Does the ECB's quantitative easing stimulate the Eurozone stock prices?

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Abstract

This study delves into the nuanced relationship between quantitative easing (QE) programs implemented by the European Central Bank (ECB) and asset prices in the Eurozone, focusing particularly on the short-term effects. Through the utilization of a linear regression model, supplemented by the introduction of a binary variable designed to isolate the immediate impact of ECB announcements, the analysis aims to disentangle the multifaceted influences of monetary policy communication and broader QE measures on stock price dynamics.

The findings of this investigation reveal notable insights into the effects of ECB QE initiatives on asset prices. While certain components of the ECB's QE programs, such as the asset-backed securities purchase program and the third covered bond purchase program, exhibit statistically significant effects on asset prices, others, including the corporate sector purchase program and the public sector purchase program, do not. Additionally, the statistical analysis does not provide sufficient evidence to conclusively support the hypothesis that ECB QE programs lead to increased asset prices in the Eurozone, particularly in the short term. Despite the empirical evidence presented, it is crucial to acknowledge the methodological limitations inherent in the study. Endogeneity, anticipation of market behavior, and qualitative market dynamics pose notable challenges to the interpretation of results. Nevertheless, this study contributes to a deeper understanding of the mechanisms through which monetary policy influences financial markets in the Eurozone.

The implications of these findings extend beyond academic discourse, carrying significance for policymakers, investors, and market participants. By offering insights into the effectiveness of QE measures as tools for promoting economic stability and growth, this study informs decision-making processes and shapes expectations regarding the impact of ECB policies on asset prices in the Eurozone.

In conclusion, while the analysis presented in this study represents a step forward in unraveling the complexities of the relationship between ECB QE programs and asset prices, further research is warranted to address the methodological limitations and refine our understanding of this crucial aspect of monetary policy transmission mechanisms.

Keywords: Quantitative easing, European Central Bank, Asset prices, Monetary policy, Eurozone

1. Introduction

The relationship between quantitative easing (QE) programs and asset prices has been the subject of considerable debate and scrutiny in the economic literature. Central banks, especially the European Central Bank (ECB), are increasingly turning to unconventional measures in order to stimulate economic activity and stabilize financial markets in the wake of significant economic shocks. However, the precise impact of these policies on asset prices, particularly in the Eurozone, remains a topic of ongoing investigation and discussion.

This study investigates the complex interaction between the ECB's QE programs and Eurozone stock prices, with a specific emphasis on short-term effects. By applying a linear regression model and introducing a binary variable to isolate the immediate impact of ECB announcements, we seek to disentangle the different impacts of monetary policy communication and broader QE measures on stock price dynamics.

The analysis seeks to provide insight into whether the ECB's sustainability initiatives lead to noticeable increases in asset prices in the euro area, particularly in the short term. Understanding the dynamics of this relationship is critical for policymakers, investors, and market participants, as it can inform decision-making processes and shape expectations regarding the effectiveness of monetary policy interventions.

By scrutinizing the empirical evidence and examining the statistical significance of the various components of the ECB's QE programs, this study aims to contribute to a deeper understanding of the mechanisms through which monetary policy affects financial markets. Finally, our findings have implications for the effectiveness of QE measures as tools to promote economic stability and stimulate growth in the euro area.

2. Literature review

Quantitative Easing (QE) is a policy whereby the central bank produces new monetary assets, which are used to purchase securities (of various types and maturities) from financial institutions. In the process, security prices rise while yields fall—in other words, the goal of QE is to keep interest rates low across the maturity spectrum. The initial goal is to stimulate the real sector of the economy because lower interest rates provide an incentive for households and firms to spend more than they otherwise would, spurring economic activity.

QE is used to reduce borrowing costs, bringing them down to a lower level than could be achieved using conventional interest rate policy, which targets a specific short-term rate (usually the federal funds rate, the EFFR in the US, or the interbank offered rate of the euro, Euribor in the EU).

There is debate about whether quantitative easing has worked and whether it has been worthwhile in terms of benefits versus unintended negative consequences. Supporters of QE claim that this policy keeps interest rates at a relatively low level, for households and firms, stimulates the creation of jobs, and specifically in the United States, they emphasize that it saved the American economy from a severe downturn. On the other hand, there are suggestions that QE is also inflationary, but so far inflation has only appeared in asset prices. It is plausible to assume that QE is deliberately designed to stimulate asset prices, which would directly affect the wealth in circulation, providing a strong stimulus to the economy.

The basic idea is that when stock prices (or asset prices in general) rise, people and businesses feel wealthier and, consequently, more inclined to spend, invest and take risk. Furthermore, as personal and corporate balance sheets become healthier in terms of asset-liability ratios, the underlying entities will be in a better position to borrow, invest and spend.

There is no consensus on whether the US stock market recovery of 2009 was driven by QE and that the end of QE in October 2014 led to the fall in stock prices seen in 2015, immediately after the end of QE. Since then, stock prices have risen sharply, bucking the downward pressure from rising interest rates. While the facts clearly show that stock prices rose significantly during the period in which the Fed engaged in QE (2008-2014), views differ on how much support QE provided to the stock market and whether this policy was the only stimulus provider policy.

