Chapter 3

Trade Deficit Announcements and Asset Prices

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Abstract

While prior research has extensively explored the influence of macroeconomic news on stock prices, the specific effect of trade deficit announcements has remained relatively underexamined, particularly across both developed and developing economies. This study seeks to evaluate and compare the semi-strong form efficiency of the energy sectors in France and Spain in response to trade deficit announcements between 2016 and 2024, within the Efficient Market Hypothesis (EMH) framework. The analysis utilizes an event study methodology, focusing on monthly announced trade balance numbers, and applies the market model for forecasting purposes. The findings suggest that both countries' energy sectors reflect semi-strong form efficiency in reaction to monthly trade announcement releases, implying that investors cannot achieve abnormal returns based on this information. The presence of efficient markets in the energy sectors of France and Spain can enhance the confidence of both domestic and foreign investors in these countries' markets and energy sectors.

1. Introduction

In recent years, financial research has highlighted the sensitivity of financial markets to the release of macroeconomic news. Typically, public and private institutions—such as statistical agencies—release reports on key economic indicators that reflect the state of the economy. These announcements often impact the behavior of financial assets, as they provide insight into current economic conditions and potential future developments. However, the findings in the literature are mixed, with some studies indicating that macroeconomic announcements significantly impact financial markets. In

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contrast, others suggest they produce little to no effect. The extent of this impact is far from uniform and depends on the announcement type. This variability has sparked a rapidly expanding body of research examining how various macroeconomic announcements affect financial assets.

Economic research has widely studied the impact of macroeconomic announcements on asset prices. Gross Domestic Product (GDP) growth, inflation rate, interest rate, and unemployment are some of the widely studied macroeconomic announcements. Although financial market reactions to trade balance announcements are frequently covered by the media, only a few studies have examined these announcements in detail.

Trade deficits occur when a country's imports exceed exports, which have significant implications for both macroeconomic stability and financial markets. Spain and France have the largest trade deficits, ranking just behind the United States and the United Kingdom. For this reason, this study focuses on France and Spain. Energy imports constitute a significant portion of the trade deficits for both countries. Therefore, the energy sector has been examined for both countries.

This research examines how French and Spanish trade balance announcements influence stock prices by analyzing the information they convey. This study contributes to the existing literature in several important ways. Firstly, it centers on trade announcements—an area that has received limited attention in prior research. Secondly, the study employs a consistent dataset comprising 216 independent events of trade announcements, analyzing their impact on the stock market in France and Spain. Thirdly, most studies in this field generally analyze the causal relationships between macroeconomic indicators and various sectors. This study approaches macroeconomic indicator (trade announcements) using the event study methodology to test market efficiency within the energy sector. Thus, this research stands out as a more original contribution compared to existing literature.

The efficient market hypothesis offers a perspective on asset price behavior, proposing that stock prices fully incorporate all publicly available information. The assertion that financial asset prices fully reflect all available information accessible to all market participants was introduced to the literature by Eugene Fama as the Efficient Market Hypothesis (EMH). According to the hypothesis, a market is efficient if prices at any given time fully incorporate all available information (Fama, 1970, p. 383).

In the semi-strong form of market efficiency, which is a second degree of market efficiency, the information set includes all publicly disclosed and

accessible data, information, and news. For a market to be considered semi-strong form efficient, the current prices of financial assets in that market must reflect the past market prices of those assets and all publicly released and available information. Examples of such publicly disclosed and accessible information include stock splits, the announcement of financial statements prepared by the company, and new stock issuances (Fama, 1970, p. 404). Since trade deficit announcements are examined, an analysis has been conducted to determine whether the markets exhibit semi-strong form efficiency.

The remainder of this research is structured as follows. Section 2 offers a concise theoretical overview of the topic. Section 3 describes the data and methodology and investigates whether stock prices react to trade deficit-related news. Section 4 presents the results and discussion. Finally, Section 5 concludes the research.

