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CURRENCY RISK ASSESSMENT OF JOINT-STOCK COMPANIES

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Abstract

This paper examines the approaches used to assess currency (exchange-rate) risk faced by joint-stock companies (JSCs). It classifies the principal forms of currency exposure — transaction, translation, and economic — and reviews the main quantitative techniques applied to measure them, with particular emphasis on the exposure-elasticity approach and the Value-at-Risk (VaR) framework. The growing relevance of currency risk assessment for JSCs operating in emerging markets, especially under Uzbekistan's floating exchange-rate regime, is discussed, and practical recommendations for improving measurement and management are proposed.

Keywords: Currency risk, exchange rate, joint-stock company, Value-at-Risk, currency exposure, hedging, emerging markets, financial risk management.

1. Introduction

In an increasingly integrated global economy, joint-stock companies (JSCs) are routinely exposed to fluctuations in foreign exchange rates through cross-border trade, foreign-currency-denominated borrowing, and international investment. Unexpected movements in exchange rates directly affect a company's cash flows, reported earnings, balance-sheet value, and ultimately its market capitalisation. Consequently, the accurate identification and measurement of currency risk has become an essential element of corporate financial risk management.

This issue is particularly acute for JSCs operating in emerging markets. Following the transition to a free-floating exchange-rate regime in Uzbekistan in September 2017, domestic companies have been exposed to substantially higher exchange-rate volatility, while widespread dollarisation and foreign-currency liabilities have amplified their sensitivity to currency movements. This paper therefore reviews the nature of currency risk, the principal methods used to assess it, and the specific considerations relevant to JSCs in the Uzbek context.

2. The Nature and Types of Currency Risk

Currency risk (exchange-rate risk) refers to the potential for an adverse change in the value of a company's assets, liabilities, cash flows, or earnings arising from movements in exchange rates. The literature conventionally distinguishes three forms of currency exposure, summarised in Table 1.

Table 1. Principal forms of currency exposure of joint-stock companies

Type of exposure	Description	Horizon
Transaction	Effect on the domestic-currency value of outstanding foreign-currency contractual obligations (receivables and payables) prior to settlement.	Short-term
Translation	Effect on consolidated financial statements when foreign-currency assets, liabilities, and subsidiary accounts are converted into the reporting currency (accounting exposure).	Reporting date
Economic (operating)	Effect of unanticipated exchange-rate changes on the present value of future operating cash flows and on the company's competitive position.	Long-term

3. Methods for Assessing Currency Risk

A range of quantitative techniques is used to assess currency risk, differing in complexity and informational requirements. Three approaches are particularly relevant for JSCs.

3.1. Net currency exposure and sensitivity analysis. The most direct approach measures the net open position in each foreign currency — the difference between foreign-currency assets (or inflows) and liabilities (or outflows). Sensitivity analysis then estimates the impact on earnings or equity of a specified change in the exchange rate (for example, a ±10% movement), providing a transparent first-order indicator of exposure.

3.2. The exposure-elasticity (regression) approach. Following Adler and Dumas (1984) and Jorion (1990), economic exposure can be estimated econometrically by regressing the firm's stock return on the change in the exchange rate:

$$R\_it = \alpha i + \beta i \cdot R\_st + \varepsilon it$$

where R_it is the return on the company's shares, R_st is the percentage change in the exchange rate, βi is the exchange-rate exposure coefficient (elasticity), and εit is the residual. A statistically significant βi indicates that the firm's value is sensitive to currency movements; its sign and magnitude reveal the direction and degree of exposure.

3.3. Value-at-Risk (VaR). VaR has become the benchmark measure for quantifying potential losses on currency positions. It estimates the maximum expected loss on an open position over a given horizon at a stated confidence level. Under the parametric (variance–covariance) method, the VaR of a single currency position is:

$$VaR = V_0 \cdot z\_\alpha \cdot \sigma \cdot \sqrt{t}$$

where V_0 is the domestic-currency value of the net open position, z_α is the standard-normal quantile corresponding to the confidence level (e.g., 1.65 at 95%

and 2.33 at 99%), σ is the volatility (standard deviation) of exchange-rate returns, and t is the holding period. In addition to the parametric method, VaR may also be computed through historical simulation or Monte Carlo simulation, the latter being preferable when exchange-rate returns deviate from normality.

4. Implications for Currency Risk Management

Risk assessment is the basis for risk management. Once exposure has been quantified, JSCs can mitigate it through internal techniques — natural hedging, currency matching of assets and liabilities, netting of intra-group flows, and invoicing in the domestic currency — and through external instruments such as forward contracts, currency futures, options, and swaps. The choice depends on the type and horizon of the exposure identified, the availability of derivative markets, and the cost of hedging relative to the firm's risk tolerance.

5. Currency Risk Assessment in Uzbek Joint-Stock Companies

The application of these methods in Uzbekistan involves several specific considerations. Since the move to a floating regime, the heightened volatility of the soum has increased the materiality of currency risk, particularly for JSCs with foreign-currency debt or import-dependent operations. At the same time, the relatively underdeveloped domestic derivatives market limits the range of external hedging instruments available, while shorter price histories and lower trading frequency complicate the statistical estimation of volatility and exposure coefficients.

To strengthen currency risk assessment in this setting, it is advisable for JSCs to (i) maintain systematic measurement of net open currency positions; (ii) combine sensitivity analysis with VaR estimated through historical or Monte Carlo simulation to accommodate non-normal returns; and (iii) enhance disclosure of

foreign-currency exposure in financial reporting. The continued development of the national capital and derivatives markets will, in turn, expand the practical toolkit available for managing this risk.

6. Conclusion

Currency risk is a significant component of the financial risk faced by joint-stock companies, particularly those operating in emerging markets with floating exchange rates. Its assessment requires distinguishing between transaction, translation, and economic exposure, and applying appropriate quantitative tools — from net-exposure sensitivity analysis to the exposure-elasticity regression and the Value-at-Risk framework. For Uzbek JSCs, systematic measurement combined with simulation-based VaR and improved disclosure offers a practical path towards more informed, risk-based financial decision-making.

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