaire was assessed using Cronbach's alpha coefficient. The overall scale achieved  $\alpha = 0.761$ , indicating acceptable internal consistency (George & Mallery, 2009). The standardised item alpha was 0.746, confirming that the items reliably measured the underlying constructs. Content validity was established through a thorough literature review and an expert review by the research expert (an academician).

## **2.7. Data Collection Procedure**

Data collection took place between September and October 2025. Questionnaires were distributed in person to the headquarters of selected organizations in Kathmandu. Respondents were assured of confidentiality, and participation was voluntary. Completed questionnaires were collected within two weeks of distribution. The response rate was 100% among the 30 targeted participants, though listwise deletion for missing data reduced the effective sample for FDI inflow analysis to 29.

## **2.8. Data Analysis Techniques**

Statistical analyses were performed using SPSS (version 26) and Microsoft Excel. The analytical sequence comprised:

Descriptive statistics: Mean, standard deviation, range, minimum, and maximum for all variables to profile risk perception levels.

Correlation analysis: Pearson product-moment correlation coefficients to examine the direction and strength of bivariate relationships between each risk factor and FDI inflows, as well as intercorrelations among independent variables.

Multiple regression analysis: Standard multiple regression was conducted to test the combined and individual effects of environmental, financial, and economic risk factors on FDI inflows. The regression equation was specified as:

$$\text{IFDI} = \beta_0 + \beta_1(\text{EF}) + \beta_2(\text{FF}) + \beta_3(\text{ECF}) + \epsilon \quad \text{IFDI} = \beta_0 + \beta_1(\text{EF}) + \beta_2(\text{FF}) + \beta_3(\text{ECF}) + \epsilon \dots\dots\dots (i)$$

Model fit was evaluated using  $R^2$ , adjusted  $R^2$ , and the F-test. Individual predictor significance was assessed using t-tests with a significance level of  $\alpha = 0.05$ .

Assumption diagnostics: A residual analysis was performed to assess normality, linearity, and homoscedasticity. Standardised residuals ranged from -3.019 to 1.216, with a mean of zero, supporting the validity of regression inferences.

## **2.9. Ethical Considerations**

The study adhered to standard research ethics protocols. Informed consent was obtained from all participants prior to data collection. Anonymity was maintained by not recording individual identifiers. Data were used exclusively for academic purposes.

## **3. Results**

This section presents the quantitative findings derived from the analysis of primary data collected from 30 respondents representing FDI-based hydropower companies, government authorities, commercial banks, and independent

professionals in Kathmandu Valley, Nepal. The results are organized sequentially: demographic characteristics of respondents, reliability of the measurement instrument, descriptive statistics of risk factors and FDI inflows, correlation analysis, multiple regression analysis, residual diagnostics, and a summary of hypothesis testing.

### 3.1 Demographic Characteristics of Respondents

Among the 30 respondents, 16 (53.3%) were male and 14 (46.7%) were female, indicating a relatively balanced gender representation among FDI stakeholders in Nepal's hydropower sector. This distribution suggests that while hydropower and finance remain male-dominated fields in Nepal, female participation in decision-making roles is notable.

Regarding age distribution, the largest age group was "30 and below" with 12 respondents (40.0%), followed by "31–40 years" with 8 respondents (26.7%), "41–50 years" with 7 respondents (23.3%), and "51–60 years" with 3 respondents (10.0%). The predominance of younger professionals (40% aged  $\leq 30$ ) reflects a relatively youthful workforce engaged in FDI-related activities, possibly indicating a recent expansion of roles in hydropower investment facilitation.

Educational qualifications showed that 10 respondents (33.3%) held Bachelor's degrees, 19 respondents (63.3%) held Master's degrees, and 1 respondent (3.3%) held an M.Phil or PhD. The high proportion of Master's degree holders (nearly two-thirds) indicates that respondents were well-educated and capable of providing informed assessments of risk factors affecting FDI.

