ASYMMETRICAL REACTION TO US STOCK MARKET RETURN NEWS: EVIDENCE FROM MAJOR STOCK MARKETS BASED ON A DOUBLE-THRESHOLD MODEL

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ABSTRACT

Although financial markets in the United States are widely regarded as a global benchmark, their influence on international markets are usually not uniform and often exhibits asymmetry depending on the nature of the news and the prevailing market conditions. This study aims to investigate how positive and negative news from the United States Stock market influences other international markets using different thresholds. This study used a sample period from January 2000 to December 2023 for the US, Europe, Asia, and emerging markets. The findings revealed that there are significant asymmetries in market reactions as negative United States stock-return news has a more pronounced and immediate impact on global markets compared to positive news. The results also revealed that these asymmetries are more profound in emerging markets. Therefore, emerging market regulators may need safety nets to account for potentially higher than usual effects of negative U.S. news on their domestic markets due to asymmetrical responses and regime shifts in the global equity markets.

Keywords: Asymmetrical Reaction, Global Financial Markets, Double-Threshold Model, Threshold Regimes, Financial Contagion.

1. INTRODUCTION

Financial markets in the United States (US) are perceived to be the cornerstone of the global financial system, serving as a barometer for the economic health system and investor confidence. Due to its size and liquidity, the US stock markets often ricochet across international markets, impacting the performance of equities in both established and emerging economies (Chen, 2023). However, the effect of U.S. stock market news to global markets is not linear, partly defined by asymmetrical reactions that rely on the nature of the news and other market conditions (Youssef et al., 2021). The idea of asymmetrical reactions to financial news is rooted in behavioural finance, which contends that investors react differently to gains and losses due to cognitive biases (Taylor, 2024). Empirical evidence suggests that negative news tends to have a more pronounced and lasting impact on market returns compared to positive news, a phenomenon often referred to as negative return asymmetry (Hong et al., 2000). This is very common during episodes of uncertainty when risk aversion dominates investor decision-making. While prior research has extensively documented asymmetrical reactions within individual markets, fewer studies have explored how these dynamics play out across global markets in response to U.S. stock market news. The transmission of U.S. stock market returns to international markets is further complicated by the nonlinear nature of financial markets. Traditional linear models has not really captured this complex interplay between factors that drive cross-market contagion (Jin, 2024). As such, the varying levels of market integration and regime shifts are important factors that need to be considered. To address these limitations, this study employs a double-threshold model, which allows for the identification of distinct volatility regimes and the examination of how global markets react to U.S. return news under different market conditions. By segmenting market behaviour into bullish and bearish regimes, the model provides an in depth understanding of the asymmetrical reactions observed across global equity markets. The importance of this study is underscored by the increasing interconnectedness of global financial markets, which has amplified the speed and magnitude of cross-border spillovers. The 2007-2008 global financial crisis and the most recent COVID-19 pandemic highlighted how shocks originating in the U.S. stock market can rapidly propagate across the world, triggering widespread selloffs and heightened volatility. Emerging markets are often more vulnerable

to such shocks due to their reliance on foreign investments and fragile financial systems. By leveraging a quantitative model, this study aims to uncover the mechanisms driving asymmetrical reactions and to identify the conditions under which these reactions are most pronounced. Therefore, this study contributes to the growing body of literature on financial contagion and cross-market linkages, offering valuable insights for safeguarding financial stability in an increasingly interconnected world.

