ANNALS OF THE POLISH ASSOCIATION
OF AGRICULTURAL AND AGRIBUSINESS ECONOMISTS

ROCZNIKI NAUKOWE
STOWARZYSZENIA EKONOMISTÓW ROLNICTWA I AGROBIZNESU

Received: 02.01.2025
Acceptance: 28.02.2025
Published: 11.03.2025

JEL codes: G14, Q02, Q13, D81

Annals PAAAE • 2025 • Vol. XXVII • No. (1)

DOI: 10.5604/01.3001.0054.9874

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# U.S. PRESIDENTIAL ELECTIONS AND AGRICULTURAL MARKET VOLATILITY. IS THERE A "TRUMP EFFECT" ON GRAIN COMMODITIES?

Keywords: grain commodities, financial market, price volatility, U.S. presidential election, political uncertainty

ABSTRACT. The aim of this study was to assess the impact of the 2024 U.S. presidential election and the so-called "Trump effect" on the volatility of agricultural commodity prices, with a particular focus on corn, wheat, soybeans, and oats. To evaluate the market's reaction to political uncertainty, a 10-day election window (October 30 – November 12, 2024) was compared with a similar pre-election period (October 16 – October 29, 2024), with Election Day serving as the transition point. The study hypothesizes that the 2024 U.S. presidential election had a statistically significant impact on the volatility of agricultural commodity prices, reflecting changes in market expectations. This hypothesis was tested using the F-test, analyzing differences in variance between these periods. Daily price data for the analyzed agricultural commodities were obtained from the Datastream database. The results indicate that the 2024 U.S. presidential election had a varied impact on commodity market volatility. The F-test results confirm a significant increase in volatility in the wheat and oats markets, whereas corn and soybeans remained relatively stable. Descriptive statistics further support these observations, showing higher variance and standard deviation for wheat and oats during the election period, suggesting increased price fluctuations. Conversely, corn and soybeans exhibited lower variance and standard deviation, indicating reduced sensitivity to election-related uncertainty. Notably, wheat recorded a significant increase in its average return, while oats experienced a price decline, highlighting the differentiated sensitivity of individual commodities to political events. These findings contribute to the broader discussion on the impact of political uncertainty on commodity markets, emphasizing the need for risk management strategies during periods of heightened volatility.

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## INTRODUCTION

Since the early 21st century, agricultural commodities have increasingly become part of global financial markets, a process referred to as the financialization of commodity markets (Fry-McKibbin, McKinnon, 2023). This transformation has led to a shift where agricultural products are no longer traded purely for their physical use but also as financial assets subject to speculative investment (Cheng, Xiong, 2014). Financialization has intensified due to the rise of commodity index funds, exchange-traded funds (ETFs), hedge funds, and future contracts, which treat commodities similarly to traditional financial instruments such as equities and bonds (Tang, Xiong, 2012; Girardi, 2015; Venega, Feregrino, Lay, Espinosa-Cristia, 2024). Financialization has led to increased price volatility in agricultural commodities. Speculation in commodity derivatives markets has driven prices away from levels dictated by supply and demand fundamentals (Manogna, Mishra, 2022). The financialization of commodity markets has led to increased correlations between commodity prices and financial market parameters, particularly during periods of financial distress and heightened exposure to macroeconomic and geopolitical uncertainty (Irwin, Sanders, 2011; Silvennoinen, Thorp, 2013; Öztek, Öcal, 2017; Kotyza, Czech, Wielechowski, Smutka, Procházka, 2021).

Political events, particularly elections, have long been recognized as significant determinants of financial market dynamics. Elections can lead to significant changes in stock market returns (Yin, Rasiah, Ming, 2016; Wagner, Zeckhauser, Ziegler, 2018). They can also substantially alter investor sentiment (Chiu, Chen, Tang, 2005 Most notably, elections are associated with increased market volatility. Baker, Bloom and Davis (2016) and Pástor and Veronesi (2013) show that elections and policy announcements lead to increased volatility and risk premiums in stock markets globally. Unpredictable and decisive elections tend to cause the greatest volatility, while predictable and indecisive elections also contribute to post-electoral volatility (Carnahan, Saiegh, 2021). Historical data from various countries, consistently show that national elections induce higher stock market volatility. In Australia, higher political uncertainty around federal elections led to increased market uncertainty, particularly when the outcome was less predictable (Smales, 2014, 2016). Białkowski, Gottschalk and Wisniewski (2008), analyzing OECD countries, reveal that factors such as narrow margins of victory, changes in political orientation, and the inability to form a majority government contribute to the magnitude of the election shock.

