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Risk Premium for Emerging Market Equities Versus Developed Market Equities

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Abstract

The paper provides the most recent view on the difference in ERP (Equity Risk Premiums) across various economic regions, analyzing data sets from the early 2000s to May 2023. The study demonstrates a significant shift in the relationship between ERPs in emerging and developed markets over the past two decades, which runs contrary to the existing research on the matter. The author estimated the average ERPs per country and economic region, analyzed ERPs on the industry level, and conducted the regression analysis using macroeconomic factors and analysis of upside and downside betas. The research established that, following the 2008 economic crisis, developed markets displayed greater resilience to negative economic shocks. Moreover, investing in emerging markets entails higher risks, characterized by elevated negative beta and higher volatility, but also increased upside beta. The regression analysis revealed negative associations between ERP and higher GDP growth and local interest rates, while a positive correlation emerged with a higher unemployment rate. Additionally, the paper incorporates the Democracy Index, indicating that less democratic countries tend to exhibit higher ERPs.

Keywords: ERP, emerging markets, developed markets, composite index, macroeconomic factors, democracy index, upside beta, downside beta, volatility, return

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Introduction

Investors from all over the world know that one of the key fundamentals which they should seek is diversification. Diversification does not only entail holding various asset classes but also a distribution of the portfolio by geography and industry. The most difficult part here is investing in countries other than the investors' country of domicile due to the existing preference towards domestic investment. Among the biases are greater understanding and trust in the local market, easier access to information, local currency, interest rates, etc. However, A. Arnott [1] shows that the correlation of emerging markets with the United States (US) is less than for developed markets, which provides the reason for international diversification. Diversification through emerging markets could provide benefits, but this paper attempts to analyse the historical performance of Equity Risk Premium (ERP) in emerging and developed markets and its potential as a suitable strategy for investors to use their capital in emerging markets. The existing literature on the ERP puzzle and the difference between emerging and developed markets is quite exhaustive, however, most of the widely cited papers examine market performance from its origin to the early 2000s. The above-mentioned paper states that emerging markets on average outperform developed markets, although there are more risks associated with the former. Since the early 2000s, financial markets have been changing rapidly, experiencing market crashes, transitioning to different stages, undergoing structural changes, facing natural disasters, pandemics, and information technology revolution. From the beginning of the 21st century until 2023, the top performing and biggest companies have transformed completely. Thus, an update of the research is needed, and new means of analysis are required.

Hereinafter, the research focuses on finding the differences between emerging and developed markets' ERP in 2001–2023 and providing empirical evidence for the possible future strategies for investment in emerging markets. The research uses statistical and econometric tools to examine the returns and ERPs. Firstly, monthly ERP is calculated for the aggregated indices by economic region and by individual country, taking into account the structural market changes over the last twenty-two years. After that, the research tests the hypothesis of the unequal magnitude of positive and negative market movements in emerging and developed countries, and provides a possible explanation of the recent atypical performance of emerging markets and suggests a strategy for future investors. Having split the data by the timeframes, i.e., market downturns and ascents, the analysis demonstrates a particular market's performance in the past and suggests future implications. Moreover, the analysis focuses on the main local macroeconomic factors which may influence ERP dynamics and serve as a sign to advance for international investors. Political events, integrated into the analysis by using the Democracy index, are also considered an additional factor in the regression model. As a third point in the research, sector composition is analysed. Some cited papers suggested that prior to the 21st century markets focused on geographical factors more than on industry fac-

tors, however, the situation had changed in the developed markets in the early 2000s. It is suggested that due to the major changes in the leading industries, as well as to overall globalisation, emerging markets could also be influenced more significantly by industry-specific factors, rather than by local economic factors. It logically refers to the Information Technology sector, which is the best-performing sector over the last decade in every market in the world.

Literature review

ERP is considered a puzzle in the global economy since it brings questions and challenges for investors who try to pursue investment strategies with geographical diversification. Traditional modern financial theories, such as the Capital Asset Pricing Model (CAPM) and Efficient Market Hypothesis (EMH) are used to explain ERP, but the magnitude of differences across different markets remains unclear. The very first appearance of ERPs in literature is usually dated to 1924 and E. Smith [2], who analysed the returns and concluded that the equity is expected to yield higher returns compared to other asset classes. Afterwards, J. Williams [3] and his followers M. Gordon and E. Shapiro [4] established and expanded the perspective on risk premiums as a discounting element in the discounted cash flow formula, serving as compensation for the risks undertaken by investors. At the same time, other research studies by the Cowels Foundation examined S&P returns, provided monthly estimates of stock returns back to 1871 and opened up opportunities for future research on stock prices and ERPs in particular [5]. The exploration of historical long-term ERP in the US market in the late 20th century was done by several notable researchers who estimated historic average ERPs. This research was conducted by R. Ibbotson and R. Sinquefeld [6], who were the first to split the returns into risk-free and risky parts and analyse the returns for equity and debt over the period from 1926 to 1974. The researchers found that the average yearly return for stocks was 10.9% over the examined period and 8.8% after adjusting for risk and inflation. They also noted that stocks outperformed all other assets in the study. Moreover, they suggested that stocks are rather volatile, using the example that while most of the time equity stayed positive, in 1974 there was a period of -26.4% yearly average return, whereas bonds showed the minimum at -2.1% in 1965–1969. Notably, right after the above-mentioned study, Ibbotson and Sinquefeld published an extension, where they provide the forecast of the returns for 1976–2000. Using risk premium assessment models, they forecast inflation-adjusted equity returns to be lower than government bonds returns due to high volatility of equities [6]. Among other famous research studies that provided an estimation of historical ERPs in the US market is J. Siegel [7], who reported an average real equity return from 5.7% in 1802–1870, 6.6% in 1871–1925 and 5.7% in 1926–1990., while noting that short-term government bond returns dropped 5.1, 3.1 and 0.5% in the same respective periods confirming the view of expanding ERP. R. Shiller in 1989 reported the average ERP of 5.75% for the period from 1871 to 1999 [8], R. Mehra-Prescott – 6.92% for the

1889–2000 [9]. For other developed markets apart from the US, the research was not that extensive, however, in 1991 [7] offered an extensive study on ERP, which included the average ERP for the UK as 4.6% during 1947–1999. J. Campbell [10] conducted research for other leading economies, such as Japan, estimating the ERP at 3.3% in 1970–1999 and Germany, with the ERP of 6.6% in 1978–1997. R. Mehra and E. Prescott [11] provided the evidence for France, estimating the ERP for 1973–1998 at 6.3%. E. Dimson et al. [12] reviewed the ERP for the US, the UK and Italy in 1900–2002 and reported them on average as 5.3%, 4.2% and –2.1% respectively. O. Blanchard et al. [13] performed the dynamic analysis for 1930–1990 and concluded that equity premiums were decreasing steadily from the 1950s and in the 1980s, constituting around 2–3% for the US data. Most of the research studies used the difference between stock returns and returns on selected risk-free assets, which are usually Treasury Bills for the US and short-term government bonds for other countries. After researchers calculated and compared the ERP, they started to look for an answer to why the ERP exists. The first to raise a question regarding the ERP puzzle were [14] R. Mehra and E. Prescott, authors showed that standard consumption models failed to explain the equity premium given that models suggest high levels of risk aversion (from concept of risk-aversion coefficients [15]), which is certainly not the case in actual observed equity risk premiums. For the research authors used Standard & Poor's Composite Index, real dividends for the index for equity returns calculation and ninety-day Treasury Bills with an explored period of 1889–1978 annualised data and consumption deflator and later calculated the difference between equities and Treasury Bills. In 2003 the same researchers went further [11], analysing the puzzle and suggesting that the explanation may lie in specific market frictions, borrowing constraints, and the role of uncertainty. J. Siegel and R. Thaler [16] suggested a view that the equity premia puzzle might be not a puzzle, but high ERP could be explained by investors' aversion to small negative shocks and could be considered a fair price for that. Almost simultaneously, G. Bekaert et al. [17] explored the development of emerging markets and the transformation of equity premiums there. Authors found that more advanced economic development positively affects the risk profile of the assets on the market, however, emerging markets experience higher returns, which are explained by higher risks and greater opportunities for investors to exploit mispricing and other market inefficiencies. Other researchers examined the determinants of country-level equity beta for developed and emerging markets, comparing equity risk premiums and factors that may drive equity returns. Among the factors studied are macroeconomic variables (Gross Domestic Product (GDP) growth, interest rates, exchange rates), financial market factors (market liquidity, market volatility, and stock market size), country-specific factors (legal and regulatory frameworks, political stability, investor protection, and corporate governance practices), industry exposure of a particular market [18]. Another interesting conclusion is reached by G. Bekaert et al. [19]. It states that emerging markets indeed have higher equity premiums, but when a market becomes

more liberalized (transparent, accessible, and efficient), equity premiums converge. The research was developing extensively by exploring various economic factors explaining the equity premiums, and W. Ferson and C. Harvey [20] used GDP growth, inflation, interest rates, and exchange rates to explain the differences in equity returns across the countries and to predict future returns. This offers hope that the equity premium puzzle may be solved using an extensive model that includes macroeconomic variables and country specifics.