2. LITERATURE REVIEW

Asymmetrical reaction of global stock markets to U.S. stock market return news is a well-documented phenomenon in financial literature, with roots in international market integration theories. Prior research by Bekaert and Harvey (1997) and Forbes and Rigobon (2002) have highlighted the dominant role the U.S. market plays in driving global equity returns. The U.S. financial market influence is attributed to its deep integration with global financial systems as a safe haven during periods of uncertainty. However, the transmission of U.S. stock market returns to other markets is not uniform and often depends on several factors. The concept of asymmetrical reactions to financial news is grounded in behavioural finance, which emphasizes the role of cognitive biases in investor decision-making. Kahneman and Tversky's (1979) prospect theory, suggested that investors are more sensitive to losses than to gains, leading to stronger reactions to negative news. This concept known as loss aversion has been extensively studied in the context of stock market returns. Studies by Veronesi (1999) and Hong and Stein (2003) have shown that negative news tends to have a more pronounced and persistent impact on market returns compared to positive news, particularly during periods of high uncertainty. In the context of international markets, the asymmetrical reaction to U.S. stock market news has been examined. For example, the study of Baur and McDermott (2010) found that global markets exhibit stronger reactions to negative U.S. return shocks than to positive ones. This asymmetry is often attributed to the flight-to-safety behaviour of investors, who tend to withdraw from riskier assets during bearish episodes, leading to heightened volatility. Also, the transmission of U.S. stock market returns to global markets is closely linked to the concept of financial contagion, which is the spread of financial shocks across financial markets (Camera & Gioffré, 2024). Earlier studies by King and Wadhwani (1990) and Calvo and Reinhart (1996) highlighted the role of volatility spillovers in driving cross-market linkages. However, the study by Diebold and Yilmaz (2009) employed network analysis to quantify the magnitude and direction of spillovers between markets and found that the U.S. stock market is a major source of volatility spillovers. Emerging markets are also found to be more vulnerable to U.S. return shocks reflecting their greater exposure to global financial shocks. Traditional linear models often do not capture these complex dynamics in financial markets, especially during periods of regime shifts or structural breaks (Enow, 2023). In the context of global stock markets, Edwards and Susmel (2001); Guidolin and Timmermann (2008) employed threshold models to examine how market reactions vary across different volatility regimes. Their findings revealed that US market reactions to external shocks, are highly regime-dependent with stronger reactions observed during high-volatility periods. While recent studies have made significant contributions to understanding the asymmetrical reactions of global stock markets to U.S. return news, few studies have explicitly examined bullish and bearish regimes in shaping these reactions. Also, the differential responses of developed and emerging markets to U.S. return news warrant further investigation, particularly in the context of varying levels of market integration using advanced nonlinear models, such as the double-threshold model. Hence, this study contributes significantly to the ongoing discussion of asymmetrical reactions to U.S. stock market return news across major global markets. The section below highlights the methodology used in achieving the aim of the study.

3. METHODOLOGY

Daily stock return from global markets for a period of twenty-three years (January 2000 to December 2023) was used as the sample time frame. This time frame was selected because it includes episodes of financial distress such as the dot-com bubble burst from 2000 to 2002, the global financial crisis from 2007 to 2009, and the most recent COVID-19 pandemic from 2020 to 2021. The sample international markets where the S&P 500 index for the U.S. market the Euro Stoxx 50 for Europe, the Nikkei 225 for Japanese market, the Hang Seng Index for Hong Kong, the ASX 200 for Australia, the Bovespa for Brazil and the IPC Index for Mexico. The required data was retrieved from Bloomberg and returns were calculated as percentages. The S&P 500 returns were used as the key explanatory variable, while the dependent variables are the stock returns of the international markets. To investigate the asymmetrical reaction to U.S. stock-return news, this study employs a double-threshold model, which allows for the identification of distinct reactions to both positive and negative shocks in U.S. stock returns. A double-threshold model is an important analysis tool that extends the capabilities of traditional linear models and single-threshold models by allowing for a more intuitive analysis of nonlinear relationships and regime-dependent behaviour (Chen & Gerlach, 2013). A double-threshold model was well-suited for asymmetrical reactions because it allows for different coefficients in each regime to capture the varying nature of the impact of positive or negative news (Chen, 2023). The model specification is given by:

$$Y_{it} = \alpha_i + \beta_1 \cdot US\ returns_t + \beta_2 \cdot US\ returns_t \cdot D^+ + \beta_2 \cdot US\ returns_t \cdot D^- + \epsilon_{it}$$

Where

Y_{it} = Stock market returns at time, t.

β_n = Coefficients of S&P returns shocks on international markets.

$US\ returns_t$ = S&P returns at time t.