Occupational categories included FDI-based investors, employees of hydropower companies, bankers, government employees, lawyers, and finance consultants. The specific institutional breakdown comprised: two FDI-based hydropower companies (9 samples), one non-FDI hydropower company (1 sample), Nepal Rastra Bank legal department (2 samples), Power Trade Department of Nepal Electricity Authority (1 sample), Citizens Bank (5 samples), Office of the Company Registrar (1 sample), and independent professionals (9 samples). This diverse composition ensures a multi-stakeholder perspective on perceived risks.

### 3.2 Reliability of the Measurement Instrument

Reliability was assessed using Cronbach's alpha coefficient, a standard measure of internal consistency for Likert-scale items. It reports a Cronbach's alpha of 0.761 for the combined 4-item scale, with a standardized item alpha of 0.746. According to conventional thresholds (George & Mallery, 2009),  $\alpha \geq 0.7$  indicates acceptable reliability,  $\alpha \geq 0.8$  indicates good reliability. Therefore, the scale of 0.761 falls within the acceptable range, confirming that the questionnaire items consistently measured the underlying constructs of environmental, financial, and economic risk perceptions. No items were deleted to improve reliability, as all items contributed meaningfully to the overall scale.

### 3.3 Descriptive Statistics: Perceived Levels of Risk Factors and FDI Inflows

Table 1 provides the mean scores, standard deviations, ranges, minima, and maxima for the three independent variables (Environmental Risk Factor, Financial Risk Factor, Economic Risk Factor) and the dependent variable (Inflows of FDI).

**Table 1:** Descriptive statistics of the variables

| Variable                  | N  | Range | Minimum | Maximum | Mean   | Std. Error | Std. Deviation |
|---------------------------|----|-------|---------|---------|--------|------------|----------------|
| Environmental Risk Factor | 30 | 2.80  | 2.20    | 5.00    | 3.7000 | 0.12120    | 0.66384        |
| Financial Risk Factor     | 30 | 2.40  | 2.00    | 4.40    | 3.5133 | 0.10708    | 0.58648        |
| Economic Risk Factor      | 30 | 2.20  | 2.80    | 5.00    | 3.9067 | 0.10316    | 0.56503        |
| Inflows of FDI            | 29 | 2.33  | 2.67    | 5.00    | 4.4368 | 0.09661    | 0.52025        |

Respondents "moderately agree" that environmental risk, including bureaucratic delays, corruption, transparency issues, and policy unpredictability, presents a notable concern. The mean is above the neutral midpoint of 3.0, indicating that stakeholders perceive regulatory and governance-related risks as moderately high. The standard deviation of 0.664 suggests moderate variability in perceptions, implying that some respondents (possibly those from government agencies) view environmental risk less severely than foreign investors or private sector professionals.

This factor had the lowest mean among the three risk dimensions, though still above neutral. Respondents "moderately agree" that financial risks—exchange rate depreciation of the Nepalese rupee, capital market instability, limited financial institutions, and low tax incentives—are relevant. The relatively lower mean compared to environmental and economic

risks suggests that financial system concerns, while present, are perceived as somewhat less critical than other risk categories. The standard deviation of 0.586 indicates moderate agreement among respondents.

This achieved the highest mean score among all risk factors. Respondents “moderately to strongly agree” that macroeconomic conditions—high inflation, high debt volume, large trade deficit, high corporate tax rates, and lack of proper security for foreign investment—significantly influence the investment climate. The high mean (approaching 4.0 on a 5-point scale) indicates that economic risk is the most salient concern for stakeholders. The relatively low standard deviation (0.565) suggests the highest consensus among respondents regarding the importance of economic factors.

This dependent variable had the highest mean of all variables, exceeding 4.4. Respondents “strongly agree” that despite perceived risks, FDI inflows are favorable and growing in Nepal. The high mean indicates investor confidence and positive sentiment toward investment opportunities, particularly in hydropower. The low standard deviation (0.520) reflects strong agreement among respondents, with minimal divergence of opinion.