In support of the importance of ERP studies, European Central Bank published ERP research for the Euro zone [21] for France, Germany, Italy, Spain and the Netherlands, providing ERP dynamics through an intertemporal CAPM using returns dependent on market risk and the risk of changing investment opportunities. The results of the research provide that the Euro zone market is highly integrated, and the incorporated risks are significantly priced in.

The differences between emerging and developing markets in terms of returns are widely studied, and most of the researchers agree that emerging markets provide higher equity returns, but it is true only prior to risk adjustment. S. Claessens et al. [22] were one of the first studies indicating the specifics in equity returns in emerging markets. There some anomalies noted: short-time series of available information, many small companies, tax policies, economic and political regime changes. All the above-mentioned factors might contribute to ERP that appeared to be less correlated with developed markets than developed markets among themselves. Another commonly accepted idea is that emerging markets are in constant transformation, and some sorts of frictions, despite the vagaries, may provide higher premiums for investors. The main idea for the current paper is taken mostly from the [23], where emerging market premiums are studied through the prism of timeframes, economic cycles, and structural shifts. The main outcome of the paper is that the authors advise focusing on high uncertainty associated with emerging markets, and equity returns in emerging markets, which exceed those in developed markets, are highly dependent on the specific timeframe chosen for analysis. Studies in the field of investigation and prediction of equity premiums in emerging markets were gaining momentum in 2010s as increasingly more papers explored the role of economic cycles and investor behaviour. discovering that these factors led to higher equity premiums. However, not only macroeconomic factors may explain the differences in equity premiums in emerging and developed markets. M.A. Hooker in 2004 suggested enriching the model developed by M. Cremers [24] with financial variables: Price-to-book, Price-to-earnings, size, in addition to traditional macroeconomic variables, GDP growth, local interest rate, local currency exchange rate, local inflation rate and equity beta. Through the model's framework, the author concluded that macro variables are insignificant except for exchange rate, while financial variables (except for equity beta) play a bigger role in explaining emerging markets equity returns [25]. Some papers also tried to focus on a particular economic sphere to get to the truth. In addition to economic conditions, which

should be considered while assessing equity premiums, industry-specific factors might be incorporated in the models as well as firm-level factors (financial performance, management quality, growth prospects) [26]. Some authors segregate the returns by particular industry to compare between countries and market types. In 2021, a group of researchers presented a multifactor model to study the equity returns of the banking industry in Pakistan, and M. Donadelli and L. Persha [27] studied 19 emerging countries to calculate the contribution of industrial stocks to equity premia paid between 1995 and 2014. The paper studies the country-level and industry-by-industry level of ERPs, separating the timeframes of the crisis period (1995–2002) and the post-crisis period (2003–2012). The authors found that during the examined period the biggest premia creators for Asian countries are the healthcare and the utilities sectors and for Latin and East European markets the consumer services sector. Moreover, the paper shows that industrial stock markets significantly correlated within and across countries, which may cause struggles in investor diversification strategies.

For the current research, the focus will be on estimating ERPs in emerging and developed markets for the purpose of comparison of recent data with previous research and providing the updated view on ex-ante ERPs, indicating potential future trends. Moreover, the analysis of the ways in which macroeconomic factors can contribute to the ERPs, given the recent market events such as the 2008–2009 crisis and the 2020–2021 COVID-19 pandemic. In addition, a comparison of the each industry's ERPs will be

examined in order to observe which industries drive the index returns.

Data and sources

Most of the studies in the ERPs sphere use Morgan Stanley Capital International (MSCI), as it provides various indices for emerging and developed markets. In the current research, MSCI indices are used for one part of the analysis. Monthly returns including companies with large and medium capitalisation in selected developed and emerging countries' indices are used together with MSCI's proprietary indices: G7, World, and Emerging Markets (EM). All indices include large and medium-capitalisation companies across various industries. The datasets for all countries are available for the whole explored timeframe except for the United Arab Emirates index, which was established in 2005 and the Saudi Arabia index, which was established only in 2014. Thus, for the whole studied data frame of monthly data, the analysis has 106 observations for Saudi Arabia, 217 for the United Arab Emirates and 270 observations for all other countries.

For the second part of the analysis, Standard and Poor's (S&P) indices will be used, as the company provides the emerging and developed markets indices for specified sectors/industries. In particular, S&P offers information on the following industry segments: communication services, consumer discretionary, consumer staples, energy, financials, health care, industrials, information technologies, materials, utilities and real estate (Table 1).

Table 1. S&P indices constituents (countries). As of June 2023

Indices emerging countries			Indices developed countries	
Brazil	Saudi Arabia	Kuwait	Canada	Australia
Chile	South Africa	Poland	France	South Korea
China	Taiwan	Philippines	Germany	Belgium
Colombia	Turkey	Greece	Italy	Sweden
India	The UAE	Hungary	Japan	Ireland
Malaysia	Indonesia	Czech Republic	The UK	Netherlands
Mexico	Thailand	Egypt	The US	New Zealand
Peru	Qatar	Pakistan	Switzerland	Israel
			Denmark	

All S&P indices are compiled using a float-adjusted market cap weighted method and rebalanced annually with additional adjustments for IPOs.

To calculate the ERP, the standard historical method is used by deriving the difference between total monthly index returns and 13-week Treasury Bills.

$$ERP_t = Return_t - Tbill_t .$$

For macroeconomic information, datasets from the Organisation for Economic Co-operation and Development (OECD) and International Monetary Fund (IMF) were used. Despite the fact that the OECD provides plenty of macroeconomic data, and main indicators are available on a monthly basis, some emerging markets countries lack this basic statistic, so the analysis will be conducted for the following countries (Table 2).

Table 2. List of countries for the macroeconomic analysis

GDP growth	CPI	Unemployment	Industrial production	Overnight local rate	Long-term local rate	Local currency rate to USD
Brazil	Brazil		Brazil		Brazil	Brazil
Chile	Chile	Chile		Chile		Chile
China	China				China	China
Colombia	Colombia	Colombia	Colombia	Colombia	Colombia	Colombia
France	France	France	France	France	France	France
G7	G7		G7			
Germany	Germany	Germany	Germany	Germany	Germany	Germany
India	India		India		India	India
Italy	Italy	Italy	Italy	Italy	Italy	Italy
Japan	Japan	Japan		Japan	Japan	Japan
Mexico	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Saudi Arabia	Saudi Arabia					
South Africa	South Africa				South Africa	South Africa
Turkey	Turkey	Turkey	Turkey	Turkey		Turkey
United Kingdom	United Kingdom	United Kingdom	United Kingdom	United Kingdom	United Kingdom	United Kingdom
United States	United States	United States	United States	United States	United States	

The macroeconomic parameters used further in the research were downloaded on a monthly basis, except for GDP growth, which was taken on a quarterly basis and extrapolated.

In order to test the market influence of political regimes on the magnitude of ERP Democracy index from Economist Intelligence Unit (EIU) is used for 2006–2022 years.

It is also important to note that further analysis will be conducted based on historical data and to list possible biases. In his literature review on ERP for CFA Institute, J. Siegel delineated three possible biases in historical data for ERP [7]. Survival bias for the US stocks as this market tends to be the **most** successful throughout the entire history, however, this bias dates back to a long time ago in 1995. Since then the other markets grew substantially and there were also several turbulent periods in the world which showed that the other countries' performance could be comparable to that of the United States [28]. Another bias defined is the presence of transaction costs, regulation, and taxes (especially given the analysis of different countries, each with its specifics). The third bias is the unanticipated repricing of equities which states that historical returns may be overpriced given the changed preferences of the investors [29].

Hypothesis

After a review of literature, it remains unclear whether investing in emerging markets can still provide investors with what they are looking for: diversification and returns

that are higher than in developed markets (as stated in earlier research); it could be tested by simply following the correlation between emerging and developed markets indices for the beginning of the tested period and the end. However, the correlation may not be sufficient to make a conclusion about investment strategies in emerging and developed markets. The ERP may be a good indication for a certain period, but the economic cycles and structural changes in the two recent decades have challenged both market types, so the question arises: are emerging or developed markets more resilient? Do the ERPs remain high for a longer period, and which countries are the winners? In the times of the great market turbulence in 2008–2009 and 2020, which markets were the best for providing positive returns for investors? All these questions open up a field for additional research, and the following hypothesis will be tested.