Views on the effect of QE on share prices are mixed. For example, Dobbs et al. (2013) argue that little evidence is available to support the commonly held belief that QE has boosted stock prices and that the conventional assumption about the effects of QE on stocks is probably wrong. On the other hand, Newman (2012) points to an unmistakable correlation between its [the Fed's] QE programs and the stock market rally now in its fourth year. Hubble (2013) argues that when the Federal Reserve balance sheet expands (QE), the stock market rises" and that "since 2008, a pause in QE has led to a decline in stocks. He believes stock prices have rallied since the Fed started QE Infinity at a pace of $85 billion a month.

Lenzner (2014) suggests the presence of a one-to-one correspondence between the Fed's purchases of securities and stock prices. He refers to this incredible performance as one that would never have happened if the Fed hadn't poured $85 billion each month into Treasuries and mortgage-backed bonds that lowered interest rates and boosted bond prices as well as stock prices. For Lenzner, QE is working well, as he quotes Jim Bianco of Arbor Research as saying that QE has been remarkably effective at boosting stock prices. Lenzner (2013) attributes 100% of the stock market gains since 2009 to Ben Bernanke, implying that the only factor creating stock market gains is QE.

However, Ritholtz (2013) disagrees with Lenzner's (2013) analysis, arguing that multiple factors, not just QE, are responsible for the rise in stock prices. He cites various reasons why he is unwilling to attribute the post-crisis stock market rally solely to QE. The first reason is that the markets are extremely complex, with all sorts of psychological, valuation, trend and monetary inputs. Thus, he suggests that there is almost never a single factor that causes large market movements in any direction, and that if you are willing to say that the Fed is responsible for 100% of market gains, you are simultaneously implying that every other factor has a net zero impact, a proposition he disagrees with. Another argument against the proposition of a 100% effect of QE on stock prices is that of market performance after "secular bear markets", which in effect distinguishes between secular and cyclical movements in stock prices. He also mentions the variation in earnings and the possibility of the timing of the increase being random, which means the difference between correlation and causation. Indeed, alternative factors are often responsible for the rise in the market, such as the rise that characterized the market after the election of Donald Trump.

The question, which has more than one answer, concerns the channels of causality – that is, how the effect is transmitted from asset purchases to stock prices.

Quantitative Easing (QE) is a policy of buying assets (bonds), financed by central bank reserves, to stimulate aggregate demand (nominal spending). The literature distinguishes between different channels through which QE is supposed to affect the economy. In addition to the direct channel, which results from the increase in the money supply, there is also the portfolio rebalancing channel, caused by the rebalancing of portfolios by the private sector and a more favorable exchange rate. That is, asset purchases should lead to an increase in government bond prices, an implied increase in the value of portfolios, and lower external finance costs should lead to an increase in consumption and investment spending in the economy (Bridges and Thomas, 2012). Finally, Dunne, Everett, and Stuart (2015) also mention the signaling channel, which affects expectations.

QE is basically expansionary monetary policy, meaning that the relationship between QE and stock prices is the same as the relationship between the money supply and stock prices. However, the expansion of the Federal Reserve Bank's balance sheet as a result of QE was not accompanied by an equivalent or proportional increase in monetary aggregates as banks accumulated reserves rather than lending funds. This may be why Ross (2015) argues that QE affects the stock market, but it is difficult to know exactly how and to what extent. The fact that banks are not expanding credit, and thus the money supply, can be taken against the claim that QE is the "cause" or main cause of the stock market recovery if the cause runs from monetary expansion to stock prices.

The effect of the money supply on stock prices passes through several channels. These include the direct effect and the indirect effects that pass through interest rates, inflation, growth and corporate profits. The direct effect works through portfolio adjustment: agents respond to monetary expansion and the retention of excess cash by shifting to other assets, including stocks. Evidence of the effect of the money supply on stock prices can be traced back to Homa and Jaffe (1971) and Hamburger and Kochin (1972). The direct effect of the QE policy follows from the central bank buying bonds from banks without a repurchase agreement, that is, the bank does not have to buy back the bonds. Banks should then use their increased bank reserves to increase lending and thus stimulate the economy (McLeay et al., 2014).

Most of the bonds will not be bought directly by banks. In the domestic case the central bank buys assets from the pension funds and the banks will simply act as an intermediary (Gros et al., 2015). Although a transaction in this way leads to an increased money supply, the main impact of this transaction on the economy, if any, will be through an increase in bond and equity prices, ie. the portfolio rebalancing channel (Valiante, 2015). The empirical evidence regarding the impact of this channel on investment, consumption and GDP growth is rather mixed - for two opposing views see Gern et al. (2015) and Gagnon (2016).

Even if QE does not lead to a spectacular increase in monetary aggregates, it will lead to ultra-low interest rates, which usually boost stock prices. Ross (2015) sees low interest rates as low yields on traditionally safe investments such as financial assets, including money market accounts, certificates of deposit (CDs), Treasuries and highly rated bonds, encouraging investors to move towards buying shares.

An important aspect of buying the secondary bond market when it comes to the Eurozone is that many assets are held overseas. For example, Valiante (2015) points out that the majority of eligible assets are held by non-banks in France and Italy, as far as Eurozone countries are concerned. In addition, a large proportion of eligible assets are held outside the Eurozone. This can also be an important source of leakages that counteract the direct impact of the QE impulse as we elaborate below.

Dobbs et al. (2013) disagree with the proposition that as returns on fixed income securities decline, investors shift to equities and other higher-yielding assets, arguing that the portfolio rebalancing effect only works if investors view equity investments as a true replacement for fixed income investments. They suggest that there are reasons to believe that this is not the case. Instead, they argue that investors might change