SOCIETY'S WELL-BEING AND FIRM PROFITABILITY. THE CASE OF POLAND

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Abstract

The aim of the study is to examine the impact of society's economic well-being determinants – above and beyond the firm-specific and macroeconomic determinants – on firm profitability in Poland. Based on stakeholder theory we hypothesized that the economic well-being of society can influence firm performance. Therefore, we included real wage and salary growth, internal migration, international migration, and natural increase variables in the regression models. We applied four models with different sets of variables using pooled ordinary least square regression, as well as fixed and random effects regressions with robust standard errors clustered at the firm level. The dataset covers the period from 2004 to 2021, comprising 5400 firm-year observations from Poland in the wholesale and retail trade sector. We found that firm profitability generally increases with higher inflation and exchange rate depreciation. Moreover, in models including society's economic well-being variables, GDP growth is no longer a significant determinant of firm profitability. Most importantly, the study demonstrates a positive relationship between real wage and salary growth and firm profitability. We also found that international migration is negatively associated with firm profitability. Regarding natural increase, the study suggests that it has a positive effect on return on equity, but not on return on assets.

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Introduction

Firm profitability is crucial for managing corporate finance. However, new research directions in this area are rarely addressed. The literature has extensively examined the changing trends in firm profitability over time and scrutinised the influence of internal and external factors on this phenomenon (Nanda & Panda, 2018). Still, there is an ongoing debate among researchers about whether a firm's performance is primarily influenced by its internal resources, as proposed by the resource-based theory, or by external factors from the wider economic environment, as suggested by system theory (Cheong & Hoang, 2021). This study is based on stakeholder theory – which argues that benefits for non-shareholder stakeholders can also result in benefits for shareholders – by introducing the concept of society's well-being in research on a firm's profitability. We believe that this approach enriches academic discourse in corporate finance and provides practical implications for businesses.

We developed three categories of variables to determine firm profitability. The category of firm-specific determinants as well as the category of macroeconomic determinants of a firm's business performance are treated as control variables. The third category of determinants refers to the economic well-being of society. We assume that the economic well-being of society can also influence firm performance, so we have included real wage and salary growth, internal migration, international migration, and natural increase variables in the regression models. This approach relies on resource-based theory, system theory, and stakeholder theory simultaneously. Additionally, it enables the drawing of conclusions that reconcile partially conflicting research results found in the existing literature.

The aim of this study was to examine the impact of society's economic well-being determinants – above and beyond the firm-specific and macroeconomic determinants – on firm profitability in Poland.

From a methodological perspective, we applied four models where the dependent variable is firm profitability measured by ROA and ROE. Depending on the model, the predictors include two groups of variables, i.e. firm-specific and country's economic well-being variables, or three groups of variables, i.e. firm-specific, country's economic well-being and society's economic well-being variables. To perform a proper analysis (Marti et al., 2015) pooled ordinary least square (OLS) regression, as well as fixed and random effects regression models were used (Torres-Reyna, 2007). Robust standard errors at the firm level have been computed to increase the credibility of the main results, given the possible threat of heteroscedasticity and autocorrelation (Petersen, 2009). The dataset spans from 2004 to 2021, comprising 5400 firm-year observations. These are Polish companies in the wholesale and retail trade sector, both listed and unlisted, officially classified under section G according to the Polish Classification of Economic Activities.

Our study generally shows that firm profitability increases with higher inflation and exchange rate depreciation. The finding regarding an insignificant GDP growth predictor may be quite surprising, as most researchers assume that GDP growth has a positive effect on firm profitability (Machin & Reenen, 1993; Pattitoni et al., 2014). Still, for example Lee (2009) did not find a significant correlation between the business cycle and profitability. It is important to note that GDP growth has a positive impact on firm profitability in models that do not include variables related to the economic well-being of society. This may be the key to understanding the results obtained.

Regarding society's economic well-being variables, it was demonstrated that there is a positive relationship between real wage and salary growth and firm profitability. Moreover, there is a negative relationship between international migration and firm profitability. These results clearly indicate that the positive aspects of society's economic well-being for firm profitability dominate over the negative ones (Simionescu, 2022; Kasnauskiene & Kavalnis, 2021). Additionally, we found that firm profitability increases with a greater natural increase. However, this only applies to return on equity and not to return on assets.

The structure of the paper is as follows: Section 2 presents the literature review and hypotheses development; Section 3 describes the methodology used in the study including sample, variables and analytical approach; Section 4 shows the results of the research; Section 5 is devoted to discussion, limitations and future research; and finally Section 6 presents conclusions.

Literature review and hypotheses development

Explaining the reasons for differences in performance between firms is a crucial theoretical and empirical issue, especially in the fields of corporate finance and strategic management. "Although different theories have tried to illuminate the reasons why some firms are more profitable than others, and a large amount of research has considered and explored different factors that may impact firm performance, the issue of firm profitability continues to be an actual, significant and inexhaustible phenomenon that attracts the attention of many researchers and practitioners" (Pervan et al., 2019).

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Maintaining sustainable development while increasing profits is crucial to a firm's long-term survival. The literature has extensively examined the changing trends in firm profitability over time and scrutinized the influence of internal and external factors on this phenomenon (Nanda & Panda, 2018). Regarding the theoretical basis, there is an ongoing debate among researchers about whether a firm's performance is primarily influenced by its internal resources, as proposed by the resource-based theory, or by external factors from the wider economic environment, as suggested by system theory (Cheong & Hoang, 2021). Still, more theories may be recognized as a basis for research on firm profitability: the structure-conduct-performance (SCP), market-based view (MBV), strategy-structure-performance (SSP), organization-environment structure-performance (OESP), and RBV perspectives (Yazdanfar, 2013).