- 1) In [23], the average ERP for emerging markets was 0.65% higher than for developed markets during the analysis of pre-2001 data. Presumably, the same holds for the 2001–2023 timeframe.
 - The average ERP prior to 2008 was higher than the average ERP after 2008.
 - The average ERP prior to 2020 was higher than the average ERP after 2020.
- 2) In terms of the CAPM model, the upside beta for emerging markets is lower than the downside beta (which drives the average ERP for emerging markets

down) in absolute values. The hypothesis is tested with the regression analysis comparing upside and downside betas.

- 3) Weaker local currency rate, higher local interest rate, higher inflation rate and higher unemployment could explain higher the ERP on a country-specific level [25]. The test uses the regression model with the countries' ERP as the dependent variable and macroeconomic variables as independent variables.
- 4) Increasing political risks and autocratic regimes could explain the higher ERP. The hypothesis is tested using the regression analysis with the countries' ERP as the dependent variable, and the Democracy index as the independent variable.
- 5) Industry composition could play an explanatory role in the higher ERP in developed markets [27]. The hypothesis is tested with a comparison of mean standard deviation and the Sharpe ratio for emerging and developed markets' industries.
- 6) The emerging markets are better priced according to P/E (Price-to-earnings) ratio in 2023 than in 2001. The hypothesis is tested comparing the P/E ratio for the World index and the EM index in 2001 and 2003.

ERP research

Emerging and developed markets, ERP comparison

In the first part of the empirical analysis, the average ERP was calculated for the two groups of countries and composite indices of the World (top 25 the biggest world economies), G7 and Emerging markets for the period from 2001 to May 2023 using monthly returns in US dollars and T-bills. Over the last twenty-two years there were several financial market events that were clearly reflected in the analysis below. Firstly, 2001 was a difficult year for the US market due to the September 11 attacks, following which the market was closed for four days and major indices fell after re-opening. Some markets outside of the US also suffered issues due to the difficulties with US dollar transaction settlements, resulting in a 12% decline of the MSCI World Index. However, the recovery went smoothly and before the end of 2001 the markets almost gained back the previous losses [30]. Another event that should be taken into consideration is the Katrina and Rita hurricanes in 2005 in the US, which influenced investors' behaviour and hence the equity returns. P. Gangopadhyay et al. [31] showed in their research that Katrina caused a negative response from the market. The 2007–2009 crisis in the US had a major impact on every economy in the world with an almost 40% drop to 2006 values in world indices. Researchers note that the emerging markets suffered greater value destruction than developed ones [32]. Another major event to be taken into account is the Fukushima Daiichi accident in Japan in 2011, which had a negative impact on the returns of nuclear energy firms all around the world [33]. The Sovereign Debt Crisis in Europe in 2010–2011 could have also been

a disturbance point for equity returns at that time. In 2020 the world was struck with the COVID-19 pandemic, which was a great disruption for equity returns in all markets with the highest levels of market volatility [34].

Considering all the above-mentioned events in the course of the last twenty-two years, we would expect changes in the ERPs for emerging and developed markets. Many 20th-century studies offer the evidence that emerging markets demonstrate a more dramatic decline in returns (from historical maximums) during the crises than developed markets and also are slower to recover [35]. This evidence might be a guide for the current research as risk-adjusted ERP could be seen as a proxy for market performance over a sample period. In the beginning, ERPs are analysed over the entire twenty-two-year period, and it is clearly seen that standard deviations for the **emerging** markets (for the composite index as well as for individual country-indices) are 2.5% higher than for the **developed** markets on average, and the EM index is 1.64% more volatile than World index and G7 index (Table 3) (the average is not the same as composite because the countries have different weights in the composite index). However, the average monthly ERP in USD is 0.10% lower for emerging markets than for World and G7. Although, if averaging ERP across analysed individual countries, it reaches 0.84% for emerging countries, but only 0.42% for developed ones. These results are partly consistent with the examined literature and specifically with the research conducted by R. Salomons and H. Grootveld [23] in regard to ERPs prior to 2001. It therefore partly supports out first hypothesis, namely, that ERP in emerging markets stays higher than in developed markets on average, however, in recent years it decreased in absolute terms compared to previous research, and the composite index for emerging markets performs poorer than developed countries' indices. The difference between the research results for years prior to 2001, and the current research for the twenty-two years prior to 2021 is clearly seen in the changed magnitude of the standard deviation for both emerging and developed market groups. The results obtained by R. Salomons and H. Grootveld [23] demonstrate a 0.3% higher average standard deviation for developed countries and indices, and an almost 4% higher one for emerging countries and indices. This could be a sign of emerging markets' development over the last twenty-two years in terms of lower volatility and hence lower risk. The ERPs decreased by 0.08% during the sample period (2001–2023) for developed markets and almost 0.4% lower for emerging. This result is logical given the lower risk calculated using a lower standard deviation. The most significant contributors to the standard deviation in R. Salomons and H. Grootveld paper [23] paper were Argentina (25.13%), Brazil (15.72%) and Venezuela (13.49%), however in later years in the current research we observe that Brazil remained the main contributor with 10.25%, which is still much lower than the research data (Argentina and Venezuela were excluded from the list of emerging market countries by MSCI in 2021 and 2006, respectively). Nevertheless, individual emerging markets continue to earn high

ERPs above 1% (Brazil, Columbia, Peru, India), while in developed countries the maximum ERP is only 0.6% and is that of the US. In terms of the Sharpe ratio, Peru, Columbia and India have the best profiles, followed by the US. This provides an indication that emerging markets could be considered as reasonable investment even after the two extremely volatile decades, however, investors are advised to be scrupulous when allocating their capital to emerging markets and focus on the specific country's performance.

The main market crashes of the last two decades were already mentioned; subsequently the ERP analysis is divided into four periods. Firstly, the period prior to September 2008 is analysed to study the ERPs prior to the greatest market crash in latest history. Secondly, the period from September 2008 to the end of 2010 is examined to see how ERPs performed during the crisis and recovery period. Thirdly, the timeframe from 2011 to March 2020 is analysed to compare the recovered returns after 2008 but before the COVID-19 pandemic. Lastly, the last three turbulent years are explored.

Contrary to the results of the above-mentioned analysis, in 2001-2008 ERPs of developed markets represented by the World and G7 indices were scoring negative numbers, whereas the EM index stayed positive. Moreover, on average, emerging countries reached an ERP of 1.6%, while developed ones were only at 0.25%. Volatility also did not differ significantly between EM, World and G7 indices (5.4%, 3.9% and 3.8% respectively). The best Sharpe ratios are also those of emerging countries, with an average 0.2, and maximum values of 0.4 in Columbia and Peru, whilst in developed countries the average Sharpe is 0.03, with a maximum of 0.08 in Germany (Table 3). This evidence supports the views presented in [23] and can be explained by the potential held by emerging markets before the 2008 market crash.

The second analysed period refers to the time during the market crash in 2008 and up until 2010 (market recovery). In general, the picture is more or less the same if we observe individual countries' returns, with emerging markets scoring an average of 1.65% ERP, while developed countries – only 0.08%. However, the composite EM index is negative for that period, while World and G7 stayed positive (the ERP of the composite index differs from that of the average because of the weights of each country). Volatility increased significantly (twofold on average compared to the previous analysed period). Sharpe ratios are the best for Chile (0.3), Columbia (0.3) and Malaysia (0.3), while for developed markets Sharpe is around 0.01 (Table 3).

The period after market recovery from the 2008 crisis is characterised by major changes in ERP configuration across analysed markets. All volatility decreased, and surprisingly, developed markets start to gain higher ERPs for the first time since Salomons and Grootveld's research timeframe [23] and for the current research starting 2010. The developed countries now have an average 0.54% ERP and emerging countries – only 0.12%, while the average volatility for developed markets is 4.6%, and emerging ones – 6.4%. Hence it is clear that after the 2008 market crash emerg-

ing markets lost their privilege of scoring higher returns and offering a decent risk profile. Since 2010, Sharpe ratios equaled 0.02 for emerging and 0.13 for developed countries, with the US at 0.3. These results might indicate that due to weaker institutes, emerging markets did not endure the pressure of the 2008 market crash and stopped providing diversification opportunities to the investors (Table 4).