U.S. presidential elections serve as a prime example of political events that can significantly impact financial markets. The global economic prominence of the United States means that its political transitions are closely monitored by investors worldwide. The U.S. presidential election consistently draws global attention due to its substantial impact on both the domestic economy and the broader global economic landscape (Ahmed,

Hasan, Hossain, Saadi, 2025). Research examining the 2016 U.S. presidential election found that political uncertainty associated with the election outcome led to significant volatility in U.S. stock markets, with varying effects across different sectors (Bouoiyour, Selmi, 2016; Shaikh, 2017; Bowes, 2018). Similarly, an analysis of financial markets' reactions to the 2020 U.S. election revealed strong correlations between the probability of election outcomes and major financial indicators, including currency pairs, bond prices, and stock index futures, indicating that markets respond dynamically to evolving political information (DeHaven, Firestone, Webster, 2024).

While the impact of political events on stock markets has been extensively studied, there is limited research on their effects on agricultural commodity markets. Given the increasing financialization of these markets, it is plausible that political events, such as the U.S. presidential elections, could influence agricultural commodity volatility. U.S. elections can lead to significant changes in trade policies, as seen in the grain embargoes against the Soviet Union in 1975 and 1980. These embargoes were politically motivated and aimed at leveraging grain as a resource to influence international behavior (Evans, 2024). U.S. elections can lead to increased economic policy uncertainty. This uncertainty can impact commodity markets, including corn, by increasing the implied volatility index, which measures market expectations of future volatility (Shaikh, 2019). U.S. elections often result in changes in trade policies, which can directly impact soybean prices. For instance, the U.S.-China trade war, initiated during the Trump administration, led to significant volatility in soybean prices. The imposition of tariffs by China on U.S. soybeans caused a shift in market preferences, favoring Brazilian soybeans and leading to a decrease in U.S. soybean prices. This trade disruption resulted in a temporary price differential between U.S. and Brazilian soybeans, which eventually normalized but had lasting impacts on U.S. export volumes (Adjemian, Smith, He, 2021; Chyzh, Urbatsch, 2021; Cheng, Hasanov, Poon, Bouri, 2023). However, Qadan and Adilbi (2022) demonstrate that, despite the increase in political uncertainty during election periods, commodity prices generally remain unaffected, although their variability tends to be slightly lower. This suggests that while elections introduce uncertainty, they do not necessarily lead to significant changes in commodity prices.

This study focuses on the most recent U.S. presidential election (2024) and its potential impact on agricultural commodity markets. U.S. presidential elections have historically influenced financial markets, but the 2024 election was particularly significant due to the potential return of Donald Trump to the White House. The so-called "Trump effect" refers to the market uncertainty and volatility driven by expectations regarding policy shifts, trade relations, and economic strategies associated with Trump's political stance (Pereira, E., da Silva, da Cunha Lima, Pereira, H., 2018; Brans, Scholtens, 2020). Given these historical precedents, the 2024 election introduced renewed uncertainty regarding potential tariff reintroductions, trade agreement renegotiations, and agricultural policy shifts, making

it a crucial event for commodity market dynamics. This study investigates whether this election-induced uncertainty led to increased volatility in major grain commodities, i.e., corn, wheat, soybeans, and oats.

By providing empirical evidence on the existence of the presidential election effect in the grain commodities market in response to the 2024 U.S. presidential election, this study contributes to the broader discussion on how political uncertainty and macroeconomic shocks influence commodity markets beyond equities. While previous research has examined the impact of elections on stock markets, studies on how such political events affect grain commodities remain significantly limited. Moreover, this research focuses on the most recent U.S. presidential election, capturing market reactions to an event of substantial geopolitical and economic importance. This is particularly relevant given the heightened uncertainty surrounding the 2024 election and the so-called "Trump effect".

