

How Does Happiness Affect Stock Market Returns?: An Examination of G5 Countries

Kübra SAKA ILGIN*

Abstract

This paper aims to analyze the impact of the happiness index on stock market returns in G5 countries during the 2008-2024 period. Inflation rates of the countries were included as a control variable in the model. Panel data analysis utilized the Westerlund Panel Cointegration test and the DCCE (Dynamic Common Correlated Effects) estimator. Cointegration test findings showed that the happiness index and stock market returns acted together in the long term in the G5 (Group of Five) countries during the relevant period. According to the DCCE estimation results, which calculated short- and long-term coefficients, it was determined that in the short term, the happiness index dominated the markets through investor sentiment, resulting in positive returns in the stock markets. In the long term, the negative relationship identified between the happiness index and stock market returns was interpreted as structural constraints brought about by increased welfare and increased corporate costs negatively impacting stock market returns. This indicates a long-term trade-off mechanism between social welfare and financial expansion in G5 countries. It can be expressed that the findings of the paper have contributed to the development of several recommendations for policymakers, investors, and academics.

Keywords: Happiness index, Stock market returns, G5 countries, Panel data analysis, Dynamic common correlated effects.

JEL Kodu: G41, G15, C23

*Assoc. Prof. Dr., Erzincan Binali Yıldırım University, Faculty of Economics and Administrative Sciences, Finance and Banking Department, Erzincan, Türkiye,

ORCID: 0000-0001-5797-9617

Corresponding author/Sorumlu yazar:

Kübra SAKA ILGIN

E-mail / E-posta:

kubra.saka@erzincan.edu.tr



DOI: 10.62844/jerf.33

Submitted / Başvuru : 16.03.2026

Accepted / Kabul : 31.03.2026

Introduction

The primary goal of economic systems is to increase the well-being of citizens. Happiness index is one of the indicators of citizens' well-being. Investigating the happiness of individuals within an economic system addresses individual well-being, a crucial measure of individual prosperity. Determining individual well-being allows for the analysis in psychology of how individuals evaluate their emotions and the pleasure they derive from life. Since individuals are good evaluators of their own lives, their quality of life and happiness levels can be measured through questions and surveys (Frey and Stutzer, 2010: 3-4).

The concept of happiness, which is increasingly featured in international studies, has been included in various international survey programs from the past to the present. One of these is the World Happiness Report (WHR), an international survey program developed by the United Nations Sustainable Development Solutions Network. The WHR is a significant global report that calculates a happiness index annually and ranks over 150 countries based on their citizens' perceptions of how happy they feel. This report was initiated in 2012 with the motivation of enabling policymakers to implement policies that support not only citizens' incomes but also their happiness. Over time, it can be stated that policymakers have begun to use happiness indices more frequently in their decisions, and their importance has steadily increased (Ulkhaq, 2020: 197-198). The Happiness Index data published in the World Happiness Report is obtained through a comprehensive study that measures the well-being of countries not only with economic data such as gross domestic product, but also with people's subjective perceptions of their quality of life. The six main criteria used in calculating the index and the meanings they express are as follows: GDP per capita; level of economic well-being, social support; having someone to rely on in difficult times, healthy life expectancy; physical health and access to healthcare, freedom to make life choices; restrictions on individual decisions, generosity; rate of giving and helping in society, perception of corruption, level of trust in the government and business world (Helliwell et al., 2024: 297-298).

The G5 countries¹, being a core group of the most industrialized nations that shape the global economy, and possessing strong social security systems, high levels of personal freedom, and relatively low levels of corruption, tend to rank higher in happiness index lists. In G5 countries with deep and efficient financial markets, stock market returns have traditionally been explained by macroeconomic data and rational expectations. However, modern financial literature also recognizes that social psychology, general optimism, and perceptions of well-being play a critical role in pricing mechanisms. In this context, the Happiness Index published by the WHR has become an important measure used to understand market sentiment and investor psychology.