The results for the period between March 2020 and June 2023 are quite puzzling. Over these three years, developed and emerging markets indices performed similarly – with an average ERP of 0.86% for the EM, 0.93% for the World and 0.96% for the G7 indices. However, looking at the ERP of individual developed countries, the US was in the lead with a 1.2% average monthly ERP and a 0.2 Sharpe ratio. Among the emerging countries the same pattern with highest Sharpe ratio of 0.21 was demonstrated by Saudi Arabia, which performed poorly in the previous analysed period (it should be noted that the Saudi Arabia index was launched only in 2014). The second-best emerging countries were Mexico, Taiwan and India with a 0.18 Sharpe ration, but higher ERPs of 1.52%, 1.23% and 1.44% respectively (Table 4).

Summing up the above-described research, the results suggest that emerging markets used to outperform the developed markets. This tendency was suggested by previous research for the historical data before the early 2000s. However, after the market crash in 2008 only certain emerging countries continue to outperform developed ones. After 2010, when developed markets recovered from the downturn, emerging markets lost their positions, and in the most recent three years developed markets showed much better risk-adjusted returns than emerging markets. Considering all the above-mentioned dynamics, it is difficult to say whether investors should continue to invest in emerging markets, as there are some countries that significantly outperformed developed markets as well as some of the emerging markets' countries, but there are still some markets which significantly underperformed. Given that developed markets proved themselves as faster in recovery after market crashes, the strategy of sticking to only developed markets is still reasonable and can earn decent returns. Thus, investors might use this evidence while building their portfolios nowadays, taking into account the market conditions and analyzing which markets are expected to perform better in such conditions. If the market is rising, emerging markets could gain higher ERPs than developed countries, but diversity might be the key as while the market crash emerging markets might suffer more than developed ones.

Moreover, the above-mentioned correlation as an additional measure of possible diversification benefits of investing in emerging and developed markets demonstrates interesting results. The correlation between the emerging market MSCI index and the G7 MSCI index appeared to be 67% on the dataset prior to 2002 and 93% from 2002 to 2023. This could be a good indication that diversification benefits have deteriorated during recent years. Such deterioration could be caused by globalization and integration trends between worldwide markets.

Table 3. Developed & emerging market ERPs

Industry	2001–2023			2001–2008			2008–2010		
	Mean (%)	StDev (%)	Sharpe	Mean (%)	StDev (%)	Sharpe (%)	Mean (%)	StDev (%)	Sharpe
Developed:									
World	0.3	4.5	0.07	0.0	3.9	−0.01	0.1	7.5	0.01
G7	0.3	4.5	0.07	−0.1	3.8	−0.03	0.1	7.2	0.01
US	0.6	4.5	0.13	0.0	3.9	−0.01	0.4	6.9	0.05
UK	0.3	4.9	0.07	0.3	3.9	0.06	0.2	8.1	0.03
Japan	0.3	4.5	0.06	0.0	4.6	0.00	0.2	6.3	0.03
Italy	0.3	7.0	0.05	0.3	5.1	0.06	−0.6	11.0	−0.05
France	0.5	6.1	0.08	0.3	5.3	0.07	0.0	10.0	0.00
Germany	0.5	6.8	0.07	0.6	6.7	0.08	0.3	10.3	0.03
Emerging:									
Emerging index	0.2	6.17	0.03	0.2	5.4	0.03	−0.4	10.3	−0.04
Chile	0.6	6.9	0.09	1.3	5.9	0.22	2.4	8.0	0.30
Brazil	1.1	10.3	0.11	2.4	10.8	0.22	1.3	11.8	0.11
Colombia	1.4	9.0	0.16	3.5	8.9	0.39	2.9	10.3	0.28
Mexico	0.9	6.8	0.13	1.6	6.1	0.26	1.3	10.3	0.13
Peru	1.4	8.2	0.17	2.7	7.8	0.35	3.2	13.0	0.24
China	0.7	7.5	0.10	1.4	8.3	0.16	1.1	9.2	0.12
UAE	0.3	9.0	0.04	−0.2	11.8	−0.02	−1.7	13.7	−0.13
South Africa	0.8	7.4	0.10	1.4	7.3	0.20	2.0	10.3	0.19
India	1.0	7.7	0.14	1.6	7.9	0.21	1.9	12.4	0.16
Malaysia	0.4	4.9	0.08	0.8	5.2	0.16	2.0	6.4	0.31
Saudi Arabia	0.5	6.1	0.08	–	–	–	–	–	–
Taiwan	0.8	7.0	0.12	0.6	7.9	0.08	1.6	10.1	0.16
Turkey	0.9	12.3	0.07	2.0	15.5	0.13	1.8	13.6	0.13

Table 4. Developed & emerging market ERPs

Industry	2010–2020			2020–2023		
	Mean %	StDev %	Sharpe	Mean %	StDev %	Sharpe
Developed:						
World	0.5	3.6	0.15	0.9	5.6	0.16
G7	0.6	3.5	0.17	1.0	5.7	0.17
US	1.0	3.5	0.29	1.2	5.9	0.20
UK	0.3	4.3	0.08	0.7	5.8	0.12
Japan	0.5	3.8	0.12	0.5	4.8	0.11
Italy	0.4	6.6	0.06	1.1	8.3	0.13
France	0.6	5.0	0.12	1.1	7.1	0.16
Germany	0.5	5.5	0.09	0.7	7.4	0.10

Industry	2010–2020			2020–2023		
	Mean %	StDev %	Sharpe	Mean %	StDev %	Sharpe
Emerging:						
Emerging index	0.2	5.1	0.05	0.9	6.9	0.13
Chile	-0.5	6.3	-0.08	1.1	9.2	0.12
Brazil	0.1	9.0	0.01	0.8	11.2	0.07
Colombia	-0.1	7.0	-0.02	0.0	12.2	0.00
Mexico	0.0	5.6	-0.01	1.5	8.4	0.18
Peru	0.1	6.2	0.02	0.7	9.6	0.08
China	0.5	5.9	0.09	-0.4	8.4	-0.05
UAE	0.8	6.7	0.12	1.0	6.9	0.15
South Africa	0.1	6.4	0.02	0.6	8.3	0.07
India	0.3	6.1	0.05	1.2	6.9	0.18
Malaysia	0.0	4.2	-0.01	-0.3	4.9	-0.05
Saudi Arabia	0.0	6.2	0.01	1.2	5.9	0.21
Taiwan	0.7	4.6	0.16	1.4	7.9	0.18
Turkey	-0.4	9.0	-0.04	0.9	10.8	0.08

Research on upside and downside betas for emerging and developed markets

It is widely believed that investors treat negative and positive returns differently even if they have the same magnitude. R. Salomons and H. Grootveld [23] notice that ERP distribution is neither symmetrical nor normal, so it is not fair to look only at the standard deviations, as positive and negative returns contribute differently to the overall ERP. The current research undertakes to check whether the market risk for individual countries is different. The data suggests that emerging markets have a higher positive ERP than developed markets, but at the same time – a significantly higher negative ERP during the “only-negative” return time (Table 5). To further understand the nature of the differences in ERP for emerging and developed countries and to outline possible future developments for the investors, market betas are estimated. The International Capital-Asset-Pricing-Model (CAPM) is the extension of the regular CAPM. The original CAPM was introduced and developed in 1961–1962 by Treynor, Sharpe, Lintner and Mossin, and was widely used in financial research [36], however, it was not factoring market integration. In 1983 ICAPM was suggested assuming complete market inte-

gration [37], finally in 2012 ICAPM for partially integrated markets was suggested, and in their research, authors derived that local factors are crucial for ERP in emerging markets; meanwhile, in developed markets ERP mostly depends on global factors [38]. Inspired by the above-mentioned research, our second hypothesis states that emerging markets may perform at their lowest during turbulent times due to higher local market risk estimated through the beta. At the same time, higher ERP of emerging markets compared to developed markets when financial markets in a state of growth could also be driven by the local factors reflected in local beta. The estimation relies on performing regressions of country-specific indices on the World index, with all data provided by MSCI. The regressions allow to estimate the upside and downside betas to estimate the risk level associated with positive and negative index movements. The following regressions were run [39]:

$$Return_{country} = \alpha + \beta_{upside} \cdot Return_{world} + \varepsilon, \text{ if } Return_{world} > 0$$

$$Return_{country} = \alpha + \beta_{downside} \cdot Return_{world} + \varepsilon, \text{ if } Return_{world} < 0.$$

Table 5. Developed & emerging market ERPs (2001–2023), only positive or negative returns

Industry	Only positive		Only negative	
	Mean %	StDev %	Mean %	StDev %
Developed:				
World	3.2	2.5	-3.9	3.5
G7	3.1	2.5	-3.9	3.4

