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Bachelor Thesis Economics and Business Economics

POLITICAL AFFILIATION OF GOVERNMENTS AND ITS IMPACT ON THE STOCK MARKET IN POLAND

Name student: Marcin Waliszewski

Student ID number: 581506

Thesis Supervisor: Sipke Dom

Second assessor: Dr. Ruben de Bliek

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ABSTRACT

This thesis explores the impact of Polish government's political affiliation on the national stock market using relevant data from 2001–2020. We analyze the most important Polish indices by conducting multiple OLS regressions, both with and without the conditioning variables. We find a statistically significant relation between government's orientation and stock market performance for the index representing the largest Polish companies. However, the significance diminishes after incorporating relevant macroeconomic controls into the model. In general, our findings imply that political affiliation is not a crucial predictor of excess returns for the Polish capital market. This observation remains consistent even when we analyze this relationship independently for large, mid-sized, and small companies. Therefore, we conclude that constructing a profitable long-term investment strategy centered on political factors is not feasible in case of Polish stock market.

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1. INTRODUCTION

In 1947, after fabricated elections, Poland became officially a communist puppet state depended on the Soviet Union (Lukowski and Zawadzki, 2019). The period that followed is known in Polish historiography as the PRL, meaning the Polish People's Republic in Polish, and was characterized by the authoritarian rule of the Polish communists and an inefficient, centrally planned economy (Lukowski and Zawadzki, 2019). It was not until 1989 when the first semi-free elections took place, and the country began the process of transition to the democratic, market-based economic system (Balcerowicz, 1994). Since then, diverse political parties have governed the country, including those from the left, center, and right of the political spectrum, each with their distinct economic vision, as elucidated by Jaskiernia (2017). As a result of this varied political landscape, there has been a long-standing debate in the media regarding which administrations were more advantageous to the national stock market performance.

In the United States, where a similar debate persisted, Santa-Clara and Valkanov (2003), and subsequently Leblang and Mukherjee (2005), demonstrated the presence of statistically and economically meaningful disparities in average stock market excess returns under Democratic (left-wing) versus Republican (right-wing) presidencies. This topic was also studied extensively in other highly developed countries, such as Australia (Worthington, 2009), Germany (Döpke and Pierdzioch, 2006), New Zealand (Cahan *et al.*, 2005), and the United Kingdom (Leblang and Mukherjee, 2005). In comparison to that, little similar research was conducted to evaluate the influence of different political affiliations of Polish governments on the national stock market performance. Although some articles have touched on this subject, they have primarily focused on other areas such as stock market volatility around elections (Białkowski, Gottschalk, and Wisniewski, 2008), the impact of democracy and political risks on stock market performance (Lehkonen and Heimonen, 2015), and stock market reactions to unexpected political changes (Podgorski, 2020). Therefore, authors of these articles used radically different proxies to estimate the effect of Polish politics on the market. The only study attempting to replicate the research by Santa-Clara and Valkanov (2003) for Poland was created by Białkowski, Gottschalk, and Wisniewski (2007) and provided ambiguous results.

Despite this, no study has looked again at this relation in Poland in more recent period. Since the early 2000s, the country experienced exponential economic growth, driven by factors such as: legal and political changes due to its accession to the European Union (Jaskiernia, 2017), and a significant inflow of Foreign Direct Investments (Gorynia, Nowak, and Wolniak, 2007). Furthermore, with the beginning of the new millennium, Polish public turned itself towards center, and right-wing oriented parties (Jaskiernia, 2017). Both the impact of economic growth and the shift in political orientation of the

governments were not adequately captured in the previous study by Białkowski, Gottschalk, and Wisniewski (2007). The authors did not consider indices representing firms of different sizes. Instead, they used highly aggregated MSCI Country Indices in their analysis. This contrasts with the approach of Santa-Clara and Valkanov (2003), who also studied the impact of Democratic and Republican presidencies on ten size decile portfolios. To address these gaps, this thesis aims to answer the following research question:

How does the political affiliation of Polish governments affect the national stock market excess returns during the period from 2001 to 2020?

This study examines the relationship between the excess returns on Polish stock market indices and the political affiliation of governments. When it comes to the first factor, we consider monthly returns of the four most important indices from the Warsaw Stock Exchange (WSE), all of which are extracted from the Stooq datasets. Three of the indices represent companies of different size, measured by market capitalization. Implementing them in the analysis alongside a highly aggregated index allows us to account for the shortcomings of Białkowski, Gottschalk, and Wisniewski (2007) and provide more detailed insights about the impact of politics on the stock market. Furthermore, to calculate the excess returns, we utilize Polish government bonds and inflation rates, which serve as proxies for the risk-free rate. For the second factor, we consider three possible political affiliations: left-wing, center, and right-wing, and transform them into a set of dummy variables. Polish governments are allocated to each of the categories based on their policies and classification made by Jaskiernia (2015, 2017) and Borowiec *et al.* (2016). Additionally, relevant macroeconomic variables are included in the analysis as controls. In total, we conduct and analyze sixteen Ordinary Least Squares (OLS) regressions. Each regression utilizes excess returns of the selected indices above the risk-free rate proxies (inflation and interest rates) as the dependent variable, and political affiliation dummies as the independent variables of interest.

After estimating the aforementioned regression models and conducting the analysis, it became clear that the effect of politics on Polish capital market is not statistically significant for the majority of the indices used in this research, apart from WIG20. For the index, the average excess returns above the interest rate were estimated to be respectively 3.839% and 3.880% higher during the periods when the centrist and right-wing companies were in power than under the left-wing governments. Nevertheless, the significance of the results diminishes entirely after including conditioning variables in the model. The results are fully in line with the previous findings of Białkowski, Gottschalk, and Wisniewski (2007), even despite using more recent data and stepping away from the traditional division of the political spectrum into left-wing and right-wing parties and governments, as presented in the Partisan Theory of

Hibbs (1975, 1977). Therefore, this paper provides evidence that the performance of the Polish stock market does not depend on the political affiliation of governments in the long-run.

The remainder of the paper is structured as follows. Section 2 explains the theoretical framework. Section 3 describes the data sample and variables used in the regressions, while the following section 4 focuses on the methodology used in the analysis. The last two sections discuss the results, provide conclusions, and describe the limitations of the study and the potential for future research on this topic.

2. THEORETICAL FRAMEWORK

This section is split into four parts. First, it discusses the market efficiency theory and its drawbacks. The following part examines key theories that describe the impact of partisan politics on the stock market. On the other hand, the third subsection provides more details about the Polish historical, political, and economic background. Meanwhile, the last part examines the results of articles treating about the impact of political affiliation on the stock market and presents the hypotheses.

2.1. Some explanations of stock market returns

Over the years, numerous theories have emerged in an attempt to explain market movements and fluctuations in returns. According to the most notable one – the Efficient Market Hypothesis (EMH) in *semi-strong form* – stock prices reflect all information available to the public at the point in time, and will adjust only if new information emerges, therefore making it impossible to achieve above average returns (Fama, 1970). The notion of market efficiency was widely accepted in academia. However, it was not until the publication of book by Malkiel (1973) when this theory gained popularity in the financial industry as a whole (Degutis and Novickytė, 2014).

The EMH as presented in the survey article by Fama (1970) was frequently criticized in the subsequent years after its publication. Grossman and Stiglitz (1980) pointed out that markets may not follow the EMH because access to information is costly. Meanwhile, Summers (1986) discovered evidence suggesting that standard methods used for analysis of stock market by Fama (1970) may not be able to detect some kinds of market inefficiencies due to their low power. Further criticism of this theory was described in detail by Degutis and Novickytė (2014) who summarized all the arguments in favor and against the EMH that arose from the time of its publication. They concluded that the theory fails to explain many phenomena such as excess volatility in stock prices (De Bondt and Thaler, 1985), asset bubbles (Schiller, 2000), etc. At the same time, they admitted that due to the random nature of stock returns investors are unable to consistently outperform the market returns, as predicted by the EMH. Therefore, Degutis and Novickytė (2014) arrived at a conclusion similar to that of Schiller (2013): that the theory can be considered "half-true".

One of the factors that the EMH fails to account for adequately is uncertainty. Its presence may make it difficult for investors to incorporate information rapidly and efficiently into stock prices. Cukierman (1980) proved that an increase in uncertainty can lead risk-neutral investors to postpone their economic projects until more relevant information becomes available. Furthermore, Brown, Harlow and Tinic

(1988) introduced a conceptual enhancement to the theoretical underpinnings of the EMH – the Uncertain Information Hypothesis (UIH), according to which stock prices are negatively affected by emergence of noisy favorable or unfavorable news. At the same time, Brown, Harlow and Tinic (1988) provided evidence that prices of these assets tend to increase on average once the ambiguity related to the outcome of the event is resolved.