There are numerous empirical studies that examine the impact of various determinants of firm performance. Schmalensee (1985), Hansen and Wernerfelt (1989) as well as Mauri and Michaels (1998) are among the pioneering studies that discuss firm performance based on internal and external factors. At the present time, there is a large body of literature on the subject. However, direct comparisons of the results of these studies are difficult due to differences in theoretical perspective, samples, measures of variables, and methodologies applied (Yazdanfar, 2013). In the last decade, studies on firm profit have considered firm-specific and macroeconomic indicators that are atypical (Nanda & Panda, 2018).

Empirical studies suggest that a firm's internal factors have a greater influence on its performance than external ones (Hawawini et al., 2003; Makhija, 2003). Despite the empirical findings, researchers remain interested in external factors due to managers' difficulty in accurately predicting and managing the impact of macroeconomic factors on the firm's performance.

Globalization and related crises have also increased firms' exposure to external factors, adding to the already complex challenges faced by managers (Cheong & Hoang, 2021; Ratajczak et al., 2024). Between 2002 and 2007, firm profitability was generally affected by firm-specific indicators such as firm size, leverage, and liquidity. However, since 2009, the integration of the domestic economy with the global economy has made it more vulnerable to external disruptions. The increase in the profitability of companies is now more determined by macro-economic factors such as the exchange rate, the interest rate and the rate of economic growth (Nandi et al., 2015).

A vast literature on firm performance confirms the impact of critical macroeconomic indicators on firm performance confirms the impact of critical macroeconomic indicators on firm profitability. For instance, real GDP growth is identified as having a positive effect on firm profitability during the economic crisis of 2007-2008 (Egbunike & Okerekeoti, 2018; Killins, 2020). However, the impact of inflation, another key economic indicator, is mixed. While some argue that inflation increases borrowing costs, others suggest that firms can benefit from rising inflation if they anticipate it and adjust their prices and costs accordingly (Nanda & Panda, 2018). Moreover, firm performance can be impacted by fluctuations in both exchange and interest rates. An increase in interest rates leads to higher interest expenses, which in turn increases expenditures and reduces profitability.

With the above characteristics in mind, we have developed three categories of variables for determining a firm's profitability. The category of firm-specific determinants and the category of macroeconomic determinants of a firm's business performance are treated as control variables. The final category of determinants refers to the economic well-being of society.

The research on firm profitability has not traditionally included society's economic well-being, so we incorporated factors such as real wage and salary growth, internal and international migration, and natural increase into our models. When formulating hypotheses about the relationships between these variables and firm profitability, we rely on stakeholder theory.

Maximising shareholder value is often considered a primary objective of a firm. The combination of this goal with care for society can be based on two theories: the resource-based theory and the stakeholder theory. The resource-based theory posits that a firm's social responsibility is a resource or competence that can lead to a competitive advantage. Meanwhile, stakeholder theory argues that benefits for non-shareholder stakeholders can also result in benefits for shareholders. In this context, Frooman's (1999) research is worth citing. He combined elements of both theories and presented non-shareholder stakeholders from the perspective of the resources they have at their disposal. Frooman (1999) indicated that stakeholders can supply, condition the supply of, or withhold the supply of resources to the firm. In this context, we believe that it is possible to both maximize shareholder value and care for society in the long term (Ratajczak, 2021).

Although many variables affect the economic well-being of society, it is important to consider those that have a theoretical basis for influencing firm profitability. The chosen variables – real wage and salary growth, internal migration, international migration, and natural

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increase – meet this criterion and they are internally consistent. Satisfaction with wage and salary growth reduces the likelihood of migration. Both of these factors are related to natural increase because they are important reasons for family growth. Additionally, each of these variables may impact a firm's costs, revenues, and profitability, which will be discussed in the following paragraphs. It is important to note here that the relationships between the variables do not cause any collinearity problems. The variables were statistically verified to prevent multicollinearity, which occurs when predictors in a regression model are linearly dependent.

Regarding the theory behind society's well-being variables used in the study, migration, and especially emigration, is one of the most frequently raised issues in Central and Eastern Europe. At the same time, the issue is related to wages and salaries and the size of the population.

Other variables are also employed in literature dedicated to the well-being of society. This study utilised a selection of the aforementioned variables for three reasons. Firstly, some of the variables, such as inflation, were included in our study under the category of country's economic well-being variables, rather than those related to society's economic well-being. Secondly, some of the variables, such as those related to the unemployment rate or the housing market, exhibit a strong correlation with variables used, especially GDP growth and wage and salary growth. Nevertheless, this does not negate the necessity for further study with different variables, which should be conducted with a consistent theoretical framework. One such framework is related to the Ginny coefficient, which addresses the distribution of this well-being.

Neoclassical models of economic growth suggest that whilst emigration may reduce aggregate output, it may increase per capita income in migrants' home countries, thereby accelerating economic convergence. This result is similar to predictions based on factor trade models (Heckscher & Ohlin, 1991). However, the empirical evidence is more consistent with endogenous growth theories and new models of economic geography that emphasise the benefits of agglomeration (Ozgen et al., 2010).

From this point of view, emigration has two main effects. Firstly, it alters the size and composition of the population in terms of activity, education level, experience, age, productivity and consumption behaviour. This, in turn, affects the size and structure of the available labour force, average productivity, and aggregate consumption, which impacts payments to the central budget and transfers. Secondly, emigration affects the balance of payments through remittances and other financial flows.

Moreover, emigration may also affect the behaviour of the non-migrant population and companies. The effects are complex and relates to wages, unemployment, savings, sustainability of welfare systems, fiscal effects, competitiveness, growth outlook, and trade effects (Bodnár & Lajos, 2014). For clarity, it is assumed that emigration affects wages and salaries through changes in average productivity and the available labour force (Bodnár & Lajos, 2014). Additionally these effects may vary across different time horizons. For example, wage and salary effects, which are particularly important for the central bank, may materialise even in the short term.