Industry	Only positive		Only negative	
	Mean %	StDev %	Mean %	StDev %
Developed:				
UK	3.5	3.0	-3.9	3.4
Japan	3.4	2.8	-3.6	3.0
Italy	5.1	4.4	-5.6	4.8
France	4.6	3.6	-4.9	4.2
Germany	5.0	4.0	-5.5	4.8
Emerging:				
Emerging	4.4	3.6	-5.1	4.4
Chile	5.7	4.2	-5.1	4.5
Brazil	8.3	6.3	-7.6	6.7
Colombia	7.0	5.5	-7.0	6.4
Mexico	5.1	4.0	-5.3	5.1
Peru	6.6	5.2	-6.1	5.5
China	5.5	4.7	-6.2	5.2
UAE	6.4	6.4	-6.3	6.2
South Africa	5.8	4.2	-6.0	5.1
India	6.0	5.1	-5.5	5.2
Malaysia	3.8	3.0	-3.8	3.3
Saudi Arabia	4.5	3.7	-5.1	4.0
Taiwan	5.5	4.8	-5.1	4.3
Turkey	9.6	8.1	-9.3	7.5

Table 6. Estimation of market betas for 2001–2023

	Beta	Upside beta	Downside beta		Beta	Upside beta	Downside beta
Developed:				Emerging:			
G7	0.98	0.98	0.98	Emerging index	1.27	1.36	1.19
US	0.96	0.95	0.97	Chile	0.92	1.14	1.08
UK	0.97	1.04	0.92	Brazil	1.48	1.55	1.60
Japan	0.73	0.60	0.80	Colombia	1.09	1.19	1.28
Italy	1.27	1.45	1.13	Mexico	1.15	1.10	1.32
France	1.22	1.31	1.12	Peru	0.98	1.09	1.09
Germany	1.36	1.47	1.30	China	1.01	0.92	1.10
				UAE	0.92	0.81	1.29
				South Africa	1.15	1.18	1.14
				India	1.10	0.94	1.09
				Malaysia	0.63	0.77	0.73
				Saudi Arabia	0.65	0.59	0.73
				Taiwan	1.03	0.88	1.12
				Turkey	1.49	1.81	1.24

Based on the analysis of the proposed hypothesis of emerging markets having a higher magnitude of negative returns than positive, this hypothesis is only partly confirmed. Nevertheless, most of the individual emerging countries, i.e., Brazil, Columbia, Mexico, China, the UAE, India, Saudi Arabia and Taiwan (eight out of thirteen analysed) indeed have a higher downside than upside beta (and most of them have a higher downside beta than regular beta). However, the emerging index (EM) generally shows a higher upside beta in contrast with most of the analysed individual countries (Table 6). Additionally, it is important to note that not only most of emerging countries and the EM have a beta above one, but so do Italy, France and Germany, although the upside beta for these countries is higher than the downside. In general, the result of the empirical analysis of the beta suggest that investing in emerg-

ing markets could potentially bring higher returns and that the magnitude of positive returns could be higher than that of the negative returns. However, diversification is the key here given the performance of individual emerging countries that could bring more negative than positive returns to one's portfolio. To illustrate the result clearly, Figure 1 demonstrates the expected returns per country (calculated using the Security Market Line formula) with estimated regular, upside and downside betas, which are calculated using the CAPM formula. For the expected returns, the latest monthly risk-free rate and world return are used. The highest return is achieved by Turkey with downside beta. Moreover, it is clearly seen that emerging markets have higher dispersion between estimated betas, whereas in developed markets downside and upside beta values are close to each other.

Figure 1. Monthly expected returns (vertical axis) per country (area) using estimated betas



Moreover, to assess whether the average returns are aligned with betas. Realised return on the vertical axis and upside (downside) beta on the horizontal axis show the dependent relationship between these variables. Additionally, the orange line is the Security Market Line (SML) calculated using the CAPM formula. The yellow dots are countries, however, for the sake of simplicity they were divided into only emerging (E) and developed (D). For the upside beta is known from the theory that the portfolios (markets) above the SML line are undervalued, earning returns above market with the same risk level, while those below are undervalued. It is apparent that developed markets tend to be

closer to the line, which can be explained by fairer valuation, whereas emerging markets are greater distances from each other and the SML (Figure 2).

Constructing the same chart for the downside beta (Figure 3), the same tendency is observed: developed markets are less dispersed across the chart than emerging markets and the downside beta chart looks denser than the one for upside beta. The main outcome provided by the charts is that for both downside and upside betas the developed markets showed results that are closer to the theoretical market line, while the emerging markets deviated.

Figure 2. The graph presenting realised monthly return and Security Market Line using upside betas. “E” – emerging countries, “D” – developed countries

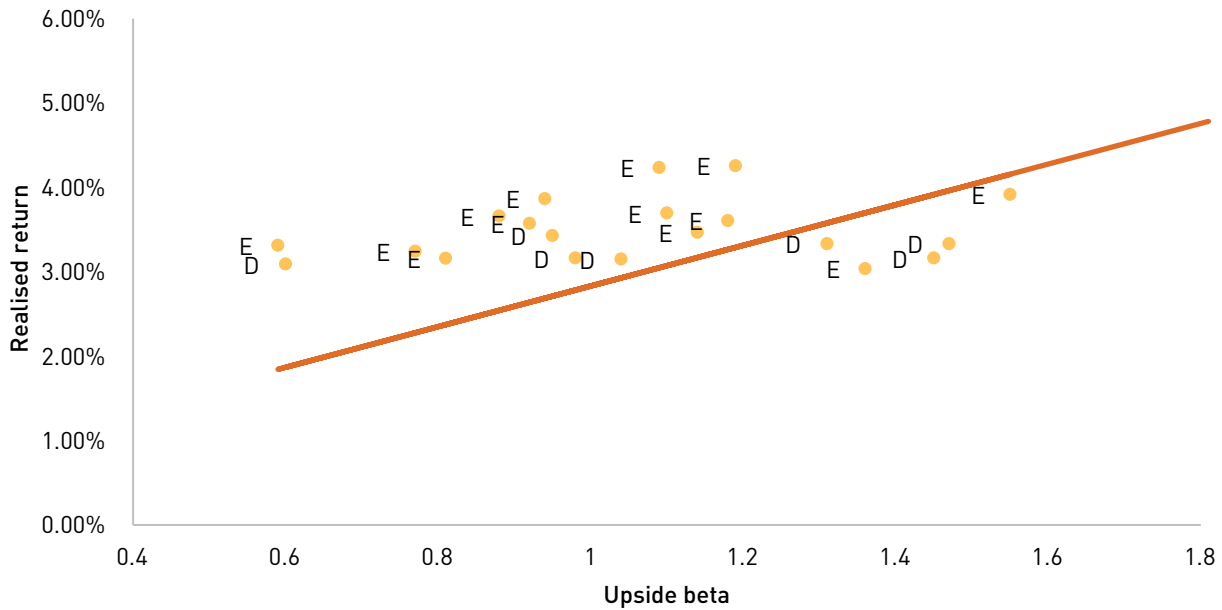
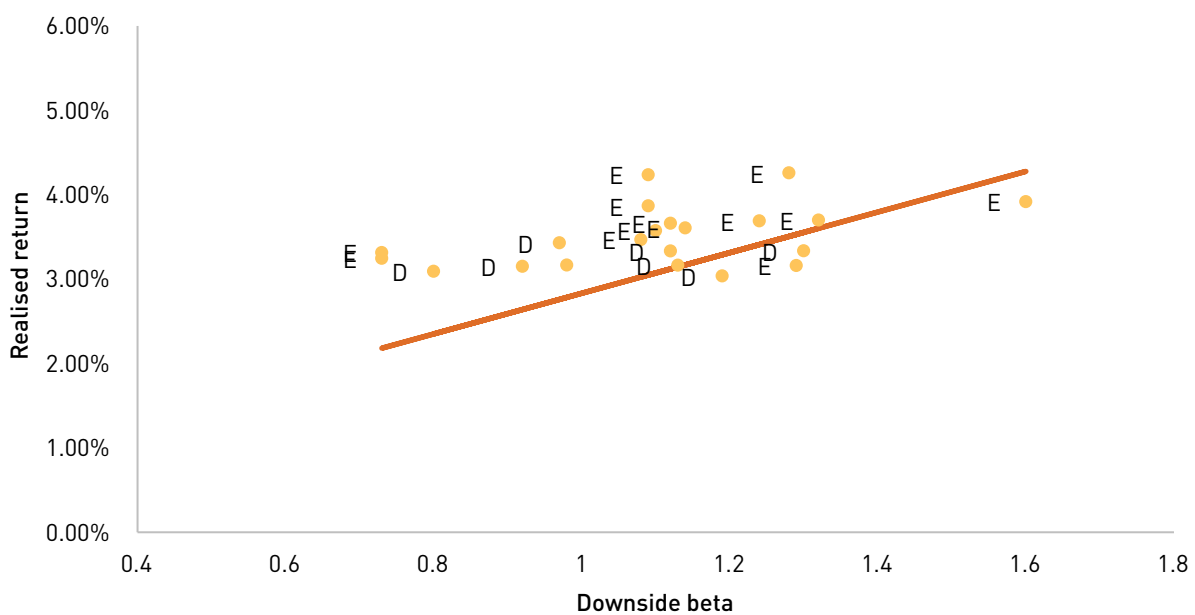