In the context of this research, the most crucial factor that was proven to violate the semi-strong form of the EMH is political risk (uncertainty). According to Bloom, Terrones, & Kose (2013) a policy-induced uncertainty could have a slow-down effect on the growth of the entire economy and could lead to a significant increase in market volatility as proven by Liu and Zhang (2015). Additionally, Pastor and Veronesi (2012) created a general equilibrium model according to which the rise in the level of political uncertainty within the economy should lead to the overall fall in stock market prices, as predicted by the UIH. Meanwhile, Santa-Clara and Valkanov (2003) provided evidence that the phenomenon of the "presidential puzzle" was not caused by the higher market risk and could be attributed to the political affiliation of the US presidents. Furthermore, Gärtner and Wellershof (1995) provided several alternative investment strategies exploiting the election cycle in the US, which yielded significantly higher results in comparison with the buy-and-hold strategy. Białkowski, Gottschalk, and Wisniewski (2007) confirmed that such violations of the EMH were persistent in other national stock markets as well. These findings present compelling evidence that partisan political orientation may indeed play a crucial role in influencing the performance of capital markets worldwide, challenging the assumptions of the EMH.

2.2. Political Business Cycles and Partisan Theories

The creation process of political parties and their agendas is a frequently discussed topic in academic literature. One of the most important concepts related to it - the idea of *Political Business Cycles (PBC)*, was first described and formalized by Nordhaus (1975). According to the theory, governments created policies based on their reelection prospects, not maximization of social welfare function as commonly assumed in academic literature before Nordhaus's publication (Dubois, 2016). Furthermore, Nordhaus (1975) believed that under such an assumption, we could observe a cyclical improvement of economic conditions right before and during elections, and their deterioration in the periods that follow these events.

The *Partisan Theory (PT)* of macroeconomic cycles was developed by Hibbs (1975, 1977). Its main idea was that parties on either side of the political spectrum have interest in satisfying their main constituencies. Based on empirical observations, PT assumed that the majority of supporters of left-wing parties held almost only human capital, and thus cared more about rising unemployment as they were dependent on the income from their labor. At the same time, right-wing party voters were considered to be owners of financial capital and businesses whose primary concern was rising inflation (Hibbs, 1992). Under the framework used by Hibbs, these two political goals, i.e., low unemployment and inflation, are not compatible, and therefore parties need to consider their importance for their target electorate (Wisniewski, 2016).

Both the PBC and PT were heavily reliant on Philips curve which described the inflation-unemployment trade-off relation. This core assumption was soon proven inefficient by arguments of Lucas (1973) and Sargent and Wallace (1975) which seriously undermined rationale of PBC and PT, as explained by Hibbs (1992). However, a decade later, Alesina (1987) proposed a new, more sophisticated PT (but not PBC) models enriched by the assumptions of rational expectations and uncontingent wage contracts, known as *the "strict"* and *"general" Rational Partisan Theories (RPT).* As elucidated by Alesina (1991), the *"strict"* version was additionally based on assumption that the results of elections are uncertain *ex ante*. Hence, after election won by the left-wing party, the output growth and employment would be respectively below and above their "natural" levels, while a victory of the right-wing party would have the opposite effect on those macroeconomic factors. Furthermore, the RPT predicts that their values should return to their natural level and the overall economic activity should be independent of the ruling party[1] within few years following the election (Alesina, 1991). On the other hand, the *"general"* version of RPT assumed that it is both the unexpected and expected changes in government or policy that can temporarily influence the country's economic activity level, e.g., expected increase in inflation can increase growth, as explained by Alesina (1987, 1991).

2.3.   Polish politics and economy post-1989

After the groundbreaking changes of 1989, Poland entered a period of serious economic and political challenges, as described by Lukowski and Zawadzki (2019). It is important to discuss the events and reforms from that time as they became the foundation for the Third Republic of Poland which exists to this day. Furthermore, their implications are crucial for this research as they can be found in Polish partisan structure, economy, and stock market behavior.

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[1] With the exception of inflation, which should remain at higher levels under the left-wing governments because they are not as credible in their commitments to fighting the inflation hikes (Alesina 1991).

2.3.1. Creation of the new political system in Poland

The new Polish governmental system was shaped during the 1990s and it was based primarily on democratic values, such as division of power and political pluralism. In terms of institutional organization, the Polish parliament was stated to be elected every four years and to be comprised of two chambers: 460-member lower chamber – *Sejm*, which is elected according to the Sainte-Laguë's method, and 100-member *Senate* - elected by plurality vote, with only one senator representing each electoral district (Jaskiernia, 2017). Furthermore, the mono-party political system created by Polish communists was transformed into a multiparty system. This shift caused many small parties to enter the Polish parliament which led to instability of the first democratic government, and ultimately to its collapse in 1993 and the introduction of a 5% threshold[2] for parties to enter Sejm (Jaskiernia, 2017; Lukowski and Zawadzki, 2019). Although this rule caused lower representation of right-wing and centrist parties, it provided needed government stability which resulted in further economic growth and the creation of the Constitution of the Republic of Poland in 1997 (Lukowski and Zawadzki, 2019).

Figure 1

Timeline of the most important political and economic events in Poland after the fall of communism.

2.3.2. The most important changes and events in Polish politics after 1989

During the 1990' and early 2000s, Polish governments focused their efforts on ensuring the country's internal stability, fostering good foreign relations with the neighboring countries, and reforming the country to meet the Western standards of democracy (Lukowski and Zawadzki, 2019). As a result, the country joined the North Atlantic Treaty Organization (NATO) in 1999, the European Union in 2004, and subsequently the Schengen space in 2007 (see Figure 1). These events had an immense positive impact on Poland's geopolitical security, and stability of its economy and politics, making the country

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[2] Implementation of the threshold effectively banned from Polish parliament all parties without at least 5% of total votes during elections (Jaskiernia, 2017).

an attractive destination for foreign investments, and improving the performance of the national stock market (see Figure 2) (Kolodziejczyk, 2016; Pasierbiak, 2018; Walczak, 2004). When it comes to the partisan affiliation of governments, during the period from 1989 until 2005, Polish politics were rather dominated by left-wing parties, consisting primarily of politicians from (and loosely affiliated with) the former communist party (Borowiec *et al.*, 2016; Lukowski and Zawadzki, 2019). However, after 2005, these parties lost popularity due to several corruption affairs and their perceived inefficiency in the eyes of the public (Eisler, 2021). As a result, all subsequent governments were exclusively formed by centrist and right-wing parties, as documented by Jaskiernia (2017). Additionally, after the 2015 elections the new ruling party – Law and Justice (PiS), entered an open conflict with the European Union (EU) over the rule of law in Poland, refugee quotas, and strategies related to clean energy, which caused a rise in political uncertainty in the country (Jaskiernia, 2017; Lukowski and Zawadzki, 2019).

Figure 2

The average returns of WIG, WIG20, mWIG40, and sWIG80 indices for each Polish government in the sample, along with their tenure duration and political affiliation.
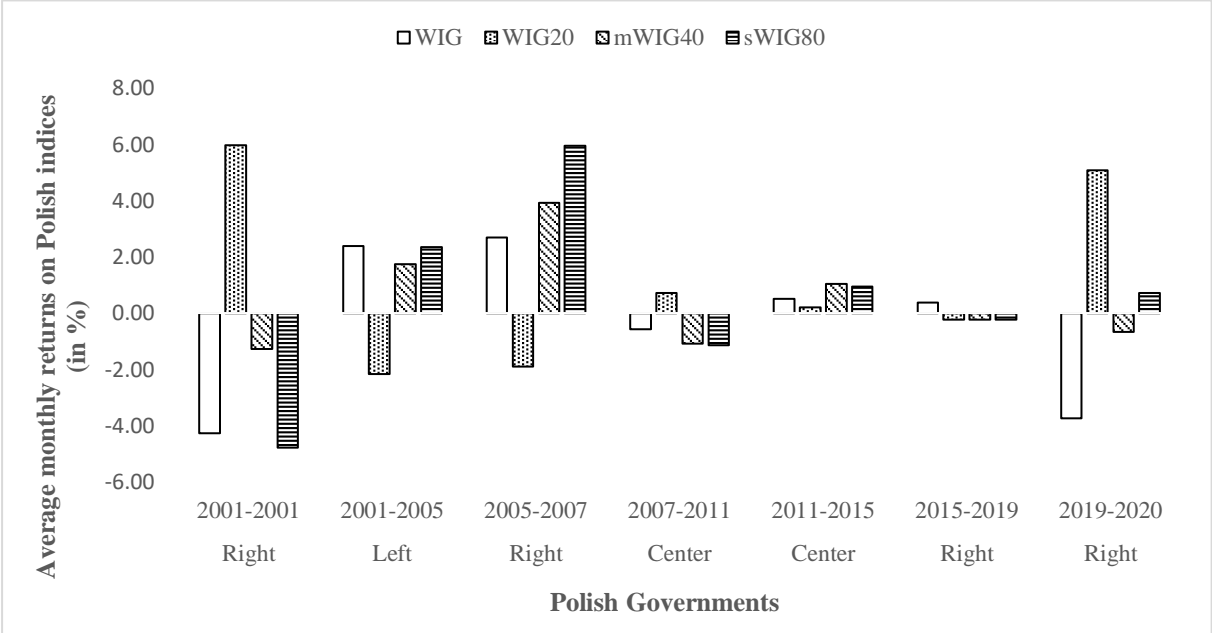
2.3.3. *Reforms and evolution of Polish economy*