2. Literature Review

An extensive body of research has now emerged focusing on evaluating the effects of 'scheduled' news announcements on financial markets. Three of the most frequently analyzed financial markets in this context are the stock market (e.g., Hardouvelis, 1987; Sun & Tong, 2000), the foreign exchange market (e.g., Aggarwal & Schirm, 1992; Kim et. al., 2004; Calin, 2015), and the bond market (e.g., Kutty & Sabi, 1994;Aggarwal & Schirm, 1992; Deravi et. al, 1989).

Some researchers have started examining macroeconomic announcements' effects across multiple financial markets, rather than analyzing each market independently. For example, Kim et. al. (2004) discuss how the release of news related to six key macroeconomic indicators affects the U.S. stock, bond, and foreign exchange markets.

Hardouvelis (1987) examines how stock prices in the United States react to monetary and nonmonetary news. It is found that stock prices are mainly influenced by announcements related to monetary factors. However, among the nonmonetary indicators, three—namely, the trade deficit, unemployment rate, and personal income—show statistically significant reactions.

Deravi et. al. (1989) investigate the short-term reactions of several major exchange rates and three categories of domestic interest rates to the information conveyed in the U.S. Treasury's quarterly announcements of new long-term debt issuances, covering the period from 1975 to 1985. Findings reveal that neither expected nor unexpected U.S. Treasury debt announcements from 1975 to 1985 have any significant impact on foreign exchange returns.

Aggarwal & Schirm (1992) assess how U.S. exchange rates, interest rates, and stock prices responded to new monthly data on the U.S. trade balance between 1980 and 1988. The findings indicate that trade balance announcements primarily influenced interest rates during the early 1980s, before the implementation of the 1985 Plaza Agreement. In contrast, during the subsequent period from 1985 to 1987, such announcements were also associated with significant movements in stock prices and exchange rates.

Kutty & Sabi (1994) analyze the effect of U.S. trade balance announcements on stock prices and bond interest rates. The findings suggest that an unexpectedly large trade deficit leads to a decline in stock prices. However, the unanticipated trade deficit shows no significant effect on stock prices or bond interest rates during the period analyzed.

Ghosh & Lien (1995) examine how participants in the foreign exchange market respond to the monthly trade balance announcements (both the preliminary and revised trade data) issued by the U.S. Commerce Department. The findings reveal that the announcement of revised U.S. trade balance figures significantly impacts exchange rate movements.

Aggarwal & Schirm (1998) examine the market response to U.S. trade balance announcements during 1985-1993. Findings prove that equity prices and foreign exchange rates reacted notably to new information regarding the U.S. trade balance.

Sun & Tong (2000) examine how announcements about the U.S. trade deficit influence the stock prices of automobile companies in both the United States and Japan. The empirical findings show that trade deficit announcements negatively impact Japanese automobile ADRs, particularly when the reported deficit exceeds expectations. On the other hand, such announcements do not significantly affect U.S. automobile stock prices.

Kim et. al. (2004) aim to analyze how six major macroeconomic news announcements affect the average returns in U.S. equity, bond, and foreign exchange markets. Announcements regarding the trade balance were identified as having the most pronounced effect on the foreign exchange market. In the bond market, macroeconomic news on domestic economic conditions was generally found to be most important. On the other hand, data releases related to consumer and producer prices are found to be significant for the U.S. equity market.

Calin (2015) uses an event study to focus on the impact of trade announcements on the foreign exchange market. It is observed that the most significant effect is triggered by announcements of macroeconomic

indicators related to the trade balance, followed by news concerning the trends in imports and exports.

Lupu et. al. (2015) assess whether releasing new economic information affects the movement of stock market indices in the CEE countries and developed countries. Analysis of 271 announcements indicated no significant impact from news related to variables such as GDP, current account, imports, trade balance, expected inflation, and private or government consumption, for both Central and Eastern European (CEE) and developed market indices.