Despite moderate-to-high perceived risks across all three dimensions, stakeholders believe that FDI inflows remain strong (mean 4.44). This suggests that opportunity factors (e.g., hydropower potential, regional electricity trade, bilateral agreements) may outweigh risk concerns in actual investment decisions.

### 3.4 Correlation Analysis: Bivariate Relationships

Table 2 presents Pearson correlation coefficients among the environment, financial, and economic risk factors and FDI inflows.

**Table 2:** Pearson correlation coefficients among different factors

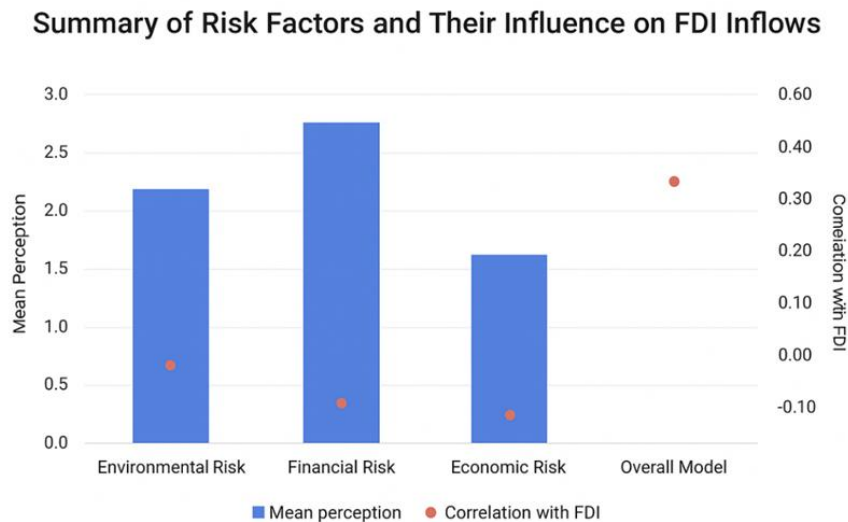
| Variable                  | Environmental Risk Factor | Financial Risk Factor | Economic Risk Factor | FDI Inflows |
|---------------------------|---------------------------|-----------------------|----------------------|-------------|
| Environmental Risk Factor | 1                         | 0.306                 | 0.268                | 0.061       |
| Financial Risk Factor     | 0.306                     | 1                     | 0.570**              | -0.073      |
| Economic Risk Factor      | 0.268                     | 0.570**               | 1                    | -0.095      |
| InflowsofFDI              | 0.061                     | -0.073                | -0.095               | 1           |

Note: \*\*p < 0.01 (2-tailed); N varies between 29–30.

A moderate-to-strong positive correlation that is statistically significant at the 1% level. This indicates that respondents who perceive higher financial risks also tend to perceive higher economic risks. The finding suggests that these two risk dimensions are interconnected in stakeholders’ mental models, possibly reflecting the reality that financial instability (e.g., exchange rate fluctuations) is both a cause and a consequence of broader macroeconomic imbalances (inflation, debt, trade deficit).

None of the three risk factors individually demonstrates a statistically significant linear relationship with FDI inflows. This is a striking finding: despite moderate-to-high risk perceptions, actual investment inflows (as perceived by respondents) are not systematically related to those risks. This may imply that (a) investors are risk-tolerant when hydropower returns are attractive, (b) unmeasured variables (e.g., government incentives, bilateral relations, resource availability) drive FDI more strongly, or (c) the small sample size limits detection of modest effects.

The descriptive results show that economic risk has the highest mean perception (3.91), followed by environmental (3.70) and financial (3.51). Despite this, none of the risk factors correlates significantly with actual FDI inflows. This contrast is visually summarised below.