The paper is organized as follows. The next section presents the research materials and methodology, followed by a section discussing the empirical results. The final section provides the study›s conclusions.

## RESEARCH MATERIAL AND METHODOLOGY

This study aims to examine the impact of U.S. presidential elections on the volatility of agricultural commodity markets, with a particular focus on the 2024 election and the potential "Trump effect". Specifically, the analysis examines how this election influences the price volatility of four major grain commodities, i.e., corn, wheat, soybeans, and oats. Rice and barley were excluded from the analysis due to the absence of significant price fluctuations, indicating stability in these markets.

To assess this impact, a 10-day "election window" is defined, encompassing five trading days before and five trading days after the election. The election day itself is considered the fifth and final day of the pre-election period. Subsequently, this election window is compared with a control period of the same length immediately preceding it, referred to as the "pre-election event period". For the 2024 U.S. presidential election, the election window spans from October 30, 2024, to November 12, 2024, while the pre-election event period covers October 16, 2024, to October 29, 2024. It is hypothesized that the average volatility differs significantly between these two sub-periods, indicating potential market reactions to election-related uncertainty. The selection of the election window length was guided by the assumptions of the Efficient Market Hypothesis (EMH), which posits that financial markets efficiently process new information, leading to its rapid incorporation into asset prices. This immediate adjustment often results in short-term volatility spikes, particularly in response to major political events such as elections (Fama, 1970). Additionally, the methodological approach aligns with prior studies that

have employed similar short-term event windows to assess market reactions to elections, including: Białkowski et al., (2008), Bouoiyour and Selmi (2016), Szymański and Wojtalik (2022), and Czech, Wielechowski and Barichello (2023).

The following research hypothesis is formulated: the 2024 U.S. presidential election affects the volatility of grain commodities.

Daily price data for the analyzed grain commodities were obtained from the Datastream (former Refinitiv Datastream). Specifically, the dataset used in this study was sourced from the United States Department of Agriculture (USDA), which provides comprehensive agricultural market data. The analysis employs data on the most actively traded varieties of the selected grain commodities. Specifically, these include Corn No. 2 Yellow for corn, Wheat No. 2 Soft Red for wheat, Soybeans No. 1 Yellow for soybeans, and Oats No. 2 Milling (Minneapolis) for oats.

The analysis was conducted using logarithmic daily return rates of the prices of the analyzed grain commodities, calculated according to the following formula:

$$R_t = [\ln(P_t) - \ln(P_{t-1})] \times 100\%$$

where:

$R_t$ – denotes the logarithmic daily return rate,

$P_t$ – represents the closing price of the given grain commodity on day,

$P_{t-1}$ – corresponds to the closing price on the previous trading day.

To assess the impact of the 2024 U.S. presidential election on the volatility of the analyzed grain commodities, the following statistical hypotheses were tested:

- $H_0$ (null hypothesis): The variances of returns during the pre-election event period and the election window are equal $(\sigma_1^2 = \sigma_2^2)$.
- $H_1$ (alternative hypothesis): The variances of returns during the pre-election event period and the election window are significantly different $(\sigma_1^2 \neq \sigma_2^2)$.

To test these hypotheses, the F-test for equality of variances was applied. The test statistic is defined as:

$$F = \frac{s_1^2}{s_2^2}$$

where $s_1^2$ and $s_2^2$ are the sample variances of returns in the two examined sub-periods.

The hypotheses were tested separately for each of the analyzed grain commodities, namely corn, wheat, soybeans, and oats. The statistical results were interpreted to determine whether the variances of the analyzed grain commodity prices differed significantly during the election window compared to the pre-election event period.

## RESEARCH RESULTS AND DISCUSSION

This study examines the impact of the 2024 U.S. presidential election and the "Trump effect" on grain commodity volatility, focusing on corn, wheat, soybeans, and oats.