Polish economy was also in need of radical changes after 1989. Centralized, forcefully industrialized, and addicted to the cheap materials from the Soviet Union and other socialist countries economic system was highly inefficient and together with policies of so-called *"socialist welfare state"* resulted in the accumulation of vast amounts of foreign debt (Balcerowicz, 1994). The program of reforms, with the

most notable one being the privatization of many state-owned enterprises, was prepared in 1990 by Professor Leszek Balcerowicz, and it was called by the professionals the *"shock treatment"* (Lukowski and Zawadzki, 2019). As a result of implementation of this set of policies, Polish inflation decreased from 249% of end-year Consumer Price Index CPI inflation in 1990 to 37.6% at the end of 1993 (Balcerowicz, 1994). However, this reduction as well as the increase in overall efficiency of the economic system were at first offset by 11.6% decrease in GDP, comparable decrease in consumption, and skyrocketing unemployment (Balcerowicz, 1994). Reforms introduced by L. Balcerowicz proved to be effective in the long-run, and despite a temporary decrease in economic stability due to higher inflation and unemployment in the beginning of the 2000s, Poland managed to become one of the fastest-developing countries in the world, achieving a positive real GDP growth rate even during and after the Financial Crisis of 2008 (Gurgul and Lach, 2010; Lukowski and Zawadzki, 2019). Furthermore, this trend continues to this day, with some analysts claiming that the country may become a leading European power much quicker than previously expected (Reis, 2023).

2.4.   Impact of government affiliation on stock market returns

The influence of politics on the economy and stock markets was given a lot of attention in academic literature (Wisniewski, 2016). One of the aspects frequently researched by the authors was related to the impact of policies on stock prices. Blanchard (1981) created an extended IS-LM model which provided a connection between the changes in fiscal and monetary policies and the reaction of stock markets. Furthermore, he emphasized anticipation of the changes by the market, claiming that if the policy is anticipated, its implementation may have negligible effect on the prices because of investors adjusting their expectations beforehand. Meanwhile, Croce *et al.* (2012) found that policies introducing tax smoothing, tax distortions, as well as increased volatility in government expenditures, can lead to increased costs of equity and investment. On the other hand, in his seminal paper, Thorbecke (1997) provided evidence that monetary policies in the United States (US) have large effect on stock prices, and that it is bigger for smaller than large firms. Additionally, Thorbecke (1997) argued that this phenomenon could be explained by the influence of monetary shocks on firms' access to credit.

Findings of the aforementioned papers provide arguments that governments of different political affiliations may shape national policies in a way to satisfy their respective constituencies, as described by PT and RPTs, and thus may have different impact on stock market performance, with some being favored more by investors than the others. This topic was researched by Hensel and Ziemba (1995), who found that in the US during the period between 1928 and 1993 stocks of small-cap firms achieved significantly higher returns during the Democratic presidencies, while the large-cap companies

performed similarly under both the Democratic and Republican administrations. Additionally, Hensel and Ziemba (1995) determined that stock returns were systematically higher during the last two years of all presidential terms which appeared to be consistent with the hypothesis of Nordhaus' PBC. This finding was in line with the results of research conducted by Allvine and O'Neill (1980) and Gärtner and Wellershof (1995). Several years later, Santa-Clara and Valkanov (2003) estimated that the excess returns gap between the Democratic and Republican presidencies, dubbed the *"presidential puzzle"*, was on average 9% for the value-weighted index and 16% for the equally-weighted index, after controlling for business cycle variables in both cases. Furthermore, the researchers provided additional proof that the gap decreases as the market capitalization of companies increases, as previously described by Hensel and Ziemba (1995).

Nevertheless, discoveries of Hensel and Ziemba (1995) and Santa-Clara and Valkanov (2003) cannot be considered as universal for all countries due to several factors, such as national political system and history of the country of interest. Research papers by Cahan *et al.* (2005) and Anderson, Malone, and Marshall (2008) showed that New Zealand's stock market exhibited much higher returns under the governments from the right-wing National party. In contrast, Worthington (2009) stated that there does not exist a statistically significant political cycle effect on the Australian stock market, which contradicted the previous results of Anderson, Malone, and Marshall (2008) who found superior returns during right-wing government administrations in the country. Comparable results were found in the United Kingdom during the periods around elections. However, the researchers did not find significant difference in returns between the Labour and Tory governments when examining their complete terms in office (Gemmil, 1992; Hudson *et al.*, 1998; Leblang and Mukherjee, 2005). Additionally, Döpke and Pierdzioch (2006) reported a slight increase in returns in Germany under right-wing governments than left-wing governments. Białkowski, Gottschalk, and Wisniewski (2007) provided a more comprehensive study of the impact of political government affiliation in which they analyzed 24 stock markets in OECD countries, including Poland, from January 1980 to December 2005 (for Poland: from January 1993 to December 2005), using USD-denominated, value-weighted, and dividend-adjusted MSCI Country Indices. The study's findings revealed no statistically significant disparity in returns between governments comprised of right-wing and left-wing parties across nineteen countries, including Poland (Białkowski, Gottschalk, and Wisniewski, 2007).

The aforementioned papers provide strong evidence that the impact of politics on stock returns may differ among countries due to contrasting priorities and unique internal and external circumstances. At the same time, however, stock markets of many European countries, including the UK, Germany and Austria, seem to favor the right-leaning governments more frequently (Leblang and Mukherjee, 2005;

Döpke and Pierdzioch, 2006; Białkowski, Gottschalk, and Wisniewski, 2007). Furthermore, Lukowski and Zawadzki (2019) note that right-wing parties gained prominence in Poland once the peak of instability and pivotal reforms had subsided. As a result, the national capital market could have benefited from these reforms and the phenomenon outlined by Brown, Harlow, and Tinic (1988) during their tenure. Therefore, this paper will seek to evaluate the following first hypothesis:

Hypothesis 1: *The excess stock market returns in Poland are higher under right-wing governments than governments representing any other political affiliation.*

The majority of researchers who focused in their papers on countries outside the US, like Białkowski, Gottschalk, and Wisniewski (2007), Döpke and Pierdzioch (2006), and Cahan et al. (2005), overlooked the examination of the *"small-firm/large-firm differential"* initially described by Hensel and Ziemba (1995) and put emphasis on the national stock markets as a whole. However, the subsequent studies by Johnson *et al.* (1999) and Santa-Clara and Valkanov (2003) have demonstrated the persistent and highly significant nature of this phenomenon. Therefore, drawing from their findings, this paper derives and tests the following second hypothesis:

Hypothesis 2: *The effect of political affiliation of Polish governments on the national stock market is larger for companies with small market capitalizations than for bigger firms.*

3. DATA

In order to address the primary research question and validate the hypotheses, this study analyzes a monthly time-series data covering the period from January 2001 to February 2020 (2001:01–2020:02). The majority of the variables were constructed using the aforementioned data span. The exceptions include all the financial variables and the *DAX* control variable which were created using the period from December 2000 to February 2020 (2000:12–2020:02). The data starting from January 2001 was included in the analyzed dataset because it marked the first reporting of Polish bond yields on 10-year bonds in the databases accessible for this research. At the same time, the period ends in February 2020, just before the announcement of the State of Epidemy in Poland[3], in order to focus on the pre-pandemic situation in the country (Dziennik Ustaw Rzeczypospolitej Polskiej, 2020). We excluded years during and after the pandemic from our sample due to significant changes in economic policies of the Polish government and the national Central Bank (NBP) caused by multiple exogenous shocks during that time which could potentially bias the results of this paper.

Additionally, the entirety of the sampled period was characterized by higher political stability in comparison with the years 1989-2000, following the reforms from the 1990s and accession to NATO, legal and economic integration with the EU, increasing party institutionalization, and higher participation of institutional investors, including pension funds, in the Polish stock market (Bohl and Brzeszczynski, 2006; Gwiazda, 2009; Kolodziejczyk, 2016; Walczak, 2004). All of the factors indicate that the macroeconomic, political, and financial conditions in the country differ significantly from those present in the sample researched by Białkowski, Gottschalk, and Wisniewski (2007), which only covered the period from 1993 to 2005.

The selected sample covers 6 elections, 230 monthly observations, 1 left-wing, 2 centrist, and 3 right-wing governments in Poland. Furthermore, information about all the metrics utilized to construct the data sample was collected from sources such as Stooq.pl, European Central Bank (ECB), and the *International Financial Statistics (IFS)* database[4]. Lastly, the precise dates of elections in Poland, which took place during the examined period, were extracted from Eisler (2021), Jaskiernia (2017), Leszczyńska, (2018), and Państwowa Komisja Wyborcza (2019) and used in the construction of the political variables.

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[3] The State of Epidemy was announced on 20th March 2020 due to the increasing number of cases of COVID-19 on the territory of the Republic of Poland (Dziennik Ustaw Rzeczypospolitej Polskiej, 2020).
[4] Created and maintained by the International Monetary Fund (IMF) since January 1948.

