

# Author's Accepted Manuscript

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PII: S1059-0560(16)30193-9  
DOI: <http://dx.doi.org/10.1016/j.iref.2017.02.007>  
Reference: REVECO1382

To appear in: *International Review of Economics and Finance*

Received date: 6 October 2016  
Revised date: 31 January 2017  
Accepted date: 13 February 2017

Cite this article as: Augustine C. Arize, John Malindretos and Emmanuel U Igwe, Do Exchange Rate Changes Improve the Trade Balance: An Asymmetric Nonlinear Cointegration Approach, *International Review of Economics and Finance*, <http://dx.doi.org/10.1016/j.iref.2017.02.007>

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# Do Exchange Rate Changes Improve the Trade Balance: An Asymmetric Nonlinear Cointegration Approach

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## ABSTRACT

This paper examines the impact of real effective exchange rate on the trade balance of eight countries in the context of several nonlinear techniques, especially the nonlinear auto-regressive distributed lag model (NARDL). The advantages of the NARDL approach vis-à-vis earlier approaches is that it provides more efficient short-run and long-run coefficient estimates and allows through the distributed lag and the long-run dynamics a single common cointegrating vector. Both parts are allowed to be asymmetric. While previous studies have relied on models that ignored the time series properties of the variable and some have used the linear ARDL and obtained mixed results, the current paper uses the nonlinear auto-regressive distributed lag model (NARDL). We show that this is due to the assumption that the relationship is symmetric in nature. Results from long-run cointegration analysis, short-run analysis and half-lives, all provide evidence indicating that when depreciation is separated from appreciation, it is shown to have significant effects on the trade balance but in an asymmetric model.

## Introduction

Although exchange rate changes have long been a subject of interest, the focus of this interest has evolved considerably since the generalized floating era. Movements in the exchange rate have effects on imports and exports, and nominal depreciation or appreciation of the exchange rate is presumed to change the real exchange rate and, thus, have a direct effect on a country's trade balance. According to international trade theory, a real depreciation/devaluation of domestic currency would make imports more expensive and exports cheaper and ultimately leads to an improvement in the trade balance. It is expected that an improvement in a country's

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<sup>1</sup> *The authors would like to thank Ed Manton, Ray Keck and John Humphreys for helpful comments on an earlier draft. Special thanks to Kathleen Smith for excellent research assistance.*

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