A review of the literature on happiness indices reveals numerous studies

¹United States, Germany, Japan, United Kingdom, France

investigating the relationship between happiness and economic indicators, or between daily social media happiness indices and stock market indices. However, a gap in the literature is observed regarding the investigation of the relationship between well-being indicators, such as happiness indices, and capital markets. The scarcity of studies examining the impact of country-specific annual happiness indices published by the WHR on stock market returns motivated this study. Although most studies in the literature are not directly related, some studies identified as relevant to this research and their findings are summarized below. Nofsinger (2005) argues that the stock market is not merely about numbers; its efficient and responsive nature reflects the collective psychology of society in its purest form. In this sense, the study states that the stock market is not an indicator of the economy but directly reflects the social mood. According to the study, the economy is a result of social psychology, while the stock market is the most sensitive tool that allows us to anticipate this psychology. Murgea and Reisz (2013) concluded that the S&P 500 index has a strong influence on the Gallup-Healthways well-being index, indicating that the stock market has a significant impact on well-being. Rao et al. (2016) examined the relationship between happiness and stock investments using data from the Chinese household finance survey and concluded that there is a strong correlation. Rasiah et al. (2016) investigated the relationships between annual GDP, inflation, happiness, and stock returns in 10 selected OECD countries and found that happiness did not have a significant effect on determining stock returns. Hamurcu (2020) investigated whether the happiness index has predictive power on stock market index prices in Scandinavian countries. It was found that there is a unidirectional causality from the happiness index to the stock market index, and a positive relationship between happiness levels and stock market indices in Scandinavian countries, which rank highest in the happiness index. Tran (2022) investigated the effect of happiness indices on corporate risk-taking behavior for 24 different countries worldwide in the WHR and concluded that there is a negative relationship between happiness and risk-taking behavior. Kim (2023) concluded that the search volume for the topic of happiness on Google Trends influenced the future prices of major companies on the Korean stock exchange.

This paper, which examines the short- and long-term relationship between happiness and stock market returns in G5 countries, aims to analyze how citizens' well-being, beyond economic growth and low inflation, is reflected in their financial decisions. To this end, the dataset and model are presented, followed by an explanation of the methodology and findings. The paper concludes with a results and discussion section.

Dataset and Model

The paper investigates the relationship between the happiness index and stock returns in the G5 countries for the period 2008-2024, employing panel data analysis. The main reason for selecting the G5 countries as a sample in this study is that these economies form the central pillars of the global financial system. The depth and transparency of financial markets provide a controlled and efficient environment

for analyzing the impact of subjective indicators, such as societal happiness, on investor behavior. Furthermore, the similarities in the monetary policy regimes of these countries allow for the observation of the long-term structural impact of inflation on stock market returns, thereby removing asymmetric external shocks.

The monthly closing prices of benchmark stock market indices² for each country were first considered, and the annual average closing prices were calculated to analyze stock returns. Then, annual return series were created using the formula $R = \ln(P_t - P_{t-1})$ to calculate annual returns. Stock prices have been analyzed in the local currency of each country. The inflation rate has been included in the model as a control variable to ground nominal stock market returns in real terms and control for the effect of inflation on these returns, since stock market returns are calculated in local currencies. To measure the impact of slower-changing social data, such as happiness in rapidly reacting markets like stock exchanges, the effect of happiness index data was examined. Accordingly, the paper investigates to answer the question of how last year’s happiness affected this year’s stock market returns. Therefore, lagged values of happiness indices (HAPP.L1) have been considered in the analysis. The analysis period spans a 17-year dataset (T=17), as the commonly available data for G5 countries (N=5) is restricted to the 2008-2024 period. Table 1 presents the variable abbreviations, descriptions, and data sources utilized in the paper.

Table 1. Variables

Variable Abbreviation	Description	Variable Source
STR	Stock Returns	Investing Database
HAPP.L1	Happiness Index	World Happiness Report
INF	Inflation, Customer Prices	World Bank Database

The general econometric model developed in this paper, which examines the linkage between STR, HAPP.L1, and INF, is expressed in Equation (1):

$$STR_{it} = \alpha_0 + \alpha_1 HAPP.L1_{it-1} + \alpha_2 INF_{it} + u_{it} \quad (1)$$

The explained variable is the STR, the explanatory variable is the HAPP.L1, and the control variable is the INF in the model of Equation (1).

Methodology and Findings

This paper aims to determine the strength and direction of short-term and long-term relationships between variables in G5 countries during the 2008-2024 period using panel data analysis methods. For the analysis, cross-sectional dependence and homogeneity tests are applied first. The Breusch-Pagan (1980) LM cross-sectional dependence and Swamy (1971) Swamy S homogeneity test results are used to determine the type of unit root test to avoid spurious regression. Based on these results, the CIPS (Cross-sectionally Augmented Im, Pesaran, Shin) unit root test ² S&P500 (United States), DAX40 (Germany), Nikkei225 (Japan), FTSE100 (United Kingdom), and CAC40 (France)

developed by Pesaran (2007) is applied. To examine the cointegration relationship between variables, the Westerlund (2007) panel cointegration test is used. Finally, to obtain both short-term and long-term coefficient estimation results, the DCCE estimator based on the error correction model developed by Chudik and Pesaran (2015) is applied to the model.