The rest of the Data section discusses the process of creation of all the variables used in this paper. The first, second, and third subsections focus on respectively the financial, political, and control variables. Meanwhile, the last part of this section presents and describes anomalies in their descriptive statistics.

3.1. Financial Variables

In this research paper, we use several financial variables, including *WIG, WIG20, mWIG40,* and *sWIG80*, which reflect the monthly returns of the respective Polish indices calculated using the data collected from the Stooq.pl datasets. WIG[5] index is the first exchange index created at Warsaw Stock Exchange (WSE, or from Polish: GPW), calculated since 1991. It comprises of all the companies listed at WSE that meet the detailed "base eligibility criteria" set described by Capital Market Indices Group (2022). Additionally, WIG is created based on the principle of diversification, meaning that the share of a single company or a sector in the total value of the index is limited.

On the other hand, WIG20, mWIG40, and sWIG80 indices are comprised of respectively: the 20 largest (in terms of market capitalization) and most liquid companies, 40 mid-size, and 80 small companies publicly listed at WSE. Furthermore, these three indices only contain Polish firms, none of which can be included in more than one of the indices. Additionally, the calculation of returns for these indices relies solely on the prices of the underlying shares. In contrast, the WIG index goes beyond share prices and incorporates the income from dividends and subscription rights as well (Capital Market Indices Group, 2022). The returns of the WIG, WIG20, mWIG40, and sWIG80 indices are determined using the following formula:

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}}, \qquad (1)$$

Where $R_{i,t}$ and $P_{i,t}$ are respectively the returns (expressed in percentages) and the price of index i in PLN at point t, whereas $P_{i,t-1}$ represents the price of the same index at time t-1. Another financial variable making use of formula (1) is *Inflation*. It is computed as the percentage change in inflation based on the monthly Consumer Price Index (CPI) data from the IFS database. In this case, $R_{i,t}$ denotes the change in inflation, while $P_{i,t}$ and $P_{i,t-1}$ correspond to the reported values of CPI in their respective periods. Additionally, this paper utilizes an *Interest Rate* variable which represents the yield on Polish 10-year treasury bonds and was constructed from the IFS data. Just like in the research conducted by Santa-

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[5] Meaning: *Warszawski Indeks Giełdowy* – from Polish: the Warsaw Stock Index.

Clara and Valkanov (2003), we use both the *Inflation* and the *Interest Rate* as proxies of the risk-free rate in the calculation of *Excess Returns* (*ER*) variables, which are created according to the formula:

$$ER_{i,j,t} = R_{i,t} - RF_{j,t} \,, \qquad\qquad (2)$$

Where $ER_{i,j,t}$ represents excess returns for index *i* over risk-free rate proxy *j*, during month *t*, $R_{i,t}$ denotes the returns from formula (1), and $RF_{j,t}$ denotes the respective proxy of the risk-free rate *j* at time *t*.

Nevertheless, using *Inflation* as an *RF* proxy is not a standard practice among researchers. In our case, insights from Hensel and Ziemba (1995) and Santa-Clara and Valkanov (2003), along with Partisan Theory assumptions, suggest that stock market returns and inflation are generally higher under left-wing (Democrat in the US) than right-wing governments (Republicans). Consequently, the *Interest Rate* may not be a reliable *RF* proxy for estimating *Excess Returns* when left-leaning parties are in power, as high inflation levels could significantly reduce real returns. Creating separate *ER* variables with *Inflation* as the risk-free rate proxy allows us to account for existence of this phenomenon in Poland.

3.2. Political Variables

The division of political spectrum into the left- and right-wing parties, as described by the Partisan Theories of Hibbs (1975, 1977) and Alesina (1987, 1991), is not fully viable in the case of Poland due to its multiparty political system (Gwiazda, 2009). In this system, even the winning parties may have to create coalitions with their competitors and look for compromises while creating policies (Roemer, 1999). Hence, this study will categorize the Polish political parties into the three distinct groups: left-wing, center, and right-wing, as outlined in the works of Jaskiernia (2015, 2017) and Borowiec *et al.* (2016). This division is represented by the following set of political cycle dummy variables:

- *Center$_t$* – with value 1 if a centrist party controlled the government positions at time *t*, and value 0 otherwise.
- *Right$_t$* – with value 1 if a right-wing party controlled the government positions at time *t*, and value 0 otherwise.

In case a left-wing party controlled the government positions at time *t*, both of the variables will take value 0 at the same time, making it simple to verify whether the findings of Santa-Clara and Valkanov (2003) hold also for the Polish stock market. Therefore, the sample is divided into seven periods during which parties of every orientation were in power. Each of the periods ends with an election month, which we consider as the last month in office for the incumbent government. We obtained all the

information about elections and political affiliation from Eisler (2021), Jaskiernia (2017), Leszczyńska, (2018), and Państwowa Komisja Wyborcza (2019), and its summary can be found in Table 1.

Table 1

Political orientation of Polish governments during the 2001:01 – 2020:02 period.

Time at office	Number of months at the office within the sample	Names of the governing parties (party)	Political orientation of the government
1997:09 – 2001:09	9	Election Action 'Solidarity" (AWS) in coalition with Freedom Union (UW)	Right
2001:09 – 2005:09	48	Democratic Left Alliance and Labour Union (SLD/UP) in coalition with Polish People's Party (PSL)	Left
2005:09 – 2007:10	25	Law and Justice (PiS) in coalition with Self-Defense and the League of Polish Families	Right
2007:10 – 2011:10	48	Civic Platform (PO) in coalition with Polish People's Party (PSL)	Center
2011:10 – 2015:10	48	Civic Platform (PO) in coalition with Polish People's Party (PSL)	Center
2015:10 – 2019:10	48	Law and Justice (PiS)	Right
2019:10 – Present	4	Law and Justice (PiS)	Right

Notes: The first column of this table (from the left) was created using the information from Eisler (2021), Jaskiernia (2017), Leszczyńska, (2018), and Państwowa Komisja Wyborcza (2019). The second column represents the number of months at the office within the sample period of 2001:01 – 2020:02. Meanwhile, in the third column, the first party is the bigger (with more seats in the parliament) and the second one is the smaller party (with fewer seats in the parliament) within the coalition. The political affiliation of the governments in the fourth column was assigned based on the orientation of the biggest party within the coalition assigned according to the classification obtained from Jaskiernia (2015, 2017) and Borowiec et al. (2016).

3.3.   Control Variables

This thesis incorporates several conditioning variables. By including these variables, we aim to control for the additional factors that could affect the stock market beyond political orientation of Polish governments. The first of them, *DAX*, represents the returns on the main German stock market index which were calculated according to formula (1), using the data from Stooq.pl. It was selected as a control because Germany has been the biggest and most important trading partner for Poland for over 20 years, and thus the performance of German capital market and economy may have an impact on returns of Polish indices (Hsing and Hsieh, 2012; Ministry of Economic Development and Technology, 2020; Samitas and Kenourgios, 2007). Another conditioning variable, *Industrial Production*, was obtained from the IFS dataset and represents the logarithmically transformed value of an Industrial Production Index with a base year of 2005 (Hsing and Hsieh, 2012). The variable was chosen because of the existing evidence, provided by Samitas and Kenourgios (2007), suggesting that the influence of national industrial production on Polish and Central European indices is greater than that of the domestic interest

rates. One more control extracted from the IFS is the *PLN/EUR*, which represents the exchange rate between the Polish Zloty (zł or PLN) and the Euro (€ or EUR), or in other words: how much 1 zł is worth in €. Czapkiewicz and Stachowicz (2016) provided evidence that this exchange rate may have a significant impact on the Polish stock market, represented in their research by the WIG20 index. Meanwhile, Wang and Moore (2008) found in their paper that there existed a significant linkage between the three major Central European emerging stock markets, including Poland, and the eurozone markets during and after the Financial Crisis of 2008. Furthermore, they found that this relation was enhanced by accession of these countries to the EU. Findings of Wang and Moore (2008) were later supported by Hsing and Hsieh (2012) who further proved that the eurozone bond yield can influence the performance of the Polish stock market. To control for this effect, the *Eurozone Rate* conditioning variable is included in this research. It was obtained from the ECB database and represents the Euro area 10-year Government Benchmark bond yield.

Table 2

Descriptive Statistics of all the base variables.