Although migrating abroad may offer a better standard of living for individuals and their families, large-scale migration may have negative externalities on economic growth. The departure of highly qualified workers reduces the size of the labour market and labour productivity in the migrant's home country. Moreover, this tendency also has consequences for the competitiveness of the economy and the structure of the budget, which may hinder economic growth. First of all, reducing the workforce may lead to increased pressure on domestic wages. Additionally, skilled labour outflows could reduce productivity due to externalities of human capital and a lower degree of substitution between skilled and unskilled labour. Remittances can increase the level of insured income and reduce the supply of labour. Moreover, large inflows of remittances may cause an appreciation of the exchange rate in the migrants' destination countries, negatively impacting trade (Simionescu, 2022). When the effects of emigration are significant, it can lead to a reduction in output growth and further stimulate emigration.

The effects mentioned are more noticeable in the Baltic countries and Southern European countries (Čekanavičius & Kasnauskiene, 2009). Additionally, income and institutional quality disparities between these countries and Western European countries tend to persist for longer periods (Simionescu, 2022; Kasnauskiene & Kavalnis, 2021). The emigration of highly skilled workers, in particular, may reduce capital stock and the rate of return on capital and labour. In the context of human capital externalities, highly skilled migrants may decrease, as mentioned before, the productivity of low-skilled workers, resulting in a negative impact on overall labour productivity (Simionescu, 2022).

The relationship between birth rate and economic development has been a topic of discussion for a long time, and it continues to be relevant today (Fox et al., 2019). However, from a firm's perspective, this issue has not been scientifically discussed. Based on statements made by entrepreneurs, low fertility is a prag-

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matic problem. Population growth, which is linked to wages, salaries, and migration, stimulates spending in society and increases firms' revenues. In the long term, population growth also increases the supply of workers in the labour market, which is beneficial for firms from a cost perspective.

Four research hypotheses were formulated to verify the relationships between the variables of society's economic well-being and firm profitability, based on the arguments presented above:

H_1: There is a positive relationship between real wage and salary growth and the profitability of Polish trading firms,

H_2: There is a negative relationship between internal migration the profitability of Polish trading firms,

H_3: There is a negative relationship between international migration and the profitability of Polish trading firms,

H_4: There is a positive relationship between natural increase and the profitability of Polish trading firms.

Methodology

Sample

The dataset spans from 2004 to 2021, comprising 5400 firm-year observations. These are Polish companies in the wholesale and retail trade sector, both listed and unlisted, officially classified under section G according to the Polish Classification of Economic Activities. The data is sourced exclusively from the separate financial statements of companies. To adhere to the adopted research methodology, outliers and observations with missing data were eliminated. The study utilized between 2291 to 2538 firm-year observations, depending on the model. Additional information about the sample can be found in the Results section, where descriptive statistics of variables, Pearson's correlations between variables, VIF coefficients, and regression models are presented.

This study used data from the EMIS service provided by a company in the ISI Emerging Markets Group. EMIS randomly selected an initial sample of 300 companies as part of its on-demand data service in order to minimise the number of observations with missing variables that are components of the variables of interest. It should be noted that the sample, which consists of companies that reliably report financial data, may have some bias, although this may not be a significant problem.

The data were prepared by an initial assessment of the data, transformation of variables with an abnormal distribution, deletion of univariate outliers and subsequent tests, mainly for normality and multicollinearity. To remove univariate outliers, we first removed outlier observations that were blatantly different from the rest, which we assumed could be the result of an error in the data, and then we calculated z-scores and deleted all individual variable observations that were not within the range of -3.29 and +3.29 (Tabachnick & Fidell, 2007). Three decimal logarithm transformations were used for the Size, Current Ratio and Cash Ratio variables in order to minimise the skewness of each variable and thus meet the regression assumptions.

Analytical approach

In order to analyse whether the economic well-being variables of the country as well as the economic well-being variables of the society are the determinants of profitability, we proposed four models where the dependent variable is firm profitability measured by ROA and ROE. Depending on the model, the predictors include two groups of variables, i.e. firm-specific and country's economic well-being variables, or three groups of variables, i.e. firm-specific, country's economic well-being and society's economic well-being variables.

To perform a proper analysis (Marti et al., 2015), pooled OLS, fixed effects and random effects regression models were used, together with tests to indicate which method should be used, i.e. a Fisher test to determine whether fixed effects model is more appropriate than pooled OLS model, and a Hausman test to determine whether random effects model is more appropriate than fixed effects model (Torres-Reyna, 2007).

The pooled OLS regression models measuring profitability are designed as follows:

$$Profitability = \alpha + \beta_{1-6}FirmVariables + \beta_{7-9}CountryVariables + \beta_{10-14}SocietyVariables + \varepsilon \quad (1)$$

Where: α – intercept of the equation; FirmVariables – size, sales growth, leverage, asset structure, current ratio, and cash ratio; CountryVariables – GDP growth, Harmonized Index of Consumer Prices, and the average annual exchange rate; SocietyVariables – growth in real gross wages and salaries, internal migration for permanent residence, net international migration for permanent residence, and natural increase.

The fixed effects models measuring the profitability are designed as follows:

$$Profitability_{i,t} = \alpha_i + \beta_{1-6}FirmVariables_{i,t} + \beta_{7-9}CountryVariables_{i,t} + \beta_{10-14}SocietyVariables_{i,t} + \varepsilon_{i,t} \quad (2)$$

where: α_i – an individual-specific fixed effect for fixed effects models.

The random effects models measuring the profitability are designed as follows:

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$$Profitability_{i,t} = \alpha + \mu_{i,t} + \beta_{1-6}FirmVariables_{i,t}$$
$$+\beta_{7-9}CountryVariables_{i,t} + \beta_{10-14}SocietyVariables_{i,t} + \varepsilon_{i,t} \quad (3)$$

where: α – intercept of the equation; $\mu_{i,t}$ – an unobserved individual-specific effect, i.e. a random variable, for random effects models.