Source: Field Survey 2025

**Figure 1:** Summary of Risk Factors and Their Influence on FDI Inflows

As illustrated in Figure 1, while economic risk is perceived as the most critical barrier, its correlation with FDI inflows remains negligible and negative, confirming that perceived risks do not translate into reduced investment inflows.

### 3.5 Multiple Regression Analysis

To test the combined and individual effects of environmental, financial, and economic risk factors on FDI inflows, a standard multiple regression analysis was conducted. The dependent variable was Inflows of FDI; independent variables were Environment Risk Factor, Financial Risk Factor, and Economic Risk Factor.

#### 3.5.1 Model Summary

Table 3 provides the overall model fit statistics.

**Table 3:** Model fitness

| Model | R     | R Square | Adjusted R Square | Std. Error of the Estimate | R Square Change | F Change | df1 | df2 | Sig. F Change |
|-------|-------|----------|-------------------|----------------------------|-----------------|----------|-----|-----|---------------|
| 1     | 0.136 | 0.019    | -0.099            | 0.54546                    | 0.019           | 0.157    | 3   | 25  | 0.924         |

The multiple correlation coefficient between the three predictors and FDI inflows is very weak, indicating that only 13.6% of the variation in FDI inflows is explained by the linear combination of environmental, financial, and economic risk factors. Only 1.9% of the variance in FDI inflows is explained by the three risk factors combined. This extremely low explanatory power indicates that the model accounts for almost none of the variation in the dependent variable. When adjusted for the number of predictors ( $k=3$ ) and sample size ( $n=29$ ), the model yields a negative value, which indicates that it has no explanatory power and would not generalise to another sample. Negative adjusted  $R^2$  is a strong signal of model inadequacy. The F-test for the overall model is not statistically significant ( $p = 0.924$ , far above 0.05). This means that the three risk factors, taken together, do not significantly predict FDI inflows.

The regression model is statistically insignificant and practically useless for predicting FDI inflows based on perceived environmental, financial, and economic risks. Over 98% of the variance in FDI inflows remains unexplained by these variables.

#### 3.5.2 ANOVA Results

Table 4 presents the variance decomposition.

**Table 4:** ANOVA results

| Model      | Sum of Squares | df | Mean Square | F     | Sig.  |
|------------|----------------|----|-------------|-------|-------|
| Regression | 0.140          | 3  | 0.047       | 0.157 | 0.924 |
| Residual   | 7.438          | 25 | 0.298       |       |       |
| Total      | 7.579          | 28 |             |       |       |

Regression Sum of Squares (0.140) is minuscule compared to Residual Sum of Squares (7.438). This indicates that the model explains virtually none of the total variance; almost all variability (7.438 out of 7.579) is due to error or unmeasured factors. Mean Square Regression (0.047) is much smaller than Mean Square Residual (0.298), confirming that the predictors' combined effect is weaker than the random error. The F-ratio is close to zero, and the p-value is extremely high, leading to unambiguous rejection of the claim that the model has any predictive utility. The null hypothesis that "all regression coefficients are zero" cannot be rejected. In practical terms, environmental, financial, and economic risk perceptions do not collectively influence FDI inflows.

### 3.5.3 Coefficients (Individual Predictor Effects)

Table 5 presents the unstandardized (B) and standardised (Beta) coefficients, t-values, and significance levels.

**Table 5:** Model and their values

| Model                   | Unstandardized Coefficients (B) | Std. Error | Standardized Coefficients (Beta) | t      | Sig.  |
|-------------------------|---------------------------------|------------|----------------------------------|--------|-------|
| (Constant)              | 4.656                           | 0.862      |                                  | 5.403  | 0.000 |
| Environment Risk Factor | 0.077                           | 0.161      | 0.100                            | 0.477  | 0.637 |
| Financial Risk Factor   | -0.045                          | 0.215      | -0.051                           | -0.209 | 0.836 |
| Economic Risk Factor    | -0.089                          | 0.234      | -0.092                           | -0.383 | 0.705 |

For Constant (Intercept),  $B = 4.656$ ,  $t = 5.403$ ,  $p < 0.001$ . The constant is statistically significant, indicating that when all risk factors are zero (i.e., no perceived risk), the predicted FDI inflow score is 4.656 (near "strongly agree" category). This suggests a high baseline level of FDI positivity independent of risk perceptions.