Figure 3. The graph presenting realised monthly return and Security Market Line using downside betas. “E” – emerging countries, “D” – developed countries



Emerging and developed markets and macroeconomic factors affecting ERPs

Macroeconomic variables are not often factored into the ERP analysis probably due to the commonly considered gap between macroeconomic and financial data. Most of the widely used macroeconomic factors are published on a yearly basis, usually in the end of 1st quarter of the year following the reporting year. This may not be useful in the analysis of financial market data such as returns or ERPs, as they change much quicker and macro variables could not be explanatory in this case. However, some macro variables are published on a monthly basis and could be taken into consideration in ERP research over a longer timeframe (twenty-two years). In this case, macroeconomic variables

could be used to explain structural market changes. In the current research we consider commonly used variables: GDP growth, local long-term interest rate, local inflation rate, industrial production in a share of GDP, and unemployment rate. These factors aim to reflect the state of the local economy, capturing all major economic indicators which are used to assess if the economy is in distress or in recovery. Panel data regression analysis is performed with the dependent variable of the country’s ERP for the period and above-mentioned independent variables of macroeconomic factors for the same period. Moreover, in some regression model specifications, such as Arellano Bond lagged ERP for the preceding period, are added to the independent variables. The analysed timeframe is from 2001 to 2023

with monthly data consisting of 1,587 country-months. Panel data always includes unobserved effects that could be captured by using random or fixed effect regression models. It is presumed that the chosen dataset would have fixed effects expressed through country-specific factors that are not captured by included variables. These factors could include political state, trade conditions, fiscal policy, local currency rate changes, and other market-specific factors in every country. The fixed effect method is suitable for smaller number of countries and controls for country heterogeneity. Moreover, time effects might be present as there's a high probability of having autocorrelation in ERPs, so the regression equation in this case would be:

$$ERP_{i,t} = \beta_0 + \sum_{k=1}^K \beta_k X_{i,t}^k + Z_i + W_t + U_{i,t}.$$

Where $ERP_{i,t}$ is the ERP of country i in month t , β_0 is a constant in the regression equation, β_k is a vector of regression coefficients, $X_{i,t}^k$ – vector of k independent macroeconomic variables (GDP growth, local inflation rate, local long-term interest rate, industrial production in share of GDP, unemployment rate) over i countries and t months, Z_i – unobserved country-fixed effects, W_t – unobserved time effects and $U_{i,t}$ the vector of regression errors. To determine whether the proposition of fixed effect model setup is suitable for the dataset, the following tests are conducted:

Firstly, F-test with H_0 : fixed effects are not significant ($Z_i = 0$). The hypothesis is tested by including all coun-

tries in the model as dummies and getting F-statistics = 1.09 of and P-value = 0.37 > 0.05. For the dataset, the hypothesis is rejected, which means $Z_i \neq 0$ and fixed effect are present.

Secondly, Breusch-Pagan LM test H_0 : random effects are not significant (Variance of $Z_i = 0$). The hypothesis is tested; χ^2 is close to 0 and P-value = 1, which means the hypothesis is not rejected, $Var(Z_i) = 0$ and this supports the hypothesis that unobserved effects are fixed.

Thirdly, F-test with H_0 : time effects are not significant ($W_t = 0$). The hypothesis is tested by including all time periods in the model as dummies and obtaining F-statistics = 0.67 of and P-value = 0.73 > 0.05. For the current dataset the hypothesis is rejected, which means that $W \neq 0$ and time effect are present.

Additionally, heteroskedasticity and autocorrelation magnitude are tested. Wald test with H_0 : variations for all countries are the same. The hypothesis is rejected (and $\chi^2 = 338$ and P-value = 0, which supports the presence of heteroskedasticity across country observations; robust standard errors are used to overcome this issue. Arellano-bond test for autocorrelation is used with H_0 : no autocorrelation. The hypothesis is rejected due to the presence of 1st order autocorrelation. To manage this issue, the lags of 1 period will be used.

Using the results of the test mentioned above, a dynamic Arellano-bond panel regression model with fixed effects, lags of one, and robust errors are used.

Table 7. Regression results for macroeconomic factors

	Arellano-Bond		Arellano-Bond, robust		Arellano-Bond, robust	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
ERP (lag-1)	-0.199	0.000*	-0.199	0.000*	-0.199	0.000*
Inflation	0.006	0.056*	0.006	0.212	–	–
GDP growth	-0.005	0.000*	-0.005	0.000*	-0.005	0.000*
Industrial production	-0.002	0.031*	-0.002	0.105	–	–
Long-term rate	-0.046	0.000*	-0.046	0.016*	-0.040	0.034*
Unemployment	0.021	0.000*	0.021	0.000*	0.025	0.000*
Constant	-0.445	0.209	-0.445	0.367	-0.025	0.798

In the regression analysis it is apparent that the biggest significant influence on the ERPs is a long-term local interest rate with a negative coefficient of -0.046 and unemployment rate with a positive coefficient of 0.02. This result is somewhat puzzling and could suggest that the growth of local long-term interest rate by 1% would be reflected in local monthly ERPs by a decrease of 0.05%, which may be explained by the rising risks associated with higher long-term rates. The small magnitude, in turn, may be explained by the currency difference given that the ERP is in the US dollars, and local interest rate is in the local currencies.

However, higher unemployment could bring additional ERP of 0.02% which may be driven by higher risks associated with labour market instability and a decrease in production. The local inflation rate is not significant for ERP variance in the chosen model setup. Moreover, GDP growth negatively affects ERP with a 1% increase in GDP growth could decrease ERP by an average of 0.006% (Table 7). This empirical evidence supports the third hypothesis, but contradicts (Hooker, 2004), which claims that macroeconomic factors do not significantly affect ERPs.

Rising political risks and autocratic regimes could explain higher ERP

To examine the hypothesis that political regime could influence ERP, this research uses the Democracy index for 2006–2022, provided by the EIU. The index is calculated by the researchers using a score from 0 to 10. The five categories are “electoral process and pluralism, functioning of government, political participation, political culture, and civil liberties,” and they are translated into four political regime types: “full democracy,” “flawed democracy,” “hybrid regime” or “authoritarian regime” [40]. Some papers suggested using the index of estimated political risks [41], however, the Democracy index suggested by EIU accounts for a wide range of factors when attributed, so it might be a sufficient alternative measure of political risks.

Panel regression is used to determine the influence of the higher democracy score on the ERP in examined countries, returns are adjusted on a yearly basis as the index is adjusted yearly. The examined dataset comprises 209 country-years.

$$ERP_{i,t} = \beta_0 + \beta_1 X + Z_i + W_i + U_{i,t}.$$

Where $ERP_{i,t}$ is the ERP of country i in month t , β_0 is a constant in the regression equation, β_1 is a regression coefficient, X – independent variable (Democracy index) for i countries and t months, $\varepsilon_{i,t}$ the vector of regression errors. Z_i – unobserved country-fixed effects, W_i – unobserved time effects, and $U_{i,t}$ – the vector of regression errors. The results of all the above-mentioned tests for the macroeconomic regression allow to conclude that the Arellano-Bond regression should be used with fixed and time effects prerequisites.

Table 8. Regression results for the Democracy index

	Coefficient	P-value
ERP (lag-1)	-0.045	> 10
Democracy index	-0.029	< 10
Constant	0.209	< 5

Regression results suggest higher Democracy index negatively affects ERP levels decreasing yearly ERP by 0.02% when the index increases by 1 (Table 8). Such an event could be explained by the lower risks associated with investing in the countries a with higher Democracy index. The regression result supports the stated hypothesis, namely, that political risks could explain higher ERP.