The pooled OLS regression assumes that all firms involved in the analysis are homogeneous and that the data is stationary. This can result in biased and inconsistent regression estimators when these assumptions are violated (Marti et al., 2015). The fixed effects model controls for all time-invariant differences between entities. Therefore, the estimated coefficients of the fixed effects model cannot be biased due to omitted time-invariant characteristics, such as a firm's industry affiliation. As a result, fixed effects models cannot be used to investigate time-invariant causes of dependent variables. Substantively, fixed effects models are designed to study the causes of changes within an entity. A characteristic that does not change over time cannot cause such a change, as it remains constant for each entity. The random effects model assumes that the variation across entities is random and uncorrelated with the predictor or independent variables included in the model, unlike the fixed effects model (Torres-Reyna, 2007). The distinction between fixed and random effects is crucial. It depends on whether the unobserved individual effect embodies elements that are correlated with the predictors in the model, not whether these effects are stochastic or not. In general, if there is reason to believe that differences across entities have an influence on a dependent variable but are not correlated with the predictors, then the random effects model should be used (Torres-Reyna, 2007).

Robust standard errors at the firm level have been computed to increase the credibility of the main results, given the possible threat of heteroscedasticity and autocorrelation (Petersen, 2009). It is worth noting here that "although two-way clustering has been widely used in empirical work, the asymptotic theory to justify it is much more challenging than the theory for the one-way case, and this theory is still under active development" (MacKinnon et al., 2023). We used CR2 approach which is the bias-reduced linearization adjustment proposed by Bell and McCaffrey (2002) and developed by Pustejovsky and Tipton (2018), where the variance-covariance estimator is exactly unbiased under a user-specified working model.

This study primarily utilised the plm library (Croissant & Millo, 2008) which is specifically designed for panel data statistics together with the clubSandwich library (Pustejovsky, 2023) designed for cluster-robust variance estimators. Supporting calculations were performed in Excel.

Variables

The dependent variables selected for the models were return on assets (ROA) and return on equity (ROE). The ratios were calculated using net profit in the numerator and average values in the denominator, covering the value of assets and equity in the year net profit was realised and the previous year (Kochalski & Szutowski, 2024). The independent variables selected were the economic well-being variables of the country and society.

The economic well-being of the country is measured by its GDP growth (in constant prices), the Harmonized Index of Consumer Prices (HICP), and the average annual exchange rate. As there was no data available on a basket of currencies, the study used the EUR/PLN exchange rate due to its significance in the European Union countries. The economic well-being of society is measured by several variables, including growth in real gross wages and salaries, internal migration for permanent residence (in thousands), net international migration for permanent residence (in thousands), and natural increase (in thousands). The data was obtained from the Polish Macroeconomic Data Bank (GUS 2024).

Regarding firm-specific variables, we have included the following: size (total assets), sales growth ((sales(t) - sales(t-1)) / sales(t-1)), leverage (debt to total assets), asset structure (non-current assets to total assets), current ratio (current assets to current liabilities), and cash ratio (cash and cash equivalents to current liabilities). These variables were controlled for in the theoretical framework and in previous studies' findings. Table 1 provides a reference to selected studies in this area.

Table 1: Control variables in research on firm profitability

Variable	Variable's operationalization	Paper
Size	Logarithm of market value	(Cheong & Hoang, 2021)
	Logarithm of sales	(Asimakopoulos et al., 2009)
	Total asset	(Nanda & Panda, 2018)
	Dummy variable (1 for large, 0 for small firms)	(Menicucci, 2018)
	Logarithm of total assets	(Chambers & Cifter, 2022)
	Logarithm of sales	(Yazdanfar & Öhman, 2015)
	Logarithm of total assets	(Alarussi & Gao, 2023)

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Variable	Variable's operationalization	Paper
Age	Number of years	(Pervan et al., 2019)
	Logarithm of the number of years	(Yazdanfar & Öhman, 2015)
Sales Growth	Rate of growth in sales	(Cheong & Hoang, 2021)
	Rate of growth in sales	(Asimakopoulos et al., 2009)
	Rate of growth in sales	(Chambers & Cifter, 2022)
Leverage	Debt to total assets	(Asimakopoulos et al., 2009)
	Debt to equity	(Nanda & Panda, 2018)
	One period lag of loans and credits to total assets	(Chambers & Cifter, 2022)
	Total liabilities to total assets	(Yazdanfar & Öhman, 2015)
	Total liabilities to total equity	(Menicucci, 2018)
	Debt to equity	(Alarussi & Gao, 2023)
Risk	Number of years with negative net income to the total number of years	(Menicucci, 2018)
	Standard deviation of sales revenues scaled by total assets	(Menicucci, 2018)
	Standard deviation of operational cash flows scaled by total assets	(Menicucci, 2018)
Internationalization	Export earning as a percentage of total sales	(Nanda & Panda, 2018)
	Imported raw material cost as a percentage of total raw material cost	(Nanda & Panda, 2018)
Asset Structure / Investments	Fixed assets growth	(Asimakopoulos et al., 2009)
	One-period lag of tangible fixed assets to total assets	(Chambers & Cifter, 2022)
	Fixed assets to total assets	(Yazdanfar & Öhman, 2015)
	Intangible assets to total assets	(Alarussi & Gao, 2023)
	Fixed assets to sales	(Pervan et al., 2019)
Profitability	One-period lag of ROE/ROA/Tobin's Q	(Cheong & Hoang, 2021)
	One-period lag of ROA	(Pervan et al., 2019)
	One-period lag of ROA/ROE	(Chambers & Cifter, 2022)
	Sales to total assets	(Alarussi & Gao, 2023)
	Labour cost to sales	(Pervan et al., 2019)
Liquidity	Current assets to current liabilities	(Cheong & Hoang, 2021)
	Current assets to current liabilities	(Alarussi & Gao, 2023)
	"Working capital" to total assets	(Alarussi & Gao, 2023)
	Logarithm of current assets	(Asimakopoulos et al., 2009)
	Current assets to current liabilities	(Nanda & Panda, 2018)
	Current assets to current liabilities	(Pervan et al., 2019)
	Difference between current assets and current liabilities to total assets	(Chambers & Cifter, 2022)
	(Difference between current assets and current liabilities to total assets)^2	(Chambers & Cifter, 2022)
	Cash and cash equivalent to current assets	(Chambers & Cifter, 2022)
Industry	Dummy variables	(Yazdanfar & Öhman, 2015)

Source: Author's own work.