Variables	Number of observations	Mean	Standard Deviation	Min	Max
WIG	230	0.616	5.887	-24.005	20.729
WIG20	230	-0.196	6.436	-20.903	23.420
mWIG40	230	0.737	6.043	-27.906	21.951
sWIG80	230	0.851	6.797	-22.718	27.957
Inflation	230	0.179	0.346	-0.491	1.216
Interest Rate	230	5.122	2.000	1.930	11.860
Center	230	0.417	0.494	0	1
Right	230	0.374	0.485	0	1
Industrial Production	230	4.560	0.287	3.977	5.077
PLN/EUR	230	0.245	0.018	0.206	0.307
Eurozone Rate	230	3.128	1.465	0.048	5.317
DAX	230	0.445	5.886	-25.422	21.378
Election Year	230	0.248	0.433	0	1
Financial Crisis	230	0.087	0.282	0	1

Notes: This table shows the descriptive statistics of all base variables – financial variables (except of the Excess Returns variables), political variables, and control variables. The index return variables, *WIG*, *WIG20*, *mWIG40*, and *sWIG80* were calculated according to the formula (1), and are expressed in percentages, just like *Inflation*, *Interest Rate*, *Industrial Production*, *Eurozone Rate*, and *DAX* variables. Meanwhile, the *PLN/EUR* variable is expressed in Euros (€) per 1 Polish Zloty (zł). The descriptive statistics presented in the table are the number of observations, mean, standard deviation, minimum, and maximum values of the base variables.

The *Election Year* control variable was constructed using the information from Eisler (2021), Jaskiernia (2017), Leszczyńska, (2018), and Państwowa Komisja Wyborcza (2019) about the election dates. It is

a dummy variable taking value 1 if the month *t* is within 12 months from the upcoming elections and 0 otherwise. The goal of implementing it is to control for the pre-election PBC effect, described by Nordhaus (1975). Lastly, we include a *Financial Crisis* variable which takes value 1 (and 0 otherwise) when the month *t* is within the period between 2007:07 and 2009:02, which was described by Hsing (2013) as the worst time for the Polish stock market during the Financial Crisis of 2008. This external event, if not controlled for, could introduce bias to our coefficient estimates as it caused great changes in stock values and an increase in the overall stock market volatility.

3.4. Descriptive Statistics

Descriptive statistics for the variables outlined in sections 3.1. to 3.3. are presented in Table 2 (base variables) and Table 3 (ER variables). These tables offer insights into features and anomalies within the sampled data. Notably, WIG20's mean return was -0.196 during the study period. Additionally, ER WIG20 Inf, representing excess returns over inflation, had a negative mean of -0.374, suggesting subpar index performance compared to others. Regarding data attributes, sWIG80 displayed considerably greater mean and maximum returns than any other Polish index, which supports the observation of the 'small-company effect' in global markets as elucidated by Bauman et al. (1998), resembling trends seen in the US stock market. Furthermore, the distribution of governments by political orientation throughout the last two decades is approximately 41.7% centrists, 37.4% right-wing, and 20.9% left-wing. This points to a prevailing influence of centrist and right-wing parties in Polish political life throughout the last two decades.

Table 3

Descriptive Statistics of Excess Returns variables.

Variables	Number of observations	Mean	Standard Deviation	Min	Max
ER WIG IR	230	-4.507	6.293	-30.355	14.539
ER WIG Inf	230	0.437	5.896	-24.379	20.001
ER WIG20 IR	230	-5.318	6.653	-31.213	17.070
ER WIG20 Inf	230	-0.374	6.452	-21.281	23.046
ER mWIG40 IR	230	-4.386	6.414	-34.256	16.378
ER mWIG40 Inf	230	0.559	6.051	-28.280	21.223
ER sWIG80 IR	230	-4.272	7.260	-29.068	22.587
ER sWIG80 Inf	230	0.672	6.807	-23.091	28.327

Notes: This table shows the descriptive statistics of *Excess Returns* (*ER*) variables which were calculated according to formula (2) from subsection 3.1. The names of the variables are created in the following way: ER, Index Name, and Risk-Free Rate Proxy. Moreover, all the values presented in the table are expressed in percentages. The descriptive statistics presented in the table are the number of observations, mean, standard deviation, minimum, and maximum values of the ER variables.

4. METHODOLOGY

The data described in section 3 is analyzed using sixteen OLS regressions. Their two-sided null hypothesis assumes that the political affiliation of Polish governments has no effect on the national stock market excess returns. Meanwhile, according to their alternative hypothesis, the returns are either higher or lower under the centrist or the right-wing governments when compared with their left-wing counterparts. We can reject the null hypothesis if the p-value does not exceed 0.1. In addition, each of the regressions is conducted using the Newey-West heteroskedasticity- and autocorrelation-adjusted standard errors to ensure that the second and third assumptions of the Classical Linear Regression Model (CLRM) are not violated. Furthermore, the regressions are conducted with 3 lags. To derive the estimated number, we extract the integer part of the result obtained from the following equation:

$$L = T^{1/4}, \tag{3}$$

Where T stands for the number of observations in our sample (230). According to Greene (2012) and Wooldridge (2013), this method is a standard practice among econometricians, although alternative ways of estimating the number of lags are also available as described by Stock and Watson (2019). Eight of the regressions, two per each of the Polish indices: one with the ER estimated using Inflation and one using Interest Rate, are conducted using the following formula:

$$ER_{i,j,t+1} = \alpha + \beta_1 \, Center_t + \beta_2 \, Right_t + u_{t+1} \,. \tag{4}$$

In the equation, the error term at time $t+1$ is represented by u_{t+1}. We can therefore assume that the values of political variables are known before the beginning of the return period $t+1$. As a result, our effective sample size is reduced to 229 due to the loss of one observation for every variable. Subsequently, following the methodology outlined in the paper by Santa-Clara and Valkanov (2003), we perform eight additional regressions, adhering to the equation provided below:

$$ER_{i,j,t+1} = \alpha + \beta_1 \, Center_t + \beta_2 \, Right_t + \beta_3 \, X_t + u_{t+1} \,, \tag{5}$$

Where X_t is a vector containing all the conditioning variables described in subsection 3.3. Their results enable us to verify whether the findings of the previous eight regression models still hold after controlling for the relevant macroeconomic variables. Additionally, we estimate the size of the difference between the coefficients of political dummy variables. Next, to check its statistical significance, we conduct a two-sided Wald test with the null hypothesis of no difference between the coefficients of *Center* and *Right*. Meanwhile, the alternative hypothesis of the test states that the effect of *Center* on the *Excess Returns* is either higher or lower than that of the *Right* variable. We reject the null hypothesis only if the p-value is smaller than 0.1.

5. RESULTS AND DISCUSSION

This section is divided into three subsections. The first of them describes how to interpret the models. In the next subsection, we describe the results, answer our hypotheses, and discuss our findings and provide a potential explanation of the results. Lastly, we focus on the impact of the conditioning variables on the models.

Table 4

Average returns under governments of different orientations in Poland.

	Panel A: Excess Returns above the Interest Rate			
	ER WIG IR	ER WIG20 IR	ER mWIG40 IR	ER sWIG80 IR
Center	-0.353	3.839***	0.008	-0.559
	(1.272)	(1.214)	(1.395)	(1.907)
Right	0.892	3.880***	1.822	1.460
	(1.249)	(1.137)	(1.320)	(1.983)
Difference Center – Right	-1.244	-0.041	-1.815	-2.018
	(1.143)	(0.947)	(1.282)	(1.479)
Constant	-4.644***	-8.445***	-5.029***	-4.555***
	(0.996)	(0.970)	(1.020)	(1.662)
Number of observations	229	229	229	229
Adjusted - R^2	-0.001	0.049	0.010	0.007
	Panel B: Excess Returns above the Inflation			
	ER WIG Inf	ER WIG20 Inf	ER mWIG40 Inf	ER sWIG80 Inf
Center	-2.107*	2.085*	-1.746	-2.313
	(1.130)	(1.181)	(1.259)	(1.721)
Right	-1.440	1.549	-0.509	-0.871
	(1.007)	(1.106)	(1.157)	(1.781)
Difference Center – Right	-0.667	0.536	-1.238	-1.441
	(0.917)	(0.906)	(1.128)	(1.307)
Constant	1.917***	-1.885**	1.531*	2.006
	(0.859)	(0.958)	(0.907)	(1.491)
Number of observations	229	229	229	229
Adjusted - R^2	0.010	0.006	0.006	0.010

Notes: This table presents the results of eight regressions conducted according to formula (4). Each of the coefficients represent a change in the index's *ER*, expressed in percentage points. Regressions in Panel A report the mean *Excess Returns* of WIG, WIG20, mWIG40, and sWIG80 above the *Interest Rate* under centrist and right-wing governments in Poland, compared to those under the left-wing governments (left-wing governments are treated as the base category in our research). On the other hand, Panel B reports the mean *Excess Returns* above *Inflation* under governments of different political orientations. The rows named "Difference Center - Right" present the results of the Wald test. The numbers in brackets, placed below the coefficient estimates, represent the Newey-West standard errors. At the same time, the statistical significance of the coefficients is indicated in the following way: * for p-values < 0.1, ** for p-values < 0.05, and *** for p-values < 0.01.