Figure 1 illustrates the market reaction of agricultural commodities to the 2024 U.S. presidential election by presenting daily return rates for corn, wheat, soybeans, and oats over the analyzed period. The pre-election event period spans from October 16, 2024, to October 29, 2024, capturing market behavior before the election window. The election window period, from October 30, 2024, to November 12, 2024, includes the days surrounding the election to assess potential volatility shifts. A dashed vertical line marks October 30, 2024, the beginning of the election window, indicating the transition from the pre-election event period. A solid vertical line represents November 5, 2024, the official election date. A noticeable increase in price fluctuations is observed for wheat and oats, particularly within the election window period. In the days leading up to the election, price movements remained relatively moderate, but a significant spike in volatility was evident immediately before and after the election date. In contrast, corn and soybeans demonstrate relatively stable return fluctuations throughout both the pre-election event period and the election window period. Although minor deviations are visible, they do not exhibit the same pronounced volatility shifts as wheat and oats.

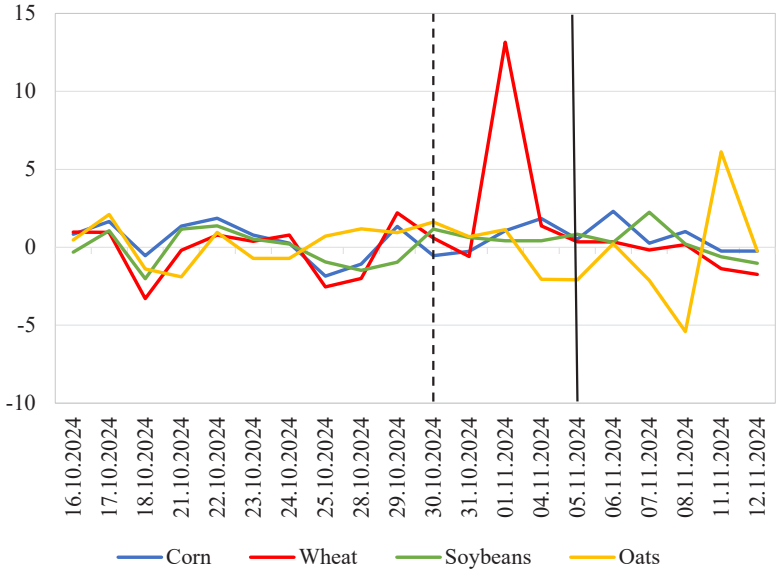


Figure 1. Market reaction of agricultural commodities to the 2024 U.S. presidential election: daily returns for corn, wheat, soybeans, and oats

Source: own calculation and elaboration based on data from the Datastream

Table 1 presents descriptive statistics of daily returns for corn, wheat, soybeans, and oats during the pre-election event period and the election window surrounding the 2024 U.S. presidential election. The results highlight differences in mean returns, variance, and standard deviation, offering insights into how political uncertainty influenced market volatility. Corn exhibited a slight increase in mean return (from 0.463% to 0.569%), while variance and standard deviation declined (from 1.549 to 0.936 and from 1.245 to 0.968, respectively), suggesting stable market conditions with limited election impact. Wheat, in contrast, experienced a significant rise in volatility. The mean return increased notably (from -0.196% to 1.211%), while variance and standard deviation surged (from 3.229 to 18.465 and from 1.797 to 4.297, respectively). The maximum return also spiked (from 2.202% to 13.155%), indicating elevated price fluctuations, likely due to speculative

Table 1. Descriptive statistics of analyzed commodities during the 2024 U.S. presidential election subperiods (daily rate of return)

| Grain commodity | Descriptive statistics | pre-election event period | election window |
|---|---|---|---|
| Corn | mean | 0.463 | 0.569 |
| | minimum | -1.849 | -0.533 |
| | maximum | 1.869 | 2.305 |
| | variance | 1.549 | 0.936 |
| | standard deviation | 1.245 | 0.968 |
| Wheat | mean | -0.196 | 1.211 |
| | minimum | -3.292 | -1.739 |
| | maximum | 2.202 | 13.155 |
| | variance | 3.229 | 18.465 |
| | standard deviation | 1.797 | 4.297 |
| Soybeans | mean | -0.139 | 0.461 |
| | minimum | -2.016 | -1.019 |
| | maximum | 1.368 | 2.247 |
| | variance | 1.404 | 0.810 |
| | standard deviation | 1.185 | 0.900 |
| Oats | mean | 0.165 | -0.212 |
| | minimum | -1.891 | -5.407 |
| | maximum | 2.100 | 6.122 |
| | variance | 1.623 | 9.316 |
| | standard deviation | 1.274 | 3.052 |