Nadler & Schmidt (2016) explored how U.S. macroeconomic announcements affect U.S. stock prices. Their study examined 18 types of news releases, including gross domestic product (GDP) data, consumer price index (CPI), producer price index (PPI), unemployment claims, and the international trade balance. Some highly significant announcements are International Trade Balance, Index of Leading Indicators, Housing Starts, and Jobless Claims.

Erkılıç (2024) investigates how the announcements of economic growth, national income figures, balance of payments, and foreign trade data to the public affect the stock markets of Jordan and Türkiye, specifically the tourism sectors. Findings reveal that the stock markets of Jordan and Türkiye exhibit semi-strong form market efficiency within the tourism sector.

3. Materials and Methods

The primary aim of this study is to analyze and compare semi-strong form market efficiency of the French and Spanish energy sectors in response to the trade balance announcements throughout nine years of 2016-2024.

The analysis utilizes an event study methodology, focusing on monthly announced trade balance numbers as key macroeconomic indicators relevant to the French and Spanish stock markets. Within the framework of EMH, these trade balance figures are treated as new information entering the market. The specific dates when this data is publicly released are identified as event dates, and both the event window and estimation window are defined based on these announcement dates.

The study applies the market model for forecasting purposes, using the CAC 40 and IBEX 35 stock indices to reflect the overall market performance in France and Spain, respectively. The related indexes are employed to represent each country's energy sectors.

In line with the study's objective, the effects of monthly publicly announced trade balance figures on French and Spanish energy stock indices are analyzed.

Over a nine-year period, 108 trade balance data points for each country are available and used for this research.

Event window is selected as covering between five working days before and after event date (t-5, t+5) for better isolating impact of trade balance figure announcements on energy sector and minimizing potential influence of other events. Estimation window starts one month before event date and ends at the beginning of event window as (t-20, t-6).

4. Results and Discussions

The study's calculations are carried out simultaneously for the French and Spanish stock markets. Under the EMH, daily returns of the main stock indices and energy sector indices for both France and Spain are calculated as a first step as follows:

$$\left(R_m\right)_t = \ln\left[\frac{\left(T_m\right)_t}{\left(T_m\right)_{t-1}}\right] \quad (1)$$

Where:

$\left(R_m\right)_t$, is the return of the main stock indexes on day (t),

$\left(T_m\right)_t$, is the closing value of the main stock indexes on day (t),

$\left(T_m\right)_{t-1}$, is the closing value of the main stock indexes on day (t-1),

ln, denotes the natural logarithm.

$$\left(R_i\right)_t = \ln\left[\frac{\left(T_i\right)_t}{\left(T_i\right)_{t-1}}\right] \quad (2)$$

where:

$\left(R_i\right)_t$, is the return of energy sector indexes on day (t),

$\left(T_i\right)_t$, is the closing value of energy sector indexes on day (t),

$\left(T_i\right)_{t-1}$, is the closing value of energy sector indexes on day (t-1),

ln, denotes the natural logarithm.

Following this, regression analysis is conducted during the estimation window to determine expected returns of energy sector indexes based on the return of main stock indexes with the following market model:

$$(E(R_i))_t = (\alpha_i)_t + (\beta_i)_t * (R_m)_t + (e_i)_t \quad (3)$$

Where:

$(E(R_i))_t$, is the expected return of energy sector indexes on day (t);

$(\alpha_i)_t$, is the intercept of the regression analysis on day (t);

$(\beta_i)_t$, is a coefficient showing the relationship between the returns of energy sector indexes and the main stock indexes on day (t);

$(R_m)_t$, is the return of the main stock indexes on day (t) and

$(e_i)_t$ is the error term.

Then, abnormal returns (AR) are calculated for the event window period as follows:

$$((AR)_i)_t = (R_i)_t - (E(R_i))_t \quad (4)$$

Where:

$((AR)_i)_t$, is an abnormal return for energy sector indexes on day (t),

$(R_i)_t$, is the actual return of energy sector indexes on day (t),

$(E(R_i))_t$ is the expected return of energy sector indexes on day (t).