5.1. Interpretation of the models

The results of the eight regressions conducted according to the formula (4) are presented in Table 4, while the remaining regressions, estimated using the equation (5), can be found in Table 5. Each coefficient estimate within these tables can be interpreted as a percentage-point change (%) in the average *Excess Returns* when the selected independent variable changes by 1 unit (or 1 percent in the case of *Industrial Production* variable). When it comes to the political variables, it indicates the difference in the *ER* between the centrist or right-wing governments and their left-wing counterparts. For most of the models included in Table 4, the adjusted-R^2 varies between 0.006 and 0.049, indicating that the regression models explain respectively 0.6% to maximum 4.9% of the entire variance in our sample. One exemption is the model estimated for *ER WIG IR* (*Excess Returns* of WIG above the *Interest Rate*), which has negative adjusted-R^2, and hence does not have any predictive value. Furthermore, all of the regressions were estimated using 229 monthly observations because the dependent variables are used in their lagged form (*t+1*). At the same time, the adjusted-R^2 is higher on average in models from Table 5 and ranges between 2.3% (*ER WIG20 Inf*) and 16.8% (*ER mWIG40 IR*) of explained sample data variation. Additionally, the goodness-of-fit measure is larger in the models from Panel A than Panel B. This observation potentially signifies the *Interest Rate's* greater influence on Polish index *ERs* compared to *Inflation*.

5.2. Description and discussion of the results

Three of the eight models from Table 4 provided statistically significant coefficients of at least one political variable. Results from the *ER WIG Inf* model indicate that the E*xcess Returns* over *Inflation* in the Polish stock market were, on average, 2.107% lower under centrist governments compared to the 1.917% *ER* observed under left-wing governments. These results suggest the presence of an effect akin to that described by Santa-Clara and Valkanov (2003). Conversely, the results of *ER WIG20 Inf* model suggest that the opposite holds for large Polish companies – their *ER* are on average 2.085% higher under centrist than left-wing governments (-1.885%). Nevertheless, the coefficients of the *Center* variable in both of these models are only weakly significant at 10% confidence level. At the same time, the outcome of the *ER WIG20 IR* model seems interesting as the coefficients of both political dummies are highly significant (at 1% confidence level) and have positive signs. Furthermore, it is the model with the highest adjusted-R^2 in Table 4, which explains 4.9% of the sample's variation. Therefore, we can conclude that the index of the biggest Polish companies reaches respectively 3.839% and 3.880% higher *ER* under the right-wing and centrist, than under the left-wing governments. This effect could be caused by the low sample of large-cap Polish companies included in the index (20), and by the fact that many of them are owned in great part by the Polish state, and thus indirectly by the national government itself (*Komponenty Indeksu WIG20*, 2023).

Table 5

Average returns under governments of different orientations in Poland, estimated using controls.

	Panel A: Excess Returns above the Interest Rate			
	ER WIG IR	ER WIG20 IR	ER mWIG40 IR	ER sWIG80 IR
Center	-1.419	1.913	0.947	1.209
	(2.171)	(1.842)	(2.220)	(2.841)
Right	-1.481	1.314	1.334	2.352
	(2.269)	(1.645)	(2.357)	(3.227)
Difference	0.062	0.600	-0.387	-1.143
Center – Right	(0.966)	(0.820)	(1.077)	(1.418)
DAX	0.089	-0.055	0.087	0.148*
	(0.066)	(0.068)	(0.065)	(0.086)
Industrial	1.964	1.408	-0.987	-2.557
Production	(4.646)	(3.581)	(5.155)	(6.825)
PLN/EUR	9.355	-45.258	-11.094	-88.939**
	(26.585)	(30.820)	(31.475)	(40.076)
Eurozone Rate	-0.846	-0.806	-0.767	-0.539
	(0.625)	(0.524)	(0.779)	(0.956)
Election Year	-0.856	1.018	-0.946	-0.668
	(0.975)	(0.770)	(1.060)	(1.403)
Financial Crisis	-4.795***	5.470***	-7.334***	-3.456*
	(1.694)	(1.602)	(1.610)	(1.909)
Constant	-11.333	-0.225	5.202	29.877
	(23.395)	(19.729)	(25.394)	(33.409)
Number of observations	229	229	229	229
Adjusted - R^2	0.108	0.110	0.168	0.123

	Panel B: Excess Returns above the Inflation			
	ER WIG Inf	ER WIG20 Inf	ER mWIG40 Inf	ER sWIG80 Inf
Center	-1.086	2.246	1.280	1.541
	(1.903)	(1.984)	(1.940	(2.520)
Right	-0.929	1.865	1.886	2.903
	(1.855)	(1.909)	(1.955)	(2.777)
Difference	-0.156	0.381	-0.606	-1.361
Center – Right	(0.840)	(0.853)	(0.935)	(1.238)
DAX	0.064	-0.080	0.623	0.123
	(0.063)	(0.068)	(0.062)	(0.081)
Industrial	-0.868	-1.425	-3.820	-5.390
Production	(3.950)	(4.013)	(4.444)	(6.026)
PLN/EUR	21.771	-32.842	1.322	-76.523*
	(27.408)	(29.356)	(31.980)	(39.231)
Eurozone Rate	-0.121	-0.081	-0.041	0.187
	(0.554)	(0.552)	(0.703)	(0.868)
Election Year	-0.800	1.074	-0.890	-0.612
	(0.818)	(0.844)	(0.884)	(1.210)
Financial Crisis	-5.690***	4.574***	-8.229***	-4.351**
	(1.560)	(1.672)	(1.469)	(1.726)
Constant	0.978	12.087	17.514	42.189
	(20.649)	(21.229)	(22.590)	(29.966)
Number of observations	229	229	229	229
Adjusted - R^2	0.057	0.023	0.136	0.091

Table 3, continued:

Notes: This table presents the results of eight regressions conducted according to formula (5). Each of the coefficients represent a change in the index's *ER*, expressed in percentage points. All of the regressions in Panel A report the mean *Excess Returns* of WIG, WIG20, mWIG40, and sWIG80 above the *Interest Rate* under centrist and right-wing governments in Poland, compared to those under the left-wing governments (left-wing governments are treated as the base category in our research). On the other hand, Panel B reports the mean *Excess Returns* above *Inflation* under governments of different political orientations. All the returns are reported after controlling for 6 variables, presented in detail in section 3. The row named "Difference Center - Right" presents the results of the Wald test. Meanwhile, the numbers in brackets, placed below the coefficient estimates, represent the Newey-West standard errors. At the same time, the statistical significance of the coefficients is indicated in the following way: * for p-values < 0.1, ** for p-values < 0.05, and *** for p-values < 0.01.

However, as presented in Table 5, all of these coefficients become insignificant once we add *DAX, Industrial Production*, *PLN/EUR*, *Eurozone Rate*, *Election Year*, and the *Financial Crisis* conditioning variables into the models. This implies that it is unlikely that the difference in *Excess Returns* under governments of either political affiliation differs from zero for all of the Polish indices considered in this research. Additionally, we find none of the models from Table 5 exhibits significant and persistent difference in stock market excess returns between the centrist and the right-wing administrations.

Based on these results, we can conclude that our analysis does not provide us with evidence indicating that the excess stock market returns in Poland are significantly higher under the right-wing governments. As a result, we lack statistical backing for Hypothesis 1, as we cannot dismiss the null hypothesis of no effect. Furthermore, the findings do not sufficiently support Hypothesis 2 either. Consequently, since we once again cannot reject the null hypothesis of no effect, we cannot conclude whether the impact of the political affiliation of Polish governments on the national capital market *Excess Returns* is larger for small-cap companies than for large-cap companies.

These findings differ significantly from those of Santa-Clara and Valkanov (2003) for the US, or Döpke and Pierdzioch (2006) for Germany. At the same time, they are fully in line with the results of Białkowski, Gottschalk, and Wisniewski (2007) for Poland. This convergence of results is surprising, considering that in this paper we considered a more recent period, three political orientation categories instead of two, and included several conditioning variables. Therefore, this thesis provides further support for the findings of Białkowski, Gottschalk, and Wisniewski (2007). A potential explanation of our results may lie in the policies of the governing parties. Despite significant differences in their view of Poland and Polish society, the left-wing, centrist, and right-wing governments implemented very similar economic and geopolitical policies (Eisler, 2021). For example, the biggest right-wing party in the country – PiS (Law and Justice), gained power after the elections of 2015 partially because of their

generous, "left-wing-alike" promises of an increase in social spending for the "Family 500+" child support payments program, lower retirement age, and many more (Eisler, 2021; Jaskiernia, 2017). Implementation of their ideas caused a significant increase in Polish inflation, comparable with the period when the left-wing SLD was in power in the years 2001 – 2005 (see Appendix for reference).

5.3. Impact of control variables

Meanwhile, models from Table 5 provide us with interesting insights into the impact of our conditioning variables on Polish indices. To start with, the *Financial Crisis* variable is at least weakly significant in all the regression models and highly significant in most, confirming that the Polish stock market was impacted by the 2008 Financial Crisis as heavily as the Western markets. Remarkably, both models for WIG20 exhibit a significant and positive coefficients of the variable. It means that the index of the largest Polish companies reached 5.470 percentage points higher *Excess Returns* on average during the most difficult period of the Financial Crisis in Poland (Hsing, 2013). However, after considering descriptive statistics from Table 2, it becomes evident that this result was caused by the fact that WIG20 experienced a lower decrease in value, especially in comparison to its highest value before the stock market crash than the other indices during 2007:07 – 2009:02 period (see Appendix for reference). These unexpected findings could be attributed to the higher credibility of state-owned companies, which have always comprised the majority of WIG20.