Stationarity tests of the variables must be performed first, since the relationship between STR and HAPP.L1 in G5 countries will be examined using panel data analysis. Accordingly, Breusch-Pagan (1980) LM cross-section dependence and Swamy S homogeneity tests were applied because the number of countries is N=5 and the number of periods is T=17 (T>N) (Yerdelen Tatoğlu, 2024: 174-177), and the results are presented in Table 2.

Table 2. Breusch-Pagan LM and Swamy S Test Results

LM Test	
Chi-Square Test Statistic	p-value
77.291***	0.000
Swamy S Test	
Chi-Square Test Statistic	p-value
39.47***	0.000

Note: *** indicates statistical significance level at a 1 %.

According to Breusch-Pagan LM test results, the model exhibits cross-section dependence. In this case, there is a cross-section dependence among the G5 economies that make up the panel. According to the Swamy S test results, slope parameters are heterogeneous. Furthermore, unit root tests that account for cross-section dependence and heterogeneity of slope coefficients for the series used in the paper should be employed in the subsequent stages of the analysis.

Table 3. CIPS Unit Root Test Results

Variable	Constant t-statistics	Constant & Trend t-statistics
STR	-2.258	-2.490
DSTR	-3.379***	-3.215**
HAPP.L1	-1.655	-1.740
DHAPP.L1	-2.594**	-2.988*
INF	-2.450*	-2.564
DINF	-3.527***	-3.357***
Critical Values	%10 -2.210 %5 -2.340 %1 -2.600	%10 -2.740 %5 -2.880 %1 -3.150

Note: ***, **, and * indicate statistical significance level at a 1%, 5%, and 10%, respectively.

According to the results of Table 3, under the assumption of CD and homogeneity at the significance levels, the null hypothesis of the panel having a unit root could not be rejected for the variables. Therefore, the variables are stationary at I(1). The cointegration relationships were estimated using the Westerlund (2007) panel cointegration test after determining the stationarity of the variables. This cointegration test was performed using Westerlund’s bootstrap critical values, which are resistant to inter-unit correlation and are second-generation panel cointegration tests (Yerdelen Tatoğlu, 2024: 258). The Westerlund (2007) panel cointegration test results are presented in Table 4.

Table 4. Westerlund (2007) Panel Cointegration Test Results

Test Statistics	Value	z-value	p-value	Robust p-value
Gt	-2.979	-2.292	0.011	0.040
Ga	-8.497	0.224	0.589	0.030
Pt	-6.247	-2.340	0.010	0.030
Pa	-8.170	-0.922	0.178	0.030

Note: Robust p-value indicate the probability of bootstrap values obtained from 100 samples.

The test statistics in Table 4 are divided into two groups according to the assumptions of homogeneity and heterogeneity. Under the assumption of homogeneity, the Pt and Pa panel test statistics for all cross-sectional units are evaluated; under the assumption of heterogeneity, the Gt and Ga group test statistics are evaluated (Yerdelen Tatoğlu, 2024: 210-212). Accordingly, when the Gt and Ga statistics are evaluated for the model in which the slope coefficients are determined to be heterogeneous ($Gt < 0.05$, $Ga < 0.05$), it is determined that there is a cointegration relationship between the happiness index and stock market returns.

The DCCE (Dynamic Common Correlated Effects) estimator, which corrects cross-sectional dependence using the CCE (Common Correlated Effects) logic, was used to estimate the coefficients after determining that cointegration exists between the variables. Chudik and Pesaran (2015) developed the DCCE estimator, arguing that the CCE estimator is unsuitable for dynamic panels due to its lack of robustness in the presence of lagged dependent variables and/or weak exogenous independent variables. The lags of both dependent and exogenous variables were determined using the rule of cross-sectional means and added to the model in the DCCE estimator. Thus, Chudik and Pesaran (2015) ensured that the DCCE estimator is more consistent than the CCE estimator (Altıntaş & Alancıoğlu, 2021: 273). The DCCE estimation results are presented in Table 5.