After finding daily ARs, cumulative abnormal return (CAR) is calculated with adding all ARs for whole event window. The results are presented in Table 1.

Table 1: Results for Energy Sector Indexes of France and Spain

Year	Month	CAR(France)	CAR(Spain)
2016	1	0.0354	0.0328
2016	2	-0.0111	-0.0066
2016	3	-0.0252	0.0132
2016	4	0.0560	0.0098
2016	5	-0.0011	-0.0410
2016	6	0.0059	-0.0111
2016	7	-0.0364	-0.0242
2016	8	0.0457	-0.0104
2016	9	-0.0304	0.0078
2016	10	0.0298	-0.0096
2016	11	-0.0045	0.0407
2016	12	0.0229	0.0018
2017	1	-0.0353	0.0008
2017	2	0.0157	0.0188
2017	3	-0.0186	0.0135
2017	4	0.0684	-0.0557
2017	5	0.0773	0.0468
2017	6	-0.0475	-0.0016

2017	7	-0.0037	0.0217
2017	8	-0.0286	-0.0065
2017	9	0.0140	-0.0099
2017	10	-0.0011	-0.0042
2017	11	0.0054	-0.0125
2017	12	0.0118	-0.0159
2018	1	-0.0025	-0.0043
2018	2	0.0295	0.0174
2018	3	-0.0273	0.0145
2018	4	0.0200	-0.0154
2018	5	-0.0098	-0.0457
2018	6	-0.0081	-0.0308
2018	7	-0.0285	-0.0469
2018	8	-0.0156	-0.0022
2018	9	0.0212	0.0000
2018	10	-0.0379	0.0016
2018	11	-0.0017	-0.0356
2018	12	0.0581	-0.0192
2019	1	0.0151	0.0241
2019	2	0.0552	-0.0262
2019	3	0.0112	0.0061
2019	4	-0.0013	0.0200
2019	5	0.0175	-0.0337
2019	6	-0.0195	-0.0482
2019	7	-0.0027	0.0885
2019	8	-0.0115	-0.0239
2019	9	-0.0112	0.0205
2019	10	-0.0453	0.0055
2019	11	0.0097	0.0072
2019	12	0.0272	0.0210
2020	1	-0.0401	0.0367
2020	2	0.0528	0.0081
2020	3	-0.0952	-0.0343
2020	4	-0.1909	0.0021
2020	5	0.0792	-0.0386
2020	6	-0.0021	0.0356
2020	7	0.0280	-0.0044
2020	8	0.0533	-0.0262
2020	9	-0.0391	0.0060
2020	10	0.0806	-0.0149
2020	11	0.1234	-0.0053
2020	12	-0.0173	0.0035
2021	1	0.0812	0.0168
2021	2	-0.0562	0.0204
2021	3	-0.0393	0.0168

2021	4	-0.0496	-0.0109
2021	5	0.0884	0.0181
2021	6	0.0729	0.0175
2021	7	-0.0124	0.0175
2021	8	-0.0016	0.0230
2021	9	0.0396	-0.0045
2021	10	-0.0136	0.0251
2021	11	0.0171	0.0468
2021	12	0.0420	-0.0228
2022	1	0.1090	0.0623
2022	2	-0.0433	0.0262
2022	3	-0.0217	-0.0794
2022	4	-0.0172	-0.0480
2022	5	0.0950	-0.0135
2022	6	-0.0287	-0.0458
2022	7	-0.0380	-0.0031
2022	8	0.0924	0.0480
2022	9	-0.0429	-0.0368
2022	10	0.0379	0.0190
2022	11	-0.0052	-0.0163
2022	12	-0.0251	0.0138
2023	1	-0.0939	0.0004
2023	2	0.0377	0.0284
2023	3	-0.0811	0.0255
2023	4	0.0700	-0.0334
2023	5	-0.0530	-0.0388
2023	6	-0.0029	0.0074
2023	7	0.0307	0.0511
2023	8	0.0091	-0.0052
2023	9	0.0668	-0.0246
2023	10	-0.0463	0.0357
2023	11	-0.0049	0.0189
2023	12	-0.0255	-0.0332
2024	1	-0.0081	0.0078
2024	2	0.0152	0.0122
2024	3	0.0544	-0.0018
2024	4	0.1000	-0.0138
2024	5	-0.0461	-0.0276
2024	6	-0.0046	0.0246
2024	7	0.0025	0.0164
2024	8	0.0011	-0.0105
2024	9	0.0239	-0.0141
2024	10	0.0579	0.0118
2024	11	0.0532	0.0299
2024	12	-0.0235	0.0009