Furthermore, the findings from Table 5 provided statistically significant evidence of a negative relation between the excess returns of sWIG80 and the *PLN/EUR*. The results of *ER sWIG80 IR* model show that an increase of 1 Euro Cent in the exchange rate would result in an approximate 0.765 percentage point decrease in the *ER* of the index. Moreover, in the *ER sWIG80 Inf* model, the effect was estimated to be more substantial, albeit less significant, with a 1 Euro Cent shift in the exchange rate leading to a change of approximately 0.889% in the index's *ER*. A possible explanation of these findings could be the high dependence of the smallest Polish companies on their exports and imports to and from the other countries within the EU. This reasoning is further supported by the fact that the Polish intra-EU trade accounts for 74% of the national exports and 67% of the imports (*Poland – EU Member Country Profile*, n.d.). Additionally, the weakly significant coefficient of *DAX* in the *ER sWIG80 IR* model, suggests that trade with Germany, Poland's biggest trade partner according to the Ministry of Economic Development and Technology (2020), may play a more essential role in shaping their revenue streams than in the case of Polish mid-sized and large firms. Lastly, none of the estimated models provided evidence for the statistical significance of the *Election Year* variable. Hence, we may conclude that the PBC theory of Nordhaus (1975) does not hold in the Polish capital market.

6. CONCLUSION

In this research paper, we investigate the impact of political orientation of governments on the stock market in Poland. Past papers focused primarily on Western countries such as New Zealand, Australia, Germany, or the US. The only research that attempted to verify the existence of the relationship between Polish partisan politics and the national stock market was conducted by Białkowski, Gottschalk, and Wisniewski (2007). However, the authors used data covering the period from 1993 until 2005 and divided the political parties only into two categories. Since the publication of Białkowski, Gottschalk, and Wisniewski (2007), no subsequent research has attempted to verify their findings in a more recent setting, even in light of significant changes in the Polish economic and political systems. Therefore, the research question examined in this thesis is as follows: "How does the political affiliation of the Polish government affect the national stock market during the period from 2001 to 2020."

To answer this question, we collected the relevant data for the period 2001:01–2020:02 and calculated the excess returns on the most notable Polish stock indexes: WIG, WIG20, mWIG40, and sWIG80. Furthermore, we classified the government administrations present during that period into left-wing, centrist, and right-wing political affiliations, utilizing the classification of Jaskiernia (2015, 2017) and Borowiec et al. (2016). Subsequently, we estimated regression models with and without conditioning variables for every index in our sample. The analysis of their results revealed that there were no statistically significant disparities in stock market excess returns during the periods when governments were aligned with either political orientation.

Therefore, this paper concludes that in the long-run, the political orientation of Polish governments does not have an impact on the stock market excess returns during the period 2001–2020. This finding is completely in line with EMH and the results of Białkowski, Gottschalk, and Wisniewski (2007) for Poland, even despite the introduction of different political categories and conditioning variables. Additionally, the outcome of the research enables us to conclude that the affiliation of governments is not a key factor influencing the stock market excess returns for Polish companies with big, mid-sized, and small market capitalization. Therefore, there are no investment strategies capable of generating substantial profits solely based on information about changes in the political affiliation of governments in Poland.

Unfortunately, our research has its limitations. To begin with, this paper only included the data reported from 2001 up until 2020 before the COVID-19 pandemic due to low availability of information about

the key variables in the 1990s and the fact that Poland became a democratic and capitalist country just over 30 years ago. Furthermore, the sampled period was characterized by the domination of centrist and right-wing parties in Polish politics. Hence, if repeated in 10 to 20 years for an enlarged sample, this research could provide different and more reliable results. Apart from that, this thesis relies heavily on assumptions regarding the political affiliation of Polish governments. Their implementation was necessary due to the complex political, multiparty system in Poland, in which winning parties often are forced to form coalitions with their opponents to ensure government stability. Nevertheless, future researchers may want to use more detailed division of political affiliation of Polish parties in order to better account for the economic and ideological nuances between them. Lastly, the analysis of regression models was conducted to check for the impact of Polish politics on the stock market. However, it is also plausible that the reverse causal relation holds, necessitating further attention from researchers in the near future.

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APPENDIX

Table A1

Information about the elections in Poland crucial for the 2001:01 – 2020:02 period.

Election Date	Newly elected government (parties)	Prime Ministers
21/09/1997	AWS and UW	Jerzy Buzek
23/09/2001	SLD/UP and PSL	Leszek Miller & Marek Belka
25/09/2005	PiS and Self-Defense and the League of Polish Families	Kazimierz Marcinkiewicz & Jarosław Kaczyński
21/10/2007	PO and PSL	Donald Tusk
9/10/2011	PO and PSL	Ewa Kopacz
25/10/2015	PiS	Beata Szydło & Mateusz Morawiecki
13/10/2019	PiS	Mariusz Morawiecki

Notes: This table was created using the information from Eisler (2021), Jaskiernia (2017), Leszczyńska, (2018), and Państwowa Komisja Wyborcza (2019). In the first column, it contains the historical date of elections in Poland. In the second one – the name of elected parties. And in the last one – names of prime ministers of Poland in power during the period following the election. Two names in one row of this column indicate that there was a switch in the office while the party remained in power.
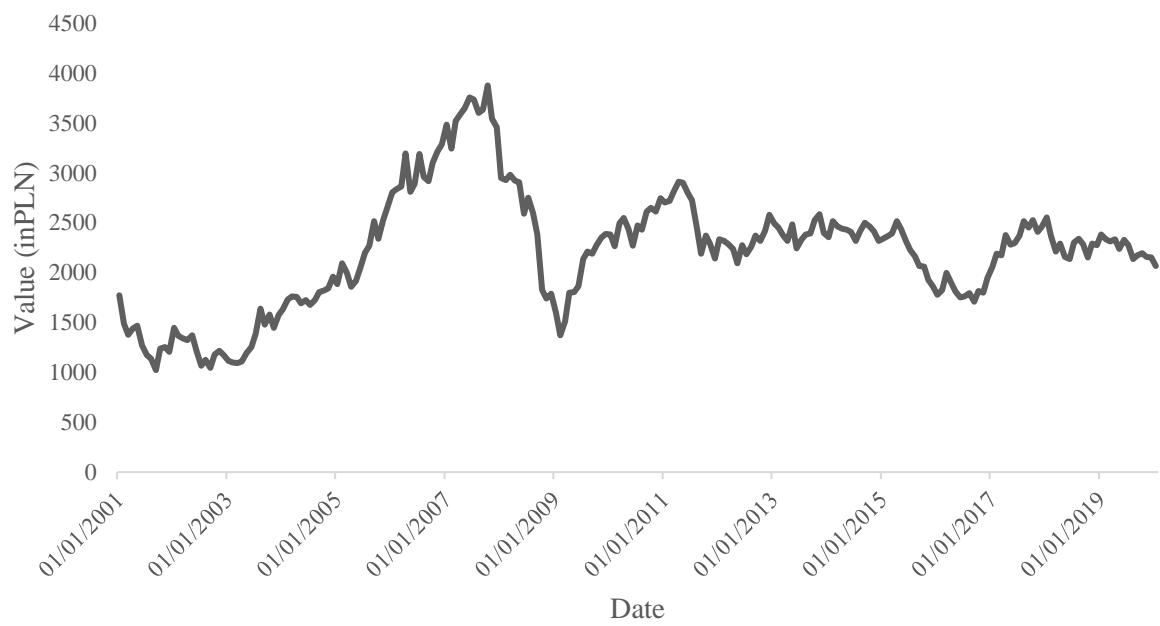
Figure 3

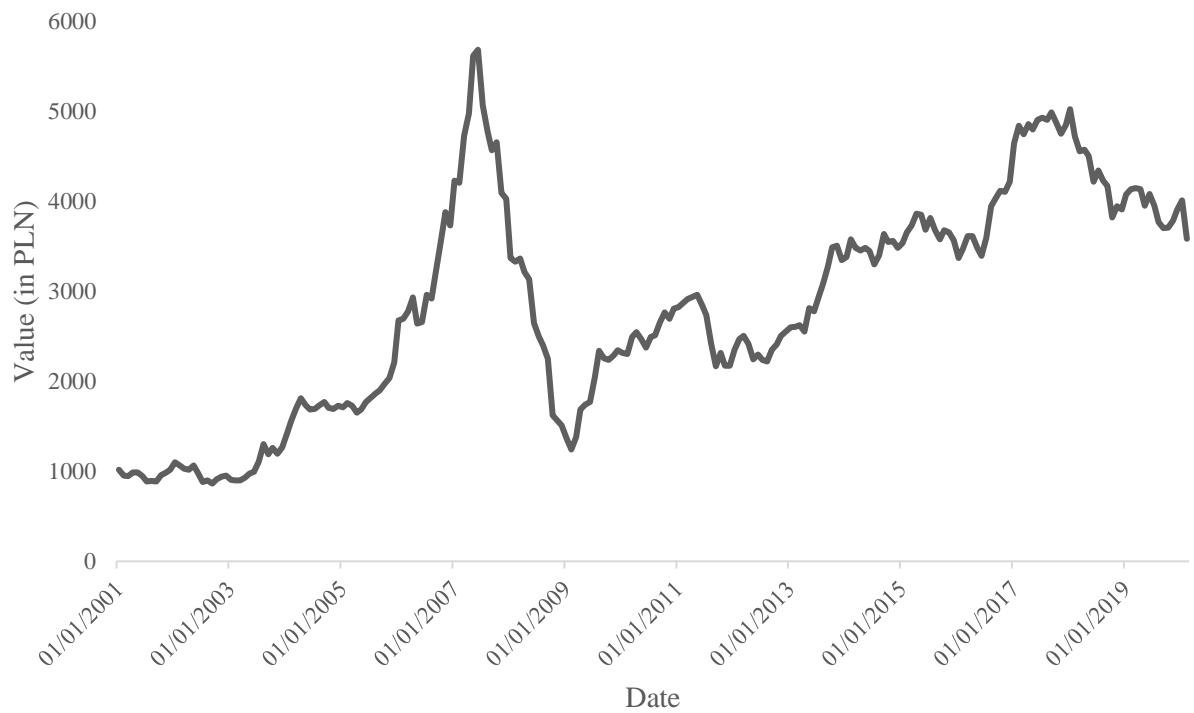*Value of WIG during the period 2001:01 – 2020:02.*
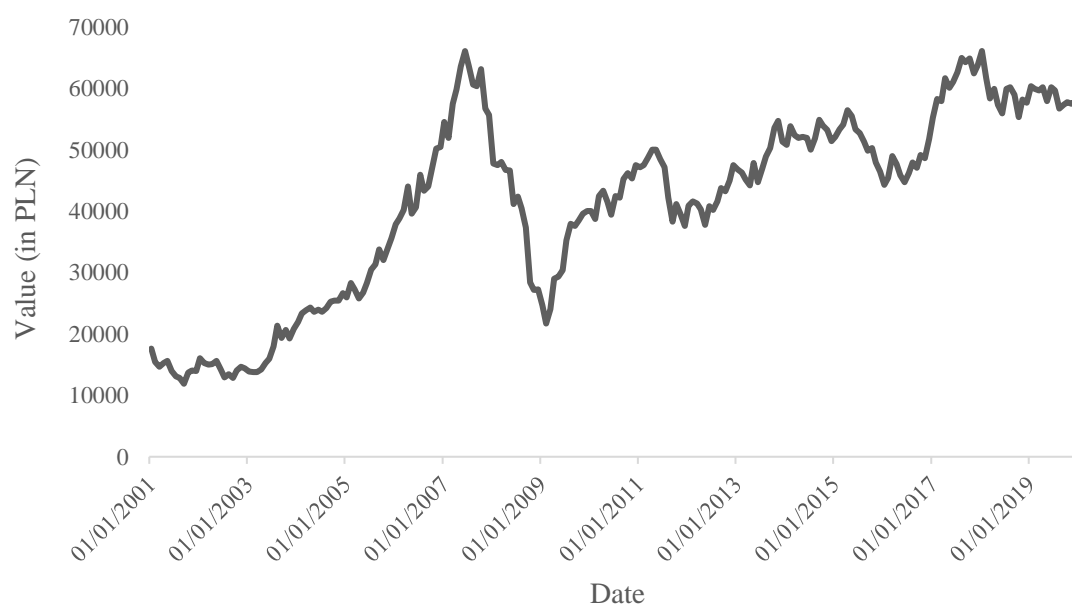
Figure 4

Value of WIG20 during the period 2001:01 – 2020:02.
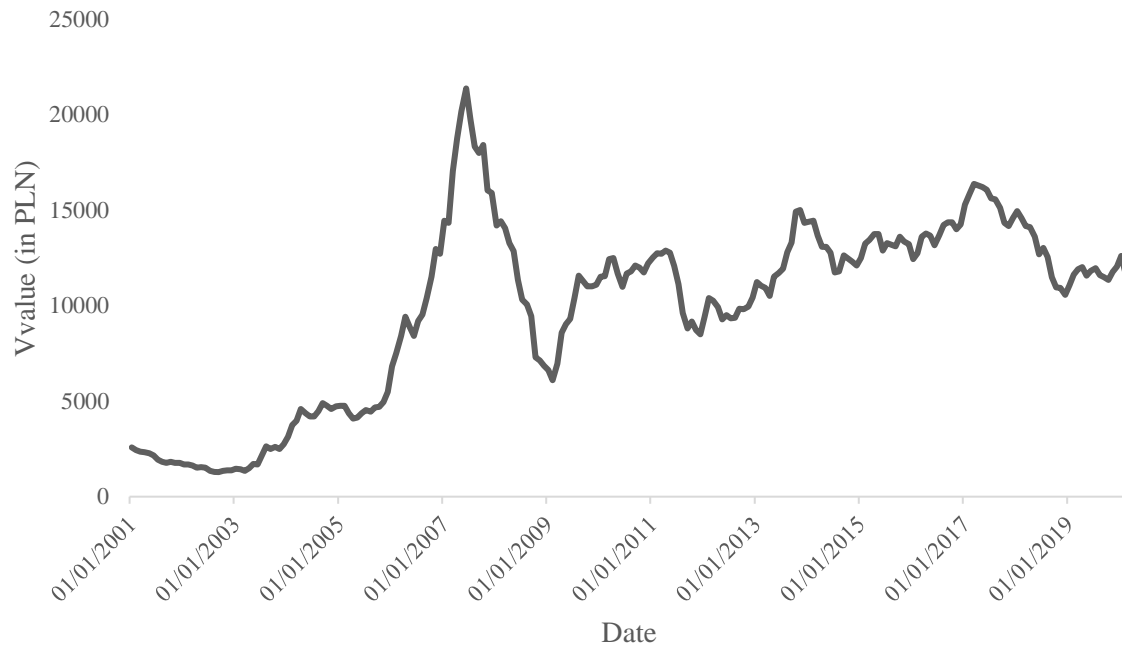

Figure 5

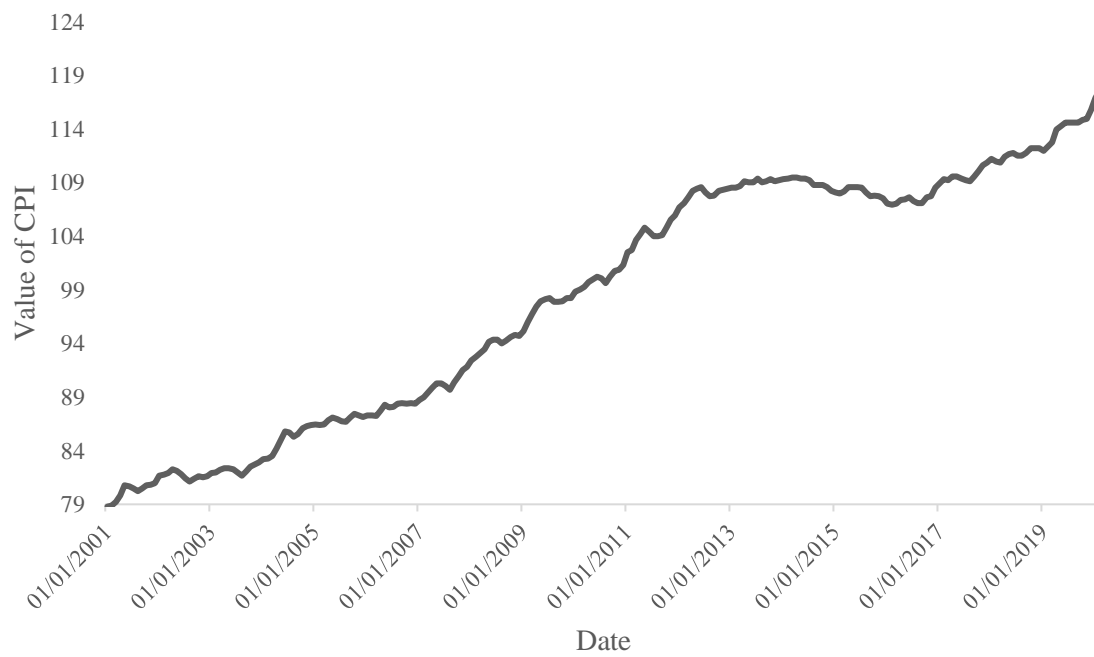*Value of mWIG40 during the period 2001:01 – 2020:02.*

Figure 6

Value of sWIG80 during the period 2001:01 – 2020:02.

Figure 7

Value of CPI (Consumer Price Index) during the period 2001:01 – 2020:02.

Figure 8

Polish 10-year treasury bonds yield during the period 2001:01 – 2020:02.