Results

Table 2 presents the descriptive statistics of the study's variables. The percentage of valid variable values for all observations is high, except for leverage (53.67%) and log Cash Ratio (87.87%). After logarithmic transformations, the skewness of the three variables is generally unobjectionable, except for Natural Increase.

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Table 2: Descriptive statistics

	ROE	ROA	log Size	Sales Growth	Leverage	Asset Structure	log Current Ratio	log Cash Ratio
Mean	0.15	0.06	4.88	0.06	0.19	0.32	0.20	-0.94
Std. Dev	0.18	0.09	0.71	0.20	0.15	0.23	0.27	0.69
Min	-0.49	-0.30	2.25	-0.94	0.01	-0.32	-1.65	-2.30
Median	0.12	0.05	4.79	0.05	0.17	0.28	0.16	-0.96
Max	0.86	0.43	7.85	0.79	0.75	1.00	1.35	1.05
Skewness	0.68	0.51	0.78	-0.30	0.82	0.65	0.39	0.15
Kurtosis	2.14	2.71	1.52	3.11	0.23	-0.20	3.69	-0.66
N. Valid	5088.00	5257.00	5346.00	5220.00	2898.00	5344.00	5291.00	4745.00
Pct. Valid	94.22	97.35	99.00	96.67	53.67	98.96	97.98	87.87
	GDP Growth	HICP	Exchange Rate	W&S Growth	Internal Migration	Internat. Migration	Natural Increase	
Mean	103.95	102.38	417.44	103.17	423.39	-7.24	-16.73	
Std. Dev	2.17	1.62	25.47	1.68	33.49	11.14	53.74	
Min	98.00	99.30	351.66	100.10	378.20	-36.10	-188.00	
Median	104.30	102.40	419.14	103.25	421.25	-4.30	-2.60	
Max	107.10	105.20	456.74	105.90	511.30	6.20	35.10	
Skewness	-0.97	-0.28	-0.79	-0.09	0.99	-0.91	-2.05	
Kurtosis	1.00	-0.87	0.51	-1.07	0.53	0.25	3.70	
N. Valid	5400.00	5400.00	5400.00	5400.00	5400.00	5100.00	5400.00	
Pct. Valid	100.00	100.00	100.00	100.00	100.00	94.44	100.00	

Source: Author's own work.

The VIF values for all the models are all below the threshold of 10, indicating no multicollinearity among the predictors. Only the exchange rate predictor has a slightly higher VIF than the other predictors. However, it is still less than 10.

Table 3 presents Pearson's correlation analysis, indicating a positive correlation between some of the variables of interest. Regarding control variables for ROA, there is a significant correlation between all variables included in the study, namely log Size, Sales Growth, Leverage, Asset Structure, log Current Ratio, and log Cash Ratio. Surprisingly, for ROE, there is a significant correlation between Sales Growth, Asset Structure, and log Cash Ratio only. The correlations for log Size, Leverage, and Asset Structure are negative, while for the other variables they are positive. The results indicate that control variables are better selected for models with ROA as the dependent variable.

The highest correlation coefficients occur for Sales Growth with ROA ($r = 0.295$ ($p < 0.01$) and ROE ($r = 0.326$, $p < 0.01$). Additionally, log Current Ratio has

a correlation of $r = 0.296$ ($p < 0.01$) and log Cash Ratio has a correlation of $r = 0.237$ ($p < 0.01$) with ROA.

The following results suggest a possible link between profitability variables and country's well-being variables. There is a significant positive correlation between ROA and GDP Growth ($r = 0.121$, $p < 0.01$) as well as the HICP ($r = 0.075$, $p < 0.01$) and for a change, a negative correlation between ROA and the Exchange Rate ($r = -0.044$, $p < 0.01$). Similarly, ROE is significantly correlated with GDP Growth ($r = 0.132$, $p < 0.01$), the HICP ($r = 0.081$, $p < 0.01$) and the Exchange Rate ($r = -0.032$, $p < 0.01$).

Regarding society's economic well-being variables, there is a significant positive correlation between ROA and Internal Migration ($r = 0.134$, $p < 0.01$), and a significant negative correlation between ROA and International Migration ($r = -0.127$, $p < 0.01$). Similar results were found for the correlation between ROE and Internal Migration ($r = 0.140$, $p < 0.01$), as well as International Migration ($r = -0.128$, $p < 0.01$).

