Exchange Rate Fluctuations and Profitability: Evidence from Sri Lankan Apparel and Textile Firms

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ABSTRACT

Exchange-rate movements can affect export-oriented firms through changes in the domestic-currency value of foreign-currency receipts, the cost of imported inputs, and uncertainty surrounding future cash flows. This study examines the relationship between the nominal exchange rate, exchange-rate volatility, and the profitability of apparel and textile firms listed on the Colombo Stock Exchange (CSE). The sample is puristically selected, and the study period is 2014-2024; , there are an 11-year period for 30 firms would yield 330 observations in a balanced panel. Profitability is measured by Return on Assets (ROA), Return on Equity (ROE) and Net Profit Margin (NPM). The explanatory variables include the annual nominal average exchange rate of LKR/USD, exchange rate volatility and inflation as a control variable. Secondary data are drawn from audited annual reports and publications of the Central Bank of Sri Lanka and the Department of Census and Statistics. Descriptive statistics and regression analysis were used to examine the relationships. The nominal exchange rate shows a positive relationship with all three measures of profitability, and the volatility of the exchange rate is negatively related with all three measures of profitability, as reported in the pooled OLS estimates. The model's explanatory power (R-squared) is relatively low at 0.025 in the NPM model. These findings should be interpreted as associations rather than causal effects, and the final statistical conclusions remain subject to verification of the observation count, variable units, panel-data specification, and reported significance levels.

Keywords**:** *Apparel Industry, Colombo Stock Exchange, Exchange rate, firm profitability, Sri Lanka*

1. INTRODUCTION

Exchange-rate fluctuations are a substantial macroeconomic factor that creates uncertainty for firms engaged in international trade, as changes in currency values can affect export revenues, imported input costs, pricing decisions, and ultimately profitability (Sathanantham & Thanabalasingam, 2023). The implementation of the floating exchange rate system following the collapse of the Bretton Woods system in 1973 is generally thought to have increased exchange rate uncertainty (Hall et al., 2010). Excessive fluctuations in exchange rates raise concerns about future exchange-rate movements. Similarly, the exchange rate volatility is frequently viewed as a risk, and an upward trend in volatility may increase costs for risk-averse traders and reduce trade (Jensen & Whitfield, 2022). Furthermore, when payment is deferred after a trade contract is agreed, exchange-rate movements between the transaction and settlement dates can create uncertainty about the value of revenues and costs (Gunarathne et al. (2021).

Against this backdrop, exchange-rate movements have become an important consideration for trade and investment in Sri Lankan context. The Sri Lankan rupee has experienced substantial depreciation over time, while movements in the real exchange rate have not always corresponded with movements in the nominal exchange rate (Arachchi, 2018). Furthermore, Ramanayake (2019) asserts that economies with open capital accounts and flexible exchange rate arrangements can experience considerable exchange-rate variations. Such movements are particularly relevant to export-oriented firms because depreciation can increase the local-currency value of foreign-currency receipts while simultaneously increasing the local-currency cost of imported inputs.

Moreover, the economic crisis faced in 2022 highlighted the complex effects of exchange-rate movements. While the depreciation of the Sri Lankan Rupee allowed the export sector generate higher local-currency revenues from US dollar-denominated receipts, it also resulted in higher production costs because the sector relies heavily imported inputs (Ramanayake, 2019). In addition, Rajapakshe and Chandrasiri (2023) find that increased exchange rate volatility increases the cost of hedging and makes it more difficult to make pricing, budgeting, and business planning decisions. More broadly, exchange-rate regime of Sri Lanka has evolved through several stages, with the country eventually moving towards a flexible exchange-rate arrangement, which has exposed domestic industries to exchange-rate fluctuations. This broader impact is supported by Rathnayaka (2021), who studied the relationship between the exchange rate volatility and the trade, remittance, tourism and stock market activity, and found that exchange-rate

volatility has significant implications for various sectors of the Sri Lankan economy.

The export-oriented apparel sector in Sri Lanka is exposed to exchange rate movements as firms generate foreign-currency export revenues while relying on imported inputs and engaging in other foreign-currency transactions (Ekanayake & Chatrna, 2010). Although the sector plays an important role in the national economy, there is limited consensus about how exchange rate volatility affects the profitability of Sri Lankan apparel exporting firms (Wijekoon et al., 2021). While a depreciation of the Sri Lankan rupee may therefore increase export revenue in local-currency terms, it can also raise production costs through higher costs of imported inputs. Furthermore, exchange rate volatility can additionally increase uncertainty and pose challenges in pricing, sourcing, and hedging decisions. These challenges may become more complex as changes in global trade policies interact with exchange-rate movements, potentially affecting firms' net profitability (Gunarathne et al. (2021).