Table 5. DCCE Estimation Results

Dependent Variable: STR		
Short Term	Coefficient	p-value
LdSTR	0.6219786***	0.000
dHAPP.L1	0.181585***	0.008
dINF	-0.38629***	0.000
ECT(-1)	-0.9756295***	0.000
Constant	0.0029487	0.853
Long Term	Coefficient	p-value
HAPP.L1	-0.1050782***	0.007
INF	0.0436319	0.245
CDstatistic	-1.96	0.0503
R2	0.46	
RMSE	0.07	

Note: LdSTR represents the lagged value of the first difference of the STR variable, d represents the first difference of the variables, ECT(-1) represents the error correction term, constant represents the cross-sectional dependence, R2 represents the significance of the model, and RMSE represents the root mean square error. In the model, the mean group variables are LdSTR, dHAPP.L1, and dINF; the cross-sectional mean variables are HAPP.L1 and INF. The lag length was taken as 1 (although $T^{1/3}=2$, due to the small number of data points) (Yerdelen Tatoğlu, 2024: 319).

According to the DCCE estimation results in Table 5, the error correction coefficient ECT(-1) is negative and statistically significant. This finding supports the existence of a long-term relationship between the variables obtained through the cointegration test. Accordingly, almost all (97%) of the imbalances that occur in one period are corrected in the next period. One of the findings from the model is that stock market returns are positively affected by the returns of the previous period. When the short-term coefficients are examined, it is determined that a 1% increase in the happiness indices of the G5 countries in the previous year increased the stock returns of the following year by approximately 0.18%, which is statistically significant. When the long-term coefficients are examined, it was found that a 1% increase in the happiness indices of the G5 countries in the previous year decreased the stock returns of the following year by approximately 0.10%, which is statistically significant. In both the short and long term, a 1% increase in the inflation rate decreased stock returns by approximately 0.38% in the short term, which is statistically significant. The results also show that while it increases by 0.04% in the long term, this effect is statistically insignificant. The p-value of the CD statistic obtained in the estimation results is above 0.05, and the CD statistic value of the model is well below the cross-sectional dependence test statistic obtained from the raw data using the Breusch-Pagan test. Therefore, it can be stated that a large part of the cross-sectional dependence of the model is eliminated with DCCE estimation, and the results are reliable.

Results and Discussion

This paper aims to examine the short-term and long-term effects of happiness indices on stock market index returns in the context of G5 countries during the period 2008-2024. For this purpose, the Breusch-Pagan LM cross-sectional dependence test, Swamy S homogeneity test, CIPS unit root test, Westerlund panel cointegration test, and DCCE estimator were used in the analysis of the paper.

Empirical analysis findings have shown cointegration between the happiness index and stock market returns in G5 countries. This finding is consistent with studies in the literature (Rao et al. (2016); Hamurcu (2020); however, it does not coincide with the findings of Rasiah et al. (2016). In the short term, it was concluded that the happiness index in G5 countries positively affected stock market returns based on previous period data. This finding is also similar to those obtained in Hamurcu's (2020) studies. It can be stated that happy individuals have a more optimistic outlook on the future, and this optimism increases the demand for risky assets such as stocks. The positive effect in the short term suggests that the high level of social morale in G5 countries, where financial literacy is high, is directly reflected in market liquidity. An increase in the happiness index generally leads to increased consumer spending and, in the short term, indirectly to an upward trend in company profits and stock prices. In the long term, however, it was found that the happiness index in G5 countries negatively affected stock market returns based on previous period data. It should be noted that this finding is close to Tran's (2022) study and does not coincide with Hamurcu's (2020) study. The study's original findings, which suggest that happiness in these countries may suppress stock market returns in the long term, are thought to contribute to the literature. An increase in the happiness index of countries translates to higher wages, shorter working hours, stricter environmental standards, and higher taxes. It can be argued that these factors, which may lead to increased individual happiness, may narrow the long-term profit margins of companies. Furthermore, investors may contribute to the shift of capital from developed markets to emerging markets, which offer higher risk/return opportunities, by considering that growth margins decrease in saturated economies where welfare and happiness have peaked. Therefore, it appears that increased happiness initially creates an atmosphere of euphoria in the markets, inflating the stock market, but in the long term, economic realities such as rising costs and slowing growth erode this euphoria, bringing stock market returns to equilibrium. This situation can be interpreted as proving that the perception of social welfare in developed markets has a lasting effect on prices, but this effect is stabilized in the long term within the framework of inflationary pressures and market efficiency.

This paper reveals that stock market returns in G5 countries are structurally related not only to traditional macroeconomic variables but also to the level of happiness, a reflection of social psychology. The study develops several recommendations for policymakers, investors, and academics. Central banks and financial regulators should focus not only on rigid data such as GDP or inflation

but also on indicators of social welfare and happiness when assessing market stability. Precautionary measures should be developed against the risk of financial bubbles that may occur during periods of peak social optimism. Investors should consider that short-term rallies occurring during periods of high social happiness may result in a long-term correction. Sensational mood should be used as a leading indicator in portfolio management, but long-term strategies should be based on the structural effects of inflation and real growth data. This analysis is based on a homogeneous and developed group, such as the G5 countries. Future research applying a similar model to emerging markets by including different control variables will significantly contribute to the literature by understanding how the relationship between happiness and the stock market differs according to institutional quality and market depth.