Source: own calculation based on data from the Datastream

activity. Soybeans showed a moderate increase in mean return (from -0.139% to 0.461%), but like corn, its variance and standard deviation decreased (from 1.404 to 0.810 and from 1.185 to 0.900), implying relative market stability despite the election event. Oats experienced a decline in mean return (from 0.165% to -0.212%) and a sharp increase in volatility. Variance rose significantly (from 1.623 to 9.316), as did standard deviation (from 1.274 to 3.052). The minimum return dropped significantly (from -1.891% to -5.407%), while the maximum rose (from 2.100% to 6.122%), suggesting increased market uncertainty and speculative trading.

Overall, wheat and oats experienced a significant increase in volatility, as evidenced by their rising variance and standard deviation. Corn and soybeans, however, showed more stable return behavior, with a decline in volatility during the election window.

Table 2 presents the results of the F-test for variance equality, assessing whether the volatility of daily returns for selected grain commodities significantly differs between the pre-election event period and the election window period. The results indicate that wheat and oats exhibit statistically significant differences in variance between the two periods, as evidenced by their p-values of 0.0160 and 0.0158, respectively. Since both p-values are below the significance threshold of 0.05, the null hypothesis ($H_0$) for these commodities is rejected, confirming that their return volatility increased during the election window. These findings might suggest that wheat and oats were particularly sensitive to political uncertainty associated with the 2024 U.S. presidential election, experiencing heightened market fluctuations. In contrast, the results for corn and soybeans show no statistically significant differences in variance, with p-values of 0.4648 and 0.4254, respectively. Since these values exceed the 0.05 threshold, the null hypothesis ($H_0$) for these commodities cannot be rejected, indicating that their volatility remained stable throughout the analyzed periods. This might indicate that corn and soybeans were less responsive to election-related uncertainty, possibly due to more stable market conditions or stronger influences from fundamental supply-demand factors. Overall, the F-test results support the hypothesis that the 2024 U.S. presidential election influenced the volatility of certain grain markets, with wheat and oats experiencing increased fluctuations, while corn and soybeans remained largely unaffected. F-test results align with the descriptive statistics (Table 1).

Table 2. F-test results

| Grain commodity | F-statistics | p-value |
|---|---|---|
| Corn | 1.6545 | 0.4648 |
| Wheat | 0.1749 | 0.0160 |
| Soybeans | 1.7330 | 0.4254 |
| Oats | 0.1742 | 0.0158 |

Source: own calculation based on data from Datastream

These findings regarding wheat and oats align with the results of Shaikh (2019), who observed that political uncertainty during election periods contributes to increased market

volatility. Conversely, the results for corn and soybeans are consistent with Qadan and Adilbi (2022), who suggested that while elections introduce uncertainty, they do not necessarily lead to significant changes in commodity prices. Overall, the findings indicate that elections can indeed contribute to higher volatility in specific grain commodities, particularly those more exposed to trade policy risks and market speculation.

## CONCLUSIONS

This study examines the impact of the 2024 U.S. presidential election and the 'Trump effect' on grain commodity volatility. Corn, wheat, soybeans, and oats are analyzed. A 10-day election window (October 30 – November 12, 2024) is compared with a pre-election event period (October 16 – October 29, 2024), with the election day marking the transition. The hypothesis is that the election significantly influences grain commodity volatility, reflecting market reactions to political uncertainty. To test this hypothesis, the F-test is employed.