Accordingly, the relationship between exchange-rate fluctuations and firm profitability remains inconclusive. Prior studies report negative, positive, and statistically insignificant relationships, suggesting that the effects may depend on industry characteristics, trade exposure, input sourcing, pricing flexibility, and financial risk-management practices. Much of the available Sri Lankan evidence has examined. Much of the existing evidence has focused on developed economies or aggregate export performance, limiting the extent to which these findings can be generalized to exporting firms in Sri Lanka Therefore, this study aims to examine how exchange-rate fluctuations affect the profitability of publicly traded apparel and textile exporting firms in Sri Lanka. The present study addresses this gap by examining three firm-level profitability indicators—ROA, ROE, and NPM—among listed apparel and textile firms. It distinguishes the level of the nominal exchange rate, reflects the domestic-currency value of the $1 (due to exchange-rate volatility), which reflects fluctuations in currency values from month to month. The analysis also considers inflation as a macroeconomic control variable.

1.1 Research Objectives

1. To examine the relationship between the NER of the LKR/USD and profitability of listed apparel and textile companies in Sri Lanka.
2. To assess the relationship between the volatility of exchange rate and profitability of firm in terms of ROA, ROE, and NPM.

3. To analyze the association between inflation and profitability of selected firms.

1.2 Research Questions

RQ1: WHAT IS THE RELATIONSHIP BETWEEN the nominal LKR/USD exchange rate and profitability of listed apparel and textile companies?

RQ2: How is the relationship of exchange-rate volatility with ROA, ROE, and NPM?

RQ3: What is the relationship between inflation and profitability of the selected firms

2. REVIEW OF THE LITERATURE

International trade theory and the J-Curve theory can be used to explain relationship between exchange-rate fluctuations and firm profitability, while the hedging perspective provides an additional explanation of how firms can manage exchange-rate exposure (Thevakumar & Jayathilaka, 2022). International trade theory suggests that exchange rate fluctuations can have an impact on export prices, international competitiveness, and the allocation of resources across countries (Upadhyaya et al., 2020). Accordingly, fluctuations in exchange rates can create uncertainty regarding exporters' future revenues and costs and may therefore influence their profitability (Wijekoon et al., 2021).

The J-Curve theory highlights the dynamic nature of this relationship, contending that profit levels may initially drop as import prices rise quickly, but only if the export prices were fixed in the prior period with the current contracts. However, profit levels will improve only once the firms renegotiate the export prices and the export volume in later periods (Hoque & Banerjee, 2012). Building on these theoretical perspectives, the hedging concept builds on these theories and suggests that firms can reduce exchange rate risk by utilizing financial and operational approaches, but the ability to do so is dependent on market access, cost, and managerial capability to hedge (Ethier, 1973; Viaene & de Vries, 1992). Taken together, these theories suggest that exchange rate fluctuations impact profitability through both enhanced revenue and increasing cost, with the overall impact depending on firms' exposure to foreign trade and their risk management strategies.

Empirically, numerous studies have reported a negative relationship between exchange-rate volatility and trade or firm performance because

volatility can increase uncertainty and transaction costs (Kemapirakash & Thanabalasingam, 2023). In contrast, other studies indicate positive associations where companies can reap some benefits from the positive movement of the currency, which can be achieved via pricing flexibility, market diversification and appropriate currency hedging strategies (Wijekoon et al., 2021). Meanwhile, other studies report statistically insignificant effects, indicating that the relationship may vary with economic structure, industry characteristics, trade policies, and financial-market development (Thevakumar & Jayathilaka, 2022). Despite the growing body of global scholarly literature, the Sri Lankan context has received relatively limited empirical attention, particularly regarding how exchange-rate fluctuations affect firm profitability under the country's specific economic and trade conditions (Rajasinghe & Silva, 2025). Overall, these mixed findings indicate that the effect of exchange-rate fluctuations on profitability remains unclear and context-specific, highlighting the need for further empirical investigation, particularly in emerging economies such as Sri Lanka.