For Environmental Risk Factor,  $B = 0.077$  (positive direction),  $Beta = 0.100$ ,  $t = 0.477$ ,  $p = 0.637$ . The effect is positive (higher environmental risk slightly associated with higher FDI inflows), but it is not statistically significant. The 95% confidence interval likely includes zero. It fails to reject H1: environmental risk factor does not significantly impact FDI inflows.

For Financial Risk Factor,  $B = -0.045$  (negative direction),  $Beta = -0.051$ ,  $t = -0.209$ ,  $p = 0.836$ . The effect is negative (higher financial risk weakly associated with lower FDI inflows), but statistical insignificance is overwhelming. It fails to reject H2.

For Economic Risk Factor,  $B = -0.089$  (negative direction),  $Beta = -0.092$ ,  $t = -0.383$ ,  $p = 0.705$ . The effect is negative, but p-value is far above 0.05. It fails to reject H3.

### 3.5.4 Residual Diagnostics

Table 6 provides diagnostic information.

**Table 6:** Predicted values

|                 | Minimum  | Maximum | Mean    | Std. Deviation | N  |
|-----------------|----------|---------|---------|----------------|----|
| Predicted Value | 4.3135   | 4.5773  | 4.4368  | 0.07077        | 29 |
| Residual        | -1.64687 | 0.66352 | 0.00000 | 0.51542        | 29 |

|                      |        |       |       |       |    |
|----------------------|--------|-------|-------|-------|----|
| Std. Predicted Value | -1.741 | 1.986 | 0.000 | 1.000 | 29 |
| Std. Residual        | -3.019 | 1.216 | 0.000 | 0.945 | 29 |

Predicted values range only from 4.31 to 4.58, a very narrow interval, indicating that the model predicts essentially constant FDI inflow scores regardless of risk levels. This lack of variation in predictions explains the low  $R^2$ . Residuals have a mean of zero (as expected in OLS regression). The maximum standardised residual is -3.019, which slightly exceeds the conventional threshold of  $\pm 3$ , suggesting one possible outlier. However, with  $n=29$ , this is not a major concern. Standardised residuals have a standard deviation of 0.945 (close to 1), indicating that the normality assumption is reasonably satisfied. The mean is zero, and there is no severe skew.

The regression residuals appear approximately normally distributed, so the statistical inference (p-values) is valid. However, the model's failure to explain variance is not due to assumption violations; it is due to the substantive weakness of the predictors.

### 3.6 Hypothesis Testing Summary

The study tested three hypotheses using multiple regression analysis at  $\alpha = 0.05$ .

**Table 7:** Hypothesis and its result

| Hypothesis | Statement                                                   | Result        | p-value | Decision            |
|------------|-------------------------------------------------------------|---------------|---------|---------------------|
| H1         | Environmental risk factor significantly impacts FDI inflows | Not supported | 0.637   | Fail to reject null |
| H2         | Financial risk factor significantly impacts FDI inflows     | Not supported | 0.836   | Fail to reject null |
| H3         | Economic risk factor significantly impacts FDI inflows      | Not supported | 0.705   | Fail to reject null |

None of the three hypothesised relationships was statistically significant. The regression model as a whole was not significant ( $F = 0.157$ ,  $p = 0.924$ ), and none of the individual predictors had  $p < 0.05$ .