The results indicate that the 2024 U.S. presidential election had a differentiated impact on the volatility of grain commodities. The F-test results confirm that wheat and oats experienced a significant increase in volatility, while corn and soybeans remained relatively stable. Descriptive statistics support these findings, showing that wheat and oats had a sharp rise in variance and standard deviation during the election window, indicating increased price fluctuations. In contrast, corn and soybeans exhibited lower variance and standard deviation, suggesting that their market conditions were less affected by this political uncertainty. Notably, wheat showed a strong increase in mean return, while oats recorded a decline, further emphasizing their sensitivity to the election event. The differences in market reactions highlight the varying susceptibility of agricultural commodities to political events. These findings contribute to the broader discussion on how political uncertainty influences commodity markets, underscoring the need for risk management strategies in volatile periods.

Despite providing insights into the impact of U.S. presidential elections on the volatility of grain commodity markets, this study has certain limitations. The analysis focuses on a single election event, i.e., the 2024 U.S. presidential election, and does not account for potential variations in election-induced volatility across different election cycles. Additionally, while the study examines volatility dynamics within a defined pre-election event and election window subperiods, it does not fully isolate the influence of other external factors that may have affected commodity prices during the analyzed period. Future research could expand this analysis to multiple election cycles to assess the consistency of these effects over time. Moreover, incorporating additional control variables could enhance the robustness of the findings.

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# WYBORY PREZYDENCKIE W USA A ZMIENNOŚĆ RYNKU ROLNEGO. CZY WYSTĘPUJE „EFEKT TRUMPA" NA RYNKACH ZBÓŻ?

Słowa kluczowe: surowce rolne, rynek finansowy, zmienność cenowa, wybory prezydenckie w USA, niepewność polityczna

ABSTRAKT. Celem badania była ocena wpływu wyborów prezydenckich w USA w 2024 roku oraz tzw. „efektu Trumpa" na zmienność cen surowców rolnych, ze szczególnym uwzględnieniem kukurydzy, pszenicy, soi i owsa. W celu oceny reakcji rynku na niepewność polityczną porównano 10-dniowe okno wyborcze (od 30 października do 12 listopada 2024 roku) z analogicznym okresem przedwyborczym (od 16 października do 29 października 2024 roku), gdzie dzień wyborów stanowił punkt przejściowy. Postawiono hipotezę, że wybory prezydenckie w USA w 2024 roku miały statystycznie istotny wpływ na zmienność cen surowców rolnych, odzwierciedlając zmiany w oczekiwaniach rynkowych. Weryfikacji tej hipotezy dokonano za pomocą testu F, analizując różnice wariancji między tymi okresami. Dane dzienne dotyczące cen analizowanych surowców rolnych pozyskano z bazy Datastream. Wyniki badania wskazują, że wybory prezydenckie w USA w 2024 roku miały zróżnicowany wpływ na zmienność rynków surowcowych. Wyniki testu F potwierdzają znaczący wzrost zmienności na rynku pszenicy i owsa, podczas gdy kukurydza i soja wykazały względną stabilność. Statystyki opisowe dodatkowo potwierdzają te obserwacje, wskazując na wyższą wariancję i odchylenie standardowe dla pszenicy i owsa w okresie wyborczym, co sugeruje zwiększone wahania cenowe. Z kolei kukurydza i soja charakteryzowały się niższą wariancją i odchyleniem standardowym, co sugeruje mniejszą podatność tych rynków na niepewność wyborczą. W szczególności pszenica odnotowała znaczny wzrost średniej stopy zwrotu, natomiast owies wykazał spadek cen, co może wskazywać na różnicującą się wrażliwość poszczególnych surowców na wydarzenia polityczne. Uzyskane wyniki wpisują się w szerszą dyskusję na temat wpływu niepewności politycznej na rynki surowcowe, podkreślając konieczność opracowania strategii zarządzania ryzykiem w okresach zwiększonej zmienności.

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Proposed citation of the article:
Wielechowski, M., Czech, K. (2025). U.S. presidential elections and agricultural market volatility. Is there a "Trump effect" on grain commodities? *Annals PAAAE*, *27* (1), 263-275.