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Table 3: Pearson's correlation coefficients and p-values

	ROA	ROE	log Size	Sales Growth	Leverage	Asset Structure	log Current Ratio	log Cash Ratio	GDP Growth	HICP	Exchange Rate	W & S Growth	Internal Migration	Internat. Migration
ROE	0.794													
	<0.001													
log Size	-0.043	-0.015												
	0.002	0.298												
Sales Growth	0.295	0.326	0.115											
	<0.001	<0.001	<0.001											
Leverage	-0.144	-0.017	0.010	-0.009										
	<0.001	0.366	0.590	0.628										
Asset Structure	-0.163	-0.230	0.287	-0.080	0.009									
	<0.001	<0.001	<0.001	<0.001	0.636									
log Current Ratio	0.296	0.012	-0.164	-0.014	-0.203	-0.333								
	<0.001	0.381	<0.001	0.299	<0.001	<0.001								
log Cash Ratio	0.237	0.041	-0.071	-0.051	-0.248	-0.029	0.527							
	<0.001	0.006	<0.001	<0.001	<0.001	0.044	<0.001							
GDP Growth	0.121	0.132	-0.028	0.241	0.010	-0.032	-0.009	-0.034						
	<0.001	<0.001	0.040	<0.001	0.581	0.019	0.511	0.019						
HICP	0.075	0.081	-0.034	0.074	-0.031	-0.021	-0.018	-0.010	0.029					
	<0.001	<0.001	0.014	<0.001	0.098	0.118	0.197	0.512	0.032					
Exchange Rate	-0.044	-0.032	0.055	-0.067	-0.032	0.013	0.026	0.036	-0.209	0.008				
	0.001	0.022	<0.001	<0.001	0.087	0.347	0.058	0.013	<0.001	0.567				
Wage & Salary Growth	0.003	-0.004	0.061	0.024	0.037	0.021	0.013	0.011	0.426	-0.353	-0.383			
	0.852	0.761	<0.001	0.079	0.049	0.126	0.351	0.460	<0.001	<0.001	<0.001			
Internal Migration	0.134	0.140	-0.054	0.168	0.015	-0.027	-0.018	-0.021	0.606	0.116	-0.307	0.342		
	<0.001	<0.001	<0.001	<0.001	0.418	0.050	0.179	0.142	<0.001	<0.001	<0.001	<0.001		
International Migration	-0.127	-0.128	0.113	-0.144	-0.010	0.043	0.026	0.032	-0.195	0.150	0.607	-0.093	-0.420	
	<0.001	<0.001	<0.001	<0.001	0.590	0.002	0.071	0.030	<0.001	<0.001	<0.001	<0.001	<0.001	
Natural Increase	-0.001	-0.006	-0.087	-0.002	0.026	-0.014	-0.035	-0.065	0.071	-0.247	-0.600	-0.029	0.065	-0.391
	0.952	0.671	<0.001	0.879	0.155	0.322	0.012	<0.001	<0.001	<0.001	<0.001	0.033	<0.001	<0.001

Source: Author's own work.

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The pooled OLS regression model, calculated as part of the study, is considered a preliminary result as it does not account for heterogeneity across firms or firms and years. In pooled OLS regression models, a coefficient shows the change in Y when X increases by one unit (assuming no transformations are applied). However, in fixed effects regression models, a coefficient indicates the average change in Y by one unit over time per firm when X increases by one unit, also (assuming no transformations are applied). When controlling for firms and years, a coefficient represents a common effect across firms while controlling for individual and time heterogeneity. To determine the necessity of fixed effects, an F test was conducted to assess if all years are equal to 0. The null hypothesis was rejected, indicating that fixed effects are necessary in this case.

Table 4 presents the standardised regression coefficients, standard deviations, and p-values for the fixed effects regression models. The ROA in both models (ROA 1 and ROA 2) is influenced by Sales Growth, Leverage, Asset Structure, log Current Ratio, and log Cash Ratio. In both ROE 1 and ROE. 2 models, ROE is influenced by Sales Growth, Leverage, Asset Structure, and log Cash Ratio. Additionally in the ROE 1 model ROE is influenced by log Size and log Current Ratio. The control variables in the fixed effects regression models are more consistent with the literature than in the pooled OLS regression models.

When considering a country's economic well-being, the dependent variables show a positive and significant relationship with HICP in all four models. The Exchange Rate is significant and positively related to profitability in the ROA 2 and ROE 2 models, while it is significant and negatively related to profitability in the ROE 1 model. Additionally, GDP growth is significant and positively related to profitability but only in the ROA 1 and ROE 1, which are the models that do not include individual well-being variables. The economic well-being variables of the society, included in the ROA 2 and ROE 2 models, are partially significant. Specifically, Wage & Salary Growth is a significant predictor in both the ROA 2 (beta = 0.004, p < 0.01) and ROE 2 (beta = 0.012, p < 0.01) models. The same applies to International Migration, which is a significant predictor in both the ROA 2 (beta = -0.001, p < 0.01) and ROE 2 (beta = -0.003, p < 0.01) models. Natural increase is significant in the ROE 2 model only (beta = 0.0002, p < 0.01).

When considering the F test to determine if all coefficients in the model are different from zero, P-values less than 0.001 indicate a good fit of the regression models to the data. The R^2 values range from 0.172 to 0.231, and the adjusted R^2 values range from 0.072 to 0.131, which is not satisfactory. This may suggest that the control variables may not be comprehensive and may omit some important phenomena. The statistics for the models that include society's economic well-being variables (ROA 2 and ROE 2) are higher than those for the models that do not include these variables (ROA 1 and ROE 1).