## 4. Discussion

The quantitative findings reveal a striking paradox: while stakeholders perceive moderate-to-high levels of environmental ( $M = 3.70$ ), financial ( $M = 3.51$ ), and economic ( $M = 3.91$ ) risks in Nepal's hydropower investment climate, these perceived risks do not significantly influence FDI inflows. The regression model explained only 1.9% of the variance ( $R^2 = 0.019$ ) and was not statistically significant ( $p = 0.924$ ), with none of the individual risk factors yielding significant coefficients ( $p > 0.05$  for all). This contradicts the location advantage predictions of Dunning's (1977) Eclectic Paradigm, which suggests that host-country risks should deter foreign investment.

The significant positive correlation between financial and economic risks ( $r = 0.570$ ,  $p = 0.001$ ) aligns with macroeconomic theory: currency instability, inflation, and debt burdens are inherently interlinked. However, their collective failure to predict FDI inflows suggests that investors may be "risk-tolerant" when long-term strategic returns in hydropower outweigh short-term uncertainties. Similar findings have been observed in other resource-rich developing countries where FDI persists despite political and economic volatility (Asiedu, 2006).

The high mean score for FDI inflows (4.44), despite risk perceptions, indicates that opportunity factors—Nepal's vast hydropower potential (83,000 MW), regional electricity export prospects, and bilateral investment agreements (BIPPA with India, UK, France, Germany)—may dominate investment decisions. This aligns with findings from Athukorala and Sharma (2006), who noted that FDI in Nepal's energy sector responds more to market potential and policy incentives than to risk indicators.

Practically, the results suggest that policymakers should focus less on risk mitigation alone and more on enhancing sector-specific opportunities—streamlining licensing, ensuring Power Purchase Agreements (PPAs), and improving infrastructure. The study's limitations (small sample size, Kathmandu-centric sampling) warrant cautious generalisation, but the consistency of findings across analytical methods strengthens the conclusion: perceived risks do not dictate FDI inflows in Nepal's hydropower sector.



## 5. Conclusion

This study quantitatively examined the relationship between perceived environmental, financial, and economic risk factors and foreign direct investment (FDI) inflows in Nepal's hydropower sector. Based on primary data from 30 stakeholders in Kathmandu Valley, the findings lead to three main conclusions.

First, stakeholders perceive moderate-to-high levels of risk across all three dimensions, with economic risk (mean = 3.91) viewed as the most salient, followed by environmental risk (3.70) and financial risk (3.51). Despite these concerns, respondents strongly agree (mean = 4.44) that FDI inflows remain favourable and growing in Nepal's hydropower sector.

Second, correlation and regression analyses reveal no statistically significant relationship between any of the three risk factors and FDI inflows. The multiple regression model explained only 1.9% of variance ( $R^2 = 0.019$ ) and was not significant ( $F = 0.157$ ,  $p = 0.924$ ). Consequently, all three hypotheses—that environmental risk (H1), financial risk (H2), and economic risk (H3) significantly impact FDI inflows—are rejected.

Third, the significant positive correlation between financial and economic risks ( $r = 0.570$ ,  $p < 0.01$ ) indicates that stakeholders perceive these dimensions as mutually reinforcing. However, their combined effect does not meaningfully predict investment inflows.

The study concludes that perceived environmental, financial, and economic risks do not determine FDI inflows in Nepal's hydropower sector. Instead, foreign investors appear motivated by opportunity-driven factors: Nepal's vast hydropower potential, regional electricity export possibilities (to India and Bangladesh), bilateral investment protection agreements, and sector-specific incentives such as tax holidays and 100% foreign ownership allowances under FITTA 2019.

For policymakers, this implies that while risk mitigation remains important, enhancing opportunity signals—streamlining licensing, ensuring bankable Power Purchase Agreements, improving transmission infrastructure, and maintaining policy consistency—may be more effective in attracting FDI. Future research should include larger, more diverse samples, incorporate actual (not just perceived) FDI inflow data, and explore the specific opportunity factors that outweigh risk perceptions in investor decision-making.

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