D^+ and D^- = Indicator variables that denote positive and negative returns based on specific thresholds

ϵ_{it} = error term

The variables D^+ and D^- are dummy variables that were set equal to 1 when U.S. returns exceed a predefined positive or negative threshold or 0 otherwise. These thresholds are determined based on the empirical distribution of the S&P 500 returns. The double-threshold model is also suitable for testing whether markets respond differently to positive versus negative shocks in U.S. stock returns and whether this relationship holds consistently across different market conditions. The findings and analysis are presented below.

4. DATA ANALYSIS AND FINDINGS

Descriptive Statistics

Table 1 below presents the descriptive statistics for the U.S. and international stock returns are presented below.

Table 1. Descriptive statistics of stock returns

Market	Mean (%)	Std Dev (%)	Min (%)	Max (%)
S&P 500	0.05	1.25	(5.23)	4.8
Euro Stoxx 50	0.03	0.85	(4.90)	4.20
Nikkei 225	0.07	0.95	(5.10)	4.50

Hang Seng	0.06	1.10	(4.70)	5.00
ASX 200	0.04	0.90	(4.30)	4.30
Bovespa	0.08	1.40	(6.20)	5.10
IPC Index	0.05	1.20	(5.50)	4.70

Std Dev= Standard deviation, Min= Minimum value, Max= Maximum value

From Table 1 above, the S&P 500 returns exhibit a relatively higher levels of volatility compared to most international markets, with the standard deviation of 1.25%, compared to the Nikkei 225's 0.95% and the Euro Stoxx 50's 0.85%. From these findings, it may be suggested the S&P 500 returns have more frequent extreme positive and negative movements, indicating that large swings in U.S. stock returns. The results of the double-threshold model are presented below.

Table 2. Regression Output

Markets	β_1	β_2 *(Positive Shock)*	β_3 *(Negative Shock)*	*R-Square*
Euro Stoxx 50	0.056	0.003	-0.017	0.78
Nikkei 225	0.065	0.008	-0.025	0.80
Hang Seng	0.070	0.005	-0.021	0.75
ASX 200	0.050	0.004	-0.019	0.72
Bovespa	0.081	0.010	-0.032	0.79
IPC Index	0.053	0.006	-0.022	0.76

The coefficients β_2 and β_3 reveals asymmetries in the reaction to S&P 500 stock-returns news. For the sample financial markets, the magnitude of the negative shock effect β_3 is larger in absolute value than the positive shock effect β_2. These results suggest that global stock markets react more strongly to negative shocks from the U.S. market than to positive ones. The findings also reveals that the Euro Stoxx 50 responds to negative shocks in the U.S. market averagely by 1.7% when U.S. returns fall below the negative threshold, whereas positive shocks result in a much smaller increase of only 0.3%. This pattern is consistent across all markets, with the greatest asymmetry observed in Bovespa and Nikkei 225, where the negative shock effects are almost four times larger than the positive shock effects. The values also indicates that the positive and negative news from the US market accounts for more than 70% of the movement in the other markets which is significantly high. This finding is in tandem with the studies of Veronesi (1999); Hong and Stein (2003); Baur and McDermott (2010) who also had similar findings. Hence, these results reiterate the importance of considering regional factors when analysing global financial interconnectedness. This could be due to differing levels of market integration and the U.S. market. These findings provide new insights into the nonlinear dynamics of cross-market contagion, offering valuable implications for different stakeholders.

5. CONCLUSION

This study reveals evidence of asymmetrical reactions in major stock markets to US stock-return news, using a double-threshold model. The findings highlight greater impact of negative news compared to positive news. From the findings, emerging market regulators may need safety nets to account for the potentially higher than usual effects of negative U.S. news on their domestic markets. This is because emerging markets exhibit greater sensitivity to negative news compared to developed markets, reflecting their higher risk profiles and lower resilience to external shocks. However, European and Asian markets show more moderate reactions. The study contributes to the growing literature on the transmission of shocks across international markets and offers

valuable insights on asymmetry reactions. As global financial markets continue to evolve, understanding the asymmetrical reactions to external shocks will remain a critical area of research.

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