Table 4: Fixed effects regression model results

	ROA		ROE	
	(1)	**(2)**	**(1)**	**(2)**
Firm-specific variables				
Log Size	-0.00800	-0.00600	-0.03300**	0.00700
	(0.00700)	(0.00700)	(0.01600)	(0.01800)
Sales Growth	0.08600***	0.08500***	0.22300***	0.22500***
	(0.00600)	(0.00600)	(0.01500)	(0.01500)
Leverage	-0.09100***	-0.09800***	-0.08900***	-0.13000***
	(0.01300)	(0.01400)	(0.03300)	(0.03400)
Asset Structure	-0.06100***	-0.06300***	-0.16400***	-0.16900***
	(0.01300)	(0.01400)	(0.03200)	(0.03200)
log Current Ratio	0.06500***	0.06600***	0.04100*	0.02600
	(0.01000)	(0.01100)	(0.02500)	(0.02600)
log Cash Ratio	0.01700***	0.01400***	0.02600***	0.02300***
	(0.00300)	(0.00300)	(0.00700)	(0.00700)
Country's economic well-being variables				
GDP Growth	0.00100**	0.00010	0.00300***	-0.00100
	(0.00050)	(0.00100)	(0.00100)	(0.00200)

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	ROA		ROE	
	(1)	**(2)**	**(1)**	**(2)**
Country's economic well-being variables				
HICP	0.00300***	0.00600***	0.00400**	0.01600***
	(0.00100)	(0.00100)	(0.00100)	(0.00300)
Exchange Rate	-0.00004	0.00040***	-0.00030**	0.00100***
	(0.00005)	(0.00010)	(0.00010)	(0.00030)
Society's economic well-being variables				
Wage & Salary Growth		0.00400***		0.01200***
		(0.00100)		(0.00300)
Internal Migration		0.00000		0.00000
		(0.00005)		(0.00010)
International Migration		-0.00100***		-0.00300***
		(0.00020)		(0.00040)
Natural Increase		0.00005		0.00020***
		(0.00004)		(0.00010)
Observations	2,556.00000	2,379.00000	2,483.00000	2,314.00000
R2	0.21200	0.23100	0.17200	0.20400
Adjusted R2	0.11900	0.13100	0.07200	0.09900
F Statistic	68.18400*** (df = 9.00000; 2285.00000)	48.58800*** (df = 13.00000; 2106.00000)	51.26600*** (df = 9.00000; 2214.00000)	40.34200*** (df = 13.00000; 2043.00000)

Note: Standardised regression coefficients, standard deviations (in parentheses), and p-values ($*p < 0.1$; $**p < 0.05$; $***p < 0.01$) are shown in the Table

Source: Author's own work.

As the Hausman test showed that individual characteristics were correlated with the predictors, fixed effects regression models were considered more appropriate for the research than random effects regression models, but only regarding the ROA 1 and ROE 1 models. For the ROA 2 and ROE 2 models random effects regression model is a better choice.

Table 5 presents the standardised regression coefficients, standard deviations, and p-values for the random effects regression models. Regarding the ROA 2 and ROE 2 models the results for the country's economic well-being variables are consistent with the fixed effects regression models, and for the society's economic well-being variables the only difference is that the Natural Increase is significant in both models. The

statistics, including R2 values and the adjusted R2 are satisfactory and much higher than for the fixed effects regression models.

Given the results of the Hausman test, and the fact that the ROA 2 and ROE 2 models are crucial to the research conducted, considering society's economic well-being variables, robust standard errors adjusted for clusters at the firm level together with p-values are presented for these models only. The results are very consistent with the models without robust standard errors. Only for Natural Increase in the ROA 2 model, and for Leverage and log Cash Ratio in the ROE 2 model, the p-values were smaller, causing the significance categories of these variables to drop by one arbitrary level.

Table 5: Random effects regression model results

	ROA			ROE		
	(1)	**(2)**	**(2) Robust Std. Errors**	**(1)**	**(2)**	**(2) Robust Std. Errors**
Firm-specific variables						
Log Size	0.0010	0.0020	0.0020	0.0020	0.0100	0.0100
	(0.0040)	(0.0040)	(0.0050)	(0.0080)	(0.0080)	(0.0110)
Sales Growth	0.0900***	0.0880***	0.0880***	0.2290***	0.2340***	0.2340***
	(0.0060)	(0.0060)	(0.0090)	(0.0150)	(0.0150)	(0.0210)

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	ROA			ROE		
	(1)	(2)	(2) Robust Std. Errors	(1)	(2)	(2) Robust Std. Errors
Firm-specific variables						
Leverage	-0.0750***	-0.0790***	-0.0790***	-0.0700**	-0.0870***	-0.0870**
	(0.0120)	(0.0120)	(0.0170)	(0.0280)	(0.0280)	(0.0390)
Asset Structure	-0.0350***	-0.0330***	-0.0330***	-0.1700***	-0.1740***	-0.1740***
	(0.0100)	(0.0100)	(0.0120)	(0.0230)	(0.0240)	(0.0310)
log Current Ratio	0.0750***	0.0750***	0.0750***	0.0120	0.0060	0.0060
	(0.0090)	(0.0090)	(0.0150)	(0.0210)	(0.0220)	(0.0280)
log Cash Ratio	0.0150***	0.0130***	0.0130***	0.0240***	0.0210***	0.0210**
	(0.0030)	(0.0030)	(0.0040)	(0.0060)	(0.0060)	(0.0090)
Country's economic well-being variables						
GDP Growth	0.0010**	0.0001	0.0001	0.0030**	-0.0010	-0.0010
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0020)	(0.0010)
HICP	0.0030***	0.0060***	0.0060***	0.0040***	0.0170***	0.0170***
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0030)	(0.0020)
Exchange Rate	-0.0001*	0.0004***	0.0004***	-0.0003***	0.0010***	0.0010***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0003)	(0.0002)
Society's economic well-being variables						
Wage & Salary Growth		0.0040***	0.0040***		0.0120***	0.0120***
		(0.0010)	(0.0010)		(0.0030)	(0.0030)
Internal Migration		0.0000	0.0000		0.0000	0.0000
		(0.0001)	(0.0001)		(0.0001)	(0.0001)
International Migration		-0.0010***	-0.0010***		-0.0030***	-0.0030***
		(0.0002)	(0.0002)		(0.0004)	(0.0003)
Natural Increase		0.0001*	0.0001		0.0003***	0.0003***
		(0.0001)	(0.0001)		(0.0001)	(0.0001)
Constant	-0.3360***	-1.1710***	-1.1710***	-0.3560*	-3.0920***	-3.0920***
	(0.0900)	(0.2390)	(0.2280)	(0.2100)	(0.5610)	(0.4740)
Observations	2,556.0000	2,379.0000		2,483.0000	2,314.0000	
R2	0.2140	0.2290		0.1710	0.2000	
Adjusted R^2	0.2120	0.2240		0.1680	0.1960	
F Statistic	679.7320***	687.2460***		491.3300***	562.6200***	

Note: Standardised regression coefficients, standard deviations (in parentheses), and p-values (*p < 0.1; **p < 0.05; ***p < 0.01) are shown in the Table

Source: Author's own work.