To form an integrated conclusion, a regression of ERP and macroeconomic and political factors was conducted. The Democracy index was added to the model of macroeconomic factors like inflation, GDP growth, industrial production, long-term interest rate and unemployment, which was already reviewed above. However, the time frame was reduced to 2006–2022 due to data restrictions of the Democracy index. The tests for such a model pointed to using the Arellano-bond regression model with fixed and time effects. The results suggest that signs of the coefficients for

macroeconomic factors remained the same as in the individual model (Table 7), however industrial production is no longer significant. The Democracy index also preserved the negative sign, although its absolute value is now higher, which may point to the fact that, combined with macroeconomic factors, the Democracy index as a political factor has higher explanatory power of ERP variance. The results support the results of the previous analysis, namely, that a higher Democracy index decreases the ERP, but the an increase of 1 in the index decreases the ERP by almost 0.1% (Table 9).

Table 9. Regression results for combination of macroeconomic factors and Democracy index

	Coefficient	P-value
ERP (lag-1)	-0.267	<5
Inflation	0.007	>10
GDP growth	-0.006	<5
Industrial production	-0.001	>10
Long-term rate	-0.046	<5
Unemployment	0.022	<5
Democracy index	-0.078	<10

The intuition behind the hypothesis is that the countries that are moving towards higher democracy levels might experience the lowering of their indices' ERPs, however, in fact, for most of the countries the Democracy index has decreased over the last sixteen years. Together with the negative sign of the regression coefficient, this leads us to conclude that a lowering Democracy index increases ERP due to higher risks. This conclusion is supported by the analysis of the latest ERPs in developed countries compared to emerging that due to poorer performance during a crisis on the financial markets developed countries (which are assumed to have a higher Democracy index: the average index for emerging countries was 5.9 in 2006 and 8.2 for developed, in 2022 the average was 5.7 for emerging, and 8.2 for developed) earned higher ERPs on average, even though during the times of positive returns the ERP for emerging was higher.

Sector composition difference and its influence on ERPs

A different economic sector composition might be a factor explaining the differences in ERP across emerging and developed countries. The paper by Donadelli and Persha [27] mentioned in the literature review tries to find industries that contribute the most to ERP in different markets, but the paper analysis is based on the time frame up until 2002 since at that time there was a major change in industries' performance across the world [27]. Another research study suggests that in the late 20th century there was a prevalence of country-related factors that drove returns in developed countries, however, in in the year 2000 it changed, and sec-

tor-related factors became more important for investment strategies due to greater globalisation. However, for emerging markets, the results of the paper suggested a higher importance of country-related factors [42]. In the current research economic sector composition is assessed using S&P sector-split indices.

The last ten-year monthly ERP (based on total returns) constructed from S&P indices demonstrates that the financial sector occupies the largest share (20%), whilst the second-largest sector is Energy (14%), and Information Technology (IT) has only the third largest share in the emerging markets index (12%). In terms of performance, the top industry is IT with 1.2% ERP, while Financials and Energy shows only around 0.3% ERP. In developed markets' performance, IT sector is the best-performing throughout the last decade with 1.46% ERP, and the developed market index has the greatest exposure to this sector at 20%. According to S&P global data, Information Technology was the best-performing industry over the last 10 years, outperforming the global index as a whole and the closest competitor (Health Care with 0.8% ERP) twice, scoring an average of 1.43% ERP over the last decade. The exposure to the IT sector is the biggest for the global index and for developed markets. Hence, it could be considered the possible explanation of the difference in ERP between emerging and developed markets. It could also suggest the reason why ERP in the examined period in the emerging markets is more than two times lower than ERP for developed and global markets. Emerging markets have a smaller exposure to the IT sector; however, it has been the best-performing sector over the last decade.

Another possible explanation of emerging markets' under-performance could be their higher exposure to the Energy sector with a 14% share of the total, whereas developed markets are exposed only by 4%, and the global index – by 7%. The energy sector is the one of the worst performers over the last decade for all three index groups; the only sectors that demonstrated worse performance are the Real Estate sector in developed (0.37% ERP) and global markets (0.30% ERP). while Communication Services (–0.17% ERP) and Consumer Staples (–0.20% ERP) performed worse in emerging markets. Moreover, the Energy Sector is the most volatile sector for emerging, developed, and global indices with the highest standard deviation across other sectors.

The hypothesis in the current analysis suggests that sector exposure could explain the differences in ERP for emerging and developed markets. The tables above allowed us to prove that higher exposure to the IT sector for developed markets could have brought higher returns over the last decade, and the otherwise higher exposure of emerging markets to the energy industry could negatively affect the emerging markets' ERP. Thus, it could be possible that with the same industry composition (i.e., same sector weights) the ERP should be similar for emerging and developed markets. To test this hypothesis, the sector weights for developed countries are applied to emerging countries, subsequently, the mean ERP for emerging markets reaches

0.4%, which is higher than 0.3% that results from using the sectors' actual weights in emerging countries. This result can suggest a conclusion that it is not only industry composition which plays its role in emerging markets' ERP, but also the performance of specific companies, although sector composition weight could bring up to 0.1% additional ERP.

Comparison of market pricing based on Price-to-Earnings analysis

The analysis above does not indicate a clear strategy towards investing in emerging markets because the performance was different through analysed timeframes and across countries. However, there is one more tool that can help to identify possible future strategies for investors. Price-to-earnings (P/E) multiple is well known for its simplicity and quickest approach to comparing assets and evaluating future opportunities. The average P/E for MSCI World index in 2001 was around 25x, 14x – for MSCI EM (emerging markets), and in 2023 the numbers have changed to 18x for the World index and 12x for the EM. The valuation might be an indication of the relatively low price of emerging markets requested by the market compared to the price of the World index. However, in twenty-two years the World index lost more value than the EM even given the results above, and in recent turbulent years developed markets showed higher returns. Summing up, this analysis could be a good indication for a future investor's strategies given the extensive comparison of developed and emerging markets and presenting a possible explanation of the ERPs. Emerging markets outperformed before 2008, when the first worldwide financial crisis hit after the technological rise of the early 2000s. After the shock, emerging markets were recovering much slower than developed markets, and even providing with a higher magnitude of positive returns for investors, negative periods contributed massively to driving down the average estimates. Investing in developed countries could be a good strategy for a long-term investment horizon, which could be considered relatively safe, and it could be expected that every new market turbulence would be survived by the developed countries. The emerging markets can be a potential investment direction, but the analysis suggests that certain emerging countries could perform very differently from others, so in order to pursue investing it is reasonable to carefully choose the specific country considering the macroeconomic, political and financial factors and the industry specification.

Conclusion

The research pursued the aim of providing a refreshed analysis of the ERP matter and examining existing differences in historical ERP in emerging and developed markets. Firstly, the research covered the existing international literature related to ERP studies and reviewed the timeframes, approaches, and results suggested by widely cited papers. The main outcome of the literature review is that most of the papers demonstrate the results for the historical time frame prior to the early 2000s, which leads

to conclude that the market has changed dramatically, and the research might not reflect recent market conditions. The outcomes of most of the papers suggest that emerging markets earn higher ERP than developed markets. Analysing datasets for indices' ERPs by country and aggregated by region, the research focused on providing up-to-date information for the last twenty-two years of financial markets' performance. Examination of six hypotheses by means of statistical analysis yielded the following results: emerging markets were outperforming developed ones until the 2008 market crisis. After 2010, when the developed market showed strong recovery signs, emerging markets were still earning negative ERPs with high levels of volatility, making investing in emerging indices unfavorable. However, country-level indices for certain countries, such as Columbia, Peru, and Mexico, performed decently over the entire analysed period and demonstrated one of the highest ERPs throughout the whole analysed sample of emerging and developed markets. Nonetheless, an analysis of beta supported the idea of emerging markets being riskier investment because of higher downside beta than upside. Additionally, upside and downside betas showed that most emerging countries have a higher downside than upside beta, which points out to investors that during distressed times emerging markets decline lower than they increase over developed markets during the market boom.

Industry composition analysis suggested that a higher exposure to the Information Technology sector of developed markets compared to emerging provides better ERPs since this sector performs better than any other (using the average ERP over the last ten years). And having a higher share of the Energy sector of emerging markets compared to developed ones drives ERPs down, with the Energy companies performing the worst in the last decade across the globe.

Macroeconomic factors certainly influence country-specific ERPs which were tested using an econometric dynamic regression with fixed effects. The results are puzzling given the negative effect of higher GDP growth and the positive effect of a higher unemployment rate on ERP. Moreover, higher local interest rates negatively affect ERPs. Having linked the Democracy index to the regression model, the authors concluded that the average democracy levels in the developed countries remain the same over the examined period, however, for the emerging countries they are slightly lowered. Given the reverse dependency between the ERP and democracy levels, it might be expected that the ERP in emerging markets could increase in the future if democracy levels are lowered.