Peer-Review: Externally peer-reviewed.

Conflict of Interest: The author has no conflict of interest to declare.

Grant Support: The author declared that this study has received no financial support.

Hakem Değerlendirmesi: Dış bağımsız.

Çıkar Çatışması: Yazar çıkar çatışması beyan etmemiştir.

Finansal Destek: Yazar finansal destek beyan etmemiştir.

References

Altıntaş, H., & Alancıoğlu, E. (2021). Dış borçlanma ve ekonomik büyüme: gelişmekte olan ülkeler üzerine yatay kesit bağımlılığı altında panel veri analizi. *Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 14(1), 261-279. <https://doi.org/10.25287/ohuiibf.765256>

Breusch, T. S. and A. R. Pagan (1980). The Lagrange multiplier test and its applications to model specification tests in econometrics. *Review of Economic Studies*, 47, 239-53.

Chudik, A., & Pesaran, M. H. (2015). Common correlated effects estimation of heterogeneous dynamic panel data models with weakly exogenous regressors. *Journal of Econometrics*, 188(2), 393-420. <https://doi.org/10.1016/j.jeconom.2015.03.007>

Frey, B. S., & Stutzer, A. (2010). *Happiness: A new approach in economics*. CESifo DICE Report, 8(4), 3-7.

Hamurcu, C. (2020). Mutluluk endeksi borsa endeksini tahmin edebilir mi? İskandinav ülkeleri üzerine bir araştırma. *Politik Ekonomik Kuram*, 4(2), 281-295. <https://doi.org/10.30586/pek.811509>

Helliwell, J. F., Layard, R., Sachs, J., De Neve, J. E., Aknin, L. B., & Wang, S. (2024). *World happiness report: Origins, purpose, contents, impact and future*. In *Encyclopedia of Happiness, Quality of Life and Subjective Wellbeing* (p. 296-303). Edward Elgar Publishing.

Kim, H. (2023). *Do we price happiness? Evidence from Korean stock market*. <https://arxiv.org/pdf/2308.10039> <https://doi.org/10.48550/arXiv.2308.10039>

Murgea, A., & Reisz, R. D. (2013). Does the market make us happy? The stock market and well-being. *Economia Politica*, 30(1), 69-86. DOI: 10.1428/73100

Nofsinger, J. R. (2005). Social mood and financial economics. *The Journal of Behavioral Finance*, 6(3), 144-160. https://doi.org/10.1207/s15427579jpfm0603_4

Pesaran, M. H. (2007). A simple panel unit root test in the presence of cross-section dependence. *Journal of Applied Econometrics*, 22(2), 265-312. <https://doi.org/10.1002/jae.951>

Rao, Y., Mei, L. & Zhu, R. (2016). Happiness and stock-market participation: Empirical evidence from China. *J Happiness Stud* 17, 271-293. <https://doi.org/10.1007/s10902-014-9594-4>

Rasiah, R., Habibullah, M. S., & Hamid, B. A. (2016). A dynamic heterogeneous panel estimation of the impact of income, inflation, and happiness on stock returns. *Global Economy and Finance Journal*, 9(1), 1-12.

Swamy, P. A. V. B. (1971). *Statistical inference in random coefficient regression models using panel data*. *Statistical Inference in Random Coefficient Regression Models* (pp. 97-155). Berlin, Heidelberg: Springer Berlin Heidelberg.

Tran, T. P., & Le, A. T. (2022). Which formula for corporate risk-taking around the world? Exploring happiness as the “Black box”. *Journal of Asian Business and Economic Studies*, 29(4), 242-262. <https://doi.org/10.1108/JABES-01-2021-0009>

Ulkhaq, M. M. (2020). Clustering countries according to the world happiness report. *Statistica & Applicazioni*, 18(2), 197-220.

Westerlund, J. (2007). Testing for error correction in panel data. *Oxford Bulletin of Economics and Statistics*, 69(6), 709-748. <https://doi.org/10.1111/j.1468-0084.2007.00477.x>

Yerdelen Tatoğlu, F. (2024) *Panel Zaman Serileri Analizi-Stata Uygulamalı*, 4. Baskı, Beta Basım Yayım Dağıtım, İstanbul.