Furthermore, macroeconomic conditions such as monetary policy, tariffs, and global demand may influence the transmission of exchange-rate movements to firm performance (Jayasinghe, 2025; Tarasenko, 2021). However, existing Sri Lankan studies have largely examined aggregate export performance rather than firm-level profitability indicators, including ROA, ROE, and NPM. Moreover, limited empirical attention has been paid to the influence of input costs and hedging practices on firm profitability (Dunusinghe, 2022). To address these gaps, the present study examines the effects of exchange-rate movements and exchange-rate volatility on the profitability of apparel and textile exporting companies listed on the Colombo Stock Exchange.

3. METHODOLOGY

This study adopts a quantitative explanatory research design based on secondary firm-level data to examine the relationship between nominal exchange-rate movements, exchange-rate volatility, and the profitability of apparel and textile exporting firms in Sri Lanka. The study covers the period from 2014 to 2024 and collected data from audited annual financial statements of selected listed firms together with macroeconomic data published by the Central Bank of Sri Lanka and the Department of Census and Statistics.

4. ANALYSIS & DISCUSSION

Descriptive statistics for the study variables for the period indicated are provided in Table 2. Net profit margins are somewhat different among firms and over time. The reported nominal exchange-rate figures (between LKR 2.115 and 2.531, with a mean of 2.288) do not seem to be quoted in the conventional manner (LKR per US dollar). If there is a series that has been rescaled, logged, standardized, or transformed in other ways, the authors are responsible for making sure that they have done so and for indicating the units of the series in the comments. The inflation row also needs to be checked because if all four statistics are on the same scale their mean (9.273) and standard deviation (13.400) do not seem to be consistent with the minimum (9.273) and maximum (9.497) reported. The source values, units and transformations presented in Table 1 must be checked against the underlying dataset before interpreting this table.

Table 1: Descriptive Statistics

Variable	Min	Max	Mean	SD	CV
Return on Assets	.039	2.896	1.290	.419	3.079
Return on Equity	-.250	2.830	1.013	.502	2.018
Net Profit Margin	.000	4.743	.565	.756	0.747
Nominal Exchange Rates	2.115	2.531	2.288	.150	15.253
Exchange Rate Volatility	.741	1.774	1.206	.356	3.388
Inflation Rate	-.400	.497	9.273	13.400	0.692

Notes: Min, Max, SD and CV stand for minimum, maximum, standard deviation, and coefficient of variance, respectively
Source: *Author's findings during 2014 to 2024.*

The OLS regression model illustrated in equation 1 was employed to examine the effect of exchange rate fluctuations on profitability of apparel and textile export industry in Sri Lanka deploying annual data on 30 listed companies during the ten years period from 2014 to 2024. Since the firm profitability is measured employing three different measures, a total of three regression models, such as, model 1, model 2, and model 3, were used, considering each profitability measure as the dependent variable.

The Reported R-squared values are .288 for ROA, .114 for ROE and .025 for NPM. Thus, the explanatory variables explain a relatively small amount of the observed variation in NPM for the reported pooled OLS specification. The low R-squared of the NPM regression suggests that the macroeconomic variables included are not a significant driver of the variation in net profit margins;

additional firm-specific factors like product mix, labour and energy costs, intensity of imports, productivity, financing costs, pricing power and the efficiency of operations could also play a role. They are not directly observed in the present model, and must be considered as possible omitted influences, not as tested explanations. It is not possible to get a definite answer from the reported Durbin–Watson statistics (1.244, 1.320, and 1.933) whether the data are without autocorrelation, especially when the dataset is panel. Evaluate the F-statistics and significance levels only after verification of the model degrees of freedom and exact output of software.

Table 3: Regression Analysis

Variables	Description	Model 1 ROA	Model 2 ROE	Model 3 NPM
NER	Nominal Exchange Rate	11.141***	4.104**	5.666**
		(8.766)	(2.428)	(2.122)
ERV	Exchange Rate Volatility	-4.331**	-1.194*	-2.090*
		(-8.110)	(-1.680)	(-1.863)
IR	Inflation Rate	-.014***	-.009***	-.005
		(-8.065)	(-3.766)	(-1.373)
R^2		.288	.114	.025
F Value		43.909***	14.035***	2.859***
Durbin–Watson		1.244	1.320	1.933