For the concluding remarks on the research and providing the possible forecast for investment strategies, P/E ratios were compared for the World index and the Emerging markets index. The ratios suggest that both developed or emerging markets are better priced nowadays than twenty-two years ago, however, the World index dropped significantly lower than EM index relative to 2001 ratios. The research supports the idea that emerging markets cannot

be considered a perfect strategy for yielding higher returns, since developed markets perform usually perform better and recover faster during turbulent times, however in financial markets undergoing the growth stage, emerging markets could provide higher ERPs.

References

1. Arnott A. *Is International Diversification Necessary?* Morningstar; 2022. URL: <https://www.morningstar.com/portfolios/is-international-diversification-necessary> (accessed on 03.09.2023)
2. Smith E. L. *Common Stocks as Long Term Investments*. New York: Macmillan; 1924. 129 p.
3. Williams J. B. *The Theory of Investment Value*. Cambridge MA: Harvard University Press; 1938. 613 p.
4. Gordon M.J., Shapiro E. Capital Equipment Analysis: The Required Rate of Profit. *Management Science*. 1956;3(1):102-110.
5. Cowles A. *Common Stock Indexes 1871-1937*. Bloomington, Ind: Principia Press; 1938. 499 p.
6. Ibbotson R.G., Sinquefeld R.A. Stocks, Bonds, Bills, and Inflation: Simulations of the Future (1976-2000). *The Journal of Business*. 1976;49(3):313-338.
7. Siegel J.J. The Equity Premium: Stock and Bond Returns Since 1802. *Financial Analysts Journal*. 1992;48(1):28-38.
8. Shiller R. J. *Market Volatility*. London: The MIT Press; 1989. 478 p.
9. Mehra R., Prescott E.C. The equity risk premium: A solution? *Journal of Monetary Economics*. 1988;22(1):133-136.
10. Campbell J.Y. Asset prices, consumption, and the business cycle. In: *Handbook of Macroeconomics*. 1999;1(C):1231-1303.
11. Mehra R., Prescott E.C. The equity premium in retrospect. In: *Handbook of the Economics of Finance*. Vol. 1. Elsevier Science; 2003. pp 889-938.
12. Dimson E., Marsh P., Staunton M. *Triumph of the Optimists: 101 Years of Global Investment Returns*. Princeton: Princeton University Press; 2002. <https://doi.org/10.1515/9781400829477>
13. Blanchard O.J., Shiller R., Siegel J.J. Movements in the Equity Premium. *Brookings Papers on Economic Activity*. 1993;(2):75-138. <https://doi.org/10.2307/2534565>
14. Mehra R., Prescott E.C. The equity premium: A puzzle. *Journal of Monetary Economics*. 1985;15:145-161.
15. Friend I., Blume M.E. The Demand for Risky Assets. *The American Economic Review*. 1975;65(5):900-922.

16. Siegel J.J., Thaler R.H. Anomalies: The Equity Premium Puzzle. *The Journal of Economic Perspectives*. 1997;11(1):191-200. <https://doi.org/10.1257/jep.11.1.191>
17. Bekaert G., Harvey C.R., Lundblad C.T. Emerging Equity Markets and Economic Development. *Journal of Development Economics*. 2001;66(2):465-504.
18. Yartey C.A. The Determinants of Stock Market Development in Emerging Economies: Is South Africa. *IMF Working Paper*. 2008: 2008/032.
19. Bekaert G., Harvey C.R., Lundblad C.T. Equity Market Liberalization in Emerging Markets. *Journal of Financial Research*. 2003;26(3):275-299.
20. Ferson W.E., Harvey C.R. The Risk and Predictability of International Equity Returns. *Review of Financial Studies, Society for Financial Studies*. 1993;6(3):527-566.
21. Cappiello L., Maddaloni A., Lo Duca M. Country and industry equity risk premia in the euro area: an intertemporal approach. Working Paper Series 913, European Central Bank. 2008. <https://doi.org/10.2139/ssrn.1108311>
22. Claessens S., Dasgupta S., Glen J. Return Behavior in Emerging Stock Markets. *The World Bank Economic Review*. 1995;9(1):131-151. <https://doi.org/10.1093/wber/9.1.131>
23. Salomons R., Grootveld H. The equity risk premium: emerging vs. developed. *Emerging Markets Review*. 2003;4(2):121-144. [https://doi.org/10.1016/S1566-0141\(03\)00024-4](https://doi.org/10.1016/S1566-0141(03)00024-4)
24. Cremers M.K. Stock Return Predictability: A Bayesian Model Selection Perspective. *The Review of Financial Studies*. 2002;15(4):1223-1249.
25. Hooker M.A. Macroeconomic factors and emerging market equity returns: a Bayesian model selection approach. *Emerging Markets Review*. 2004;5(4):379-387. <https://doi.org/10.1016/j.ememar.2004.09.001>
26. Klapper L.F., Love I. Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance*. 2004;10(5):703-728. [https://doi.org/10.1016/S0929-1199\(03\)00046-4](https://doi.org/10.1016/S0929-1199(03)00046-4)
27. Donadelli M., Persha L. Understanding emerging market equity risk premia: Industries, governance and macroeconomic policy uncertainty. *Research in International Business and Finance*. 2014;30:284-309. <https://doi.org/10.1016/j.ribaf.2013.09.008>
28. Dimson E., Marsh P., Staunton M. Worldwide equity premium: a smaller puzzle. In: Mehra R., ed. *Handbook of the equity risk premium*. Elsevier; 2008. pp. 467-514
29. Siegel L.B. The Equity Risk Premium: A Contextual Literature Review. *Capital Markets: Asset Pricing & Valuation eJournal*. 2017:158258339. <https://doi.org/10.2139/ssrn.3088820>
30. Cohen B.H., Remolona E.M. Overview: financial markets prove resilient. *BIS Quarterly Review*. 2001. URL: https://www.bis.org/publ/r_qt0112a.pdf (accessed on 03.09.2023)
31. Gangopadhyay P., Haley J.D., Zhang L. An Examination of Share Price Behavior Surrounding the 2005 Hurricanes Katrina and Rita. *Journal of Insurance Issues*, 2010;33(2):132-151.
32. Bartram S.M., Bodnar G.M. No place to hide: The global crisis in equity markets in 2008/2009. *Journal of International Money and Finance*. 2009;28(8):1246-1292. <https://doi.org/10.1016/j.jimonfin.2009.08.005>
33. Lopatta K., Kaspereit T. The cross-section of returns, benchmark model parameters, and idiosyncratic volatility of nuclear energy firms after Fukushima Daiichi. *Energy Economics*. 2014;41:125-136. <https://doi.org/10.1016/j.eneco.2013.10.006>
34. Shaikh I. Impact of COVID-19 pandemic disease outbreak on the global equity markets. *Economic Research-Ekonomska Istraživanja*. 2021;34(1):2317-2336. <https://doi.org/10.1080/1331677X.2020.1863245>
35. Patel S.A., Sarkar A. Crises in Developed and Emerging Stock Markets. *Financial Analysts Journal*. 1998;54(6):50-61.
36. French C.W. The Treynor Capital Asset Pricing Model. *Journal of Investment Management*. 2003;1(2):60-72.
37. Adler M., Dumas B. International Portfolio Choice and Corporation Finance: A Synthesis. *The Journal of Finance*. 1983;38(3):925-984. <https://doi.org/10.1111/j.1540-6261.1983.tb02511.x>
38. Hedi Arouri M.E., Nguyen D.K., Pukthuanthong K. An international CAPM for partially integrated markets: Theory and empirical evidence. *Journal of Banking & Finance*. 2012;36(9):2473-2493. <https://doi.org/10.1016/j.jbankfin.2012.05.004>
39. Guy A. Upside and Downside Beta Portfolio Construction: A Different Approach to Risk Measurement and Portfolio Construction. *Risk Governance and Control Financial Markets & Institutions*. 2015;5(4):263-270. <https://doi.org/10.22495/rgcv5i4c1art13>
40. *Democracy Index 2022. Frontline democracy and the battle for Ukraine*. The Economist Intelligence Unit

Limited; 2023. URL: https://www.eiu.com/n/wp-content/uploads/2023/02/Democracy-Index-2022_FV2.pdf?li_fat_id=f1fbad7e-a282-4b9e-9f8f-6a6d5a9fe6b8 (accessed on 03.09.2023)

41. Duyvesteyn J., Martens M., Verwijmeren, P. Political Risk and Expected Government Bond Returns. *Journal of Empirical Finance*. 2016;38(Part A):498-512. <https://doi.org/10.1016/j.jempfin.2016.01.016>
42. Chen J., Bennett A., Zheng T. Sector Effects in Developed vs. Emerging Markets. *Financial Analysts Journal*. 2006;62(6):40-51. <https://doi.org/10.2469/faj.v62.n6.435>