Reference: The authors.

For analyzing and comparing semi-strong form market efficiency of the French and Spanish energy sectors in response to trade balance number announcements, the following statistical calculations are made for both countries, and the results are given in Table 2.

Table 2: CAR Statistics for Energy Sector Indexes of France and Spain

Statistics (CAR)	France	Spain
Total	0.6318	0.0192
Average	0.0058	0.0002
Standard Deviation	0.0480	0.0274

Source: The authors.

Based on these statistics, calculated t and p values for both countries are presented in Table 3.

Table 3: t and p Values for Energy Sector Indexes of France and Spain

Values	France	Spain
t-value	1.2594	0.0671
p-value	0.2106	0.9466

Source: The authors.

These p-values can be interpreted to be statistically insignificant, indicating that both the French and Spanish energy sectors demonstrate semi-strong form market efficiency in response to monthly public announcements of trade balance figures.

5. Conclusion

Economic research has widely studied the impact of macroeconomic announcements on asset prices. GDP growth, inflation rate, interest rate, and unemployment are some of the widely studied macroeconomic announcements. Although financial market reactions to trade balance announcements are frequently covered by the media, only a few studies have examined these announcements in detail.

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The analysis utilizes an event study methodology, focusing on monthly announced trade balance numbers as key macroeconomic indicators relevant to the French and Spanish stock markets. Within the framework of EMH, these trade balance figures are treated as new information entering the market. The study applies the market model for forecasting purposes, using the CAC 40 and IBEX 35 stock indices to reflect the overall market performance in France and Spain, respectively. The related indices are employed to represent each country's energy sectors. Findings reveal that both the French and Spanish energy sectors demonstrate semi-strong form market efficiency in response to monthly public announcements of trade balance figures.

The presence of efficient markets in the energy sectors of France and Spain can enhance the confidence of both domestic and foreign investors in these countries' markets and energy sectors. This environment of trust may encourage a greater number of investors to increase their investment levels, both specifically in the tourism sectors of France and Spain and more broadly in their overall economies. In this way, it may contribute more significantly to the economic development of the countries, paving the way for higher growth and increases in national income, greater reduction of trade deficits.

This research examines how French and Spanish trade balance announcements influence stock prices by analyzing the information they convey. This study contributes to the existing literature in several important ways. Firstly, it centers on trade announcements—an area that has received limited attention in prior research. Secondly, the study employs a consistent dataset comprising 216 independent events of trade announcements, analyzing their impact on the stock market in France and Spain. Thirdly, most studies in this field generally analyze the causal relationships between macroeconomic indicators and various sectors. This study approaches macroeconomic indicator (trade announcements) using the event study methodology to test market efficiency within the energy sector. Thus, this research stands out as a more original contribution compared to existing literature.

Future research in this area could be carried out to explore the cross-country effects of macroeconomic announcements. For instance, macroeconomic news in the U.S. economy is often regarded as a leading indicator of subsequent economic trends in other nations. Thus, the effects of U.S. macroeconomic news may be examined in the context of its impact on other countries' markets. Moreover, replicating this study for other macroeconomic indicators announced at similar frequencies would contribute to the literature. Additionally, within the scope of this study, it is also possible to conduct different analyses by modifying the previously defined estimation and event window intervals.

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