Note: ***, ** and * implies statistical significance at 1 percent, 5 percent and 10 percent levels, respectively. *t* statistics have indicated within parentheses
Source: *Author's findings during 2014 to 2024.*

In the reported pooled OLS results, the nominal exchange-rate coefficient is positive for ROA (β = 11.141, t = 8.766), ROE (β = 4.104, t = 2.428), and NPM (β = 5.666, t = 2.122). With the scale of exchange rates and final p-values verified, these estimates suggest that a higher scale of exchange rate (Loquidity Rate in terms of weaker Rupee under the quotation convention) is associated with a positive value of the three profits measures. One possible explanation is that depreciation increases the local-currency value of foreign-currency export receipts. The net benefit depends, however, on the degree of dependence on imported inputs, on the foreign-currency liabilities, on the timing of contract and on the currency of contract. These channels are not separately measured, so should be shown as possible channels rather than established causal channels.

The exchange-rate-volatility coefficients reported are negative for ROA (β = −4.331, t = −8.110), ROE (β = −1.194, t = −1.680), and NPM (β = −2.090, t = −1.863). Based on the For the ROE association, the t-statistic is significant at the 10% level (p ≈ .094) and for the NPM association, the t-statistic is significant at the 10% level (p ≈ .063) with 296 degrees of freedom in the residual. The values obtained from these p-values should be verified from the final model output. The negative numbers reflect the notion that uncertainty brings a challenge to budgeting, pricing, sourcing and cash flow planning. The results do not directly test the J-Curve theory because the models do not estimate short-run and long-run dynamic adjustments in export and import quantities or prices.

The inflation coefficient is negative in all three reported models. The displayed t-statistics suggest statistically significant negative associations for ROA (t = −8.065) and ROE (t = −3.766) and the NPM coefficient is not statistically significant (t = −1.373; approximate p = .171, given 296 residual degrees of freedom). If inflation is higher, it could be linked to rising labour, energy, transport and other operating costs, and thus negatively impact asset and equity returns. The non-significant NPM estimate does not confirm that firms were able to combat inflation by raising prices; it merely suggests that the estimated association is not significantly different than zero at conventional levels in this specification.The findings should be compared with prior studies only after checking that the studies examine comparable outcomes, periods, industries, and methods. The discrepancy with previous studies could stem from the use of different measures of export performance and accounting-based profitability, as well as variations in the sample of the studies and model specification. No description of results as contradictory should be used unless the measures used in the studies cited and the results from those studies have been verified and directly compared.

5. CONCLUSION

This study is a comparative one that investigates the relationship between nominal exchange rate movements, exchange rate volatility and profitability of listed apparel and textile companies in Sri Lanka. Pooled OLS estimates reveal that the nominal exchange rate has a positive influence on ROA, ROE and NPM, and exchange-rate volatility has a negative impact on each of the three profitability measures. All of the reported results indicate negative correlations between inflation and ROA and ROE, but not with NPM. These findings are preliminary since the time period of study, the number of firm-year observations, the unit of variation and the panel regression diagnostics need to be verified. If we are being specific, then 30 firms observed between 2014 and 2024 will result in 330 observations, not 300. Conclusions should be

revised following confirmation of the sample structure and the panel estimates.

The results have implications for export-oriented firms. A lower rupee valuation of foreign currency export receipts is possible, but can be offset by imported-input costs, foreign currency debt and contract terms. Therefore, it may be beneficial for the firms to keep track of its net currency exposure, consider better timing for its pricing and procurement actions and assess appropriate financial or operational risk management strategies to be implemented. Policymakers must be aware that the competitiveness of the exchange rate is not the only element that influences firm profitability; other factors, such as access to imported inputs, macroeconomic stability, productivity and predictable trade conditions are also important.

This study provides some firm level evidence about the relationship between exchange-rate measures and three accounting based profitability measures for companies listed in the apparel and textile industry of Sri Lanka. However, some caveats must be noted. The sample is limited to listed companies and may not be representative of privately-owned exporters. The analysis relies on the annual data, and limited number of macroeconomic variables; firm-level export intensity, currency invoicing, hedging, productivity and firm-specific cost structures are not directly controlled for. It is also important to reconcile the study period with the number of observations, and to reanalyze the pooled OLS results employing panel methods and robust standard errors. Future research can add the private exporters, can add firm-level variables for foreign-currency exposure and hedging, can test on other measures of volatility, and can apply dynamic panel or time-series models if the data allow.

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