The hypotheses are mostly confirmed. There is a positive relationship between Wage & Salary Growth and the profitability of Polish trading firms, as measured by ROA and ROE. Moreover, there is a negative relationship between International Migration and the profitability of Polish trading firms, also measured by ROA and ROE. With regards to the last hypothesis, it appears that the profitability increases with a greater Natural Increase. However, this only applies as regards ROE.

Discussion, limitations and future research

Firm profitability is often considered a crucial issue in managing corporate finance. However, new research directions in this area are rarely addressed. By introducing the concept of society's well-being in research on firm profitability this study enriches academic discourse in corporate finance and provides practical implications for businesses.

The ongoing debate among researchers is whether a firm's performance is primarily influenced by its inter-

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nal resources, as proposed by the resource-based theory, or by external factors from the wider economic environment, as suggested by system theory (Cheong & Hoang, 2021). Our study mainly contributes to the stakeholder theory, which argues that benefits for non-shareholder stakeholders can also result in benefits for shareholders. Thus, our study proposes an approach to studying firm profitability by introducing three categories of variables. This approach takes into account the need to simultaneously rely on resource-based theory, system theory, and stakeholder theory. Furthermore, it allows for conclusions that reconcile partially conflicting research results found in the existing literature.

To determine whether a society's economic well-being variables affect firm profitability, we proposed models that include three groups of variables: firm-specific factors, macroeconomic factors (referred to as the country's economic well-being variables), and society's economic well-being variables.

Regarding society's economic well-being variables, it was demonstrated that there is a positive relationship between real wage and salary growth and firm profitability. Moreover, there is a negative relationship between international migration and firm profitability. These results clearly indicate that the positive aspects of society's economic well-being for firm profitability dominate over the negative ones (Simionescu, 2022; Kasnauskiene & Kavalnis, 2021). Therefore, firms may be more satisfied with an increase in demand resulting from a wealthier population rather than an increase in labour costs when it comes to wage and salary growth. Similarly, firms should be more concerned about the negative effects of emigration, such as a shortage of skilled labour, than about an increase in demand for their products as a result of remittances sent home by expatriates.

As far as internal migration is considered, we suppose that the lack of statistical significance may indicate that internal migration – as opposed to international – is not caused by economic factors. This is particularly relevant in large countries with diverse regional economies.

Moreover, firm profitability increases with a greater natural increase, however the statistics behind this conclusion regards ROE only. It is worth to repeating the calculation on a different sample in future research as the effects of lower fertility rates relate to "a reduction in the GDP growth rate, mainly due to a reduction in the number of people in employment. This in turn leads to a reduction in the number of young households that spend part of their current income on savings. A decrease in domestic savings leads to a decrease in investment, which in real terms contributes to a lower GDP growth rate" (Wesołowska, 2015).

The study's main limitation is its sample selection, which is biased towards a particular country and industry, reducing the generalizability of its findings. Additionally, the unique society's economic well-being indicators make it difficult to compare this study with previous ones.

The research conducted can be continued in several directions. Firstly, a similar study could be carried out using a different research sample, both in terms of country and industry. Secondly, the spectrum of society's economic well-being indicators to study, may be widened. Thirdly, other profitability ratios can be used including the net profit margin (NPM) ratio and the operating profit margin (OCFM) ratio. Unlike ROA and ROE, the denominator of NPM is not based on balance sheet figures. OCFM, in turn, is a cash efficiency ratio that is a synthetic performance measure at the intersection of profitability and liquidity. It is more resistant to creative accounting activities than profitability ratios and should be used more often as the primary synthetic performance measure (Nowicki 2023). Fourthly, the relationship's moderators should be considered in future research. As Jaworski and Czerwonka (2021) notice, the diversity in how profitability and liquidity relate suggests the presence of factors that influence this relationship. However, only a limited number of authors have explored this phenomenon. Finally, dynamic panel data can be used, in particular using lagged profitability as a predictor (Chambers & Cifter, 2022; Cheong & Hoang, 2021; Pervan et al., 2019). This would imply the use of different methods, e.g. the generalised method of moments (GMM).

Conclusion

The aim of this study was to examine the impact of society's economic well-being determinants – above and beyond the firm-specific and macroeconomic determinants – on firm profitability in Poland.

Consistent with the hypothesised narrative, the main findings of the study indicate that satisfaction with real wage and salary growth reduces the likelihood of emigration. Both of these factors affect natural increase as they are significant drivers of family growth. Each of these variables impacts a company's costs, revenues, and thus profitability. Therefore, it is possible for managers to simultaneously maximize shareholder value and care for society in the long term, as assumed by stakeholder theory. More precisely, we found that firm profitability increases with higher inflation and exchange rate depreciation. In models including society's economic well-being variables, GDP growth is no longer a significant determinant of firm profitability.

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Above all, however, the study demonstrated a positive relationship between real wage and salary growth and firm profitability. We also found that international migration is negatively associated with firm profitability. Regarding natural increase, the study suggests that it has a positive effect on return on equity, but not on return on assets.

When interpreting the results, it is important to consider that the research sample consists of Polish trading firms. The relationships demonstrated may vary, particularly in the era of globalization, depending on the industry or group of industries, such as manufacturing, trade, and services.

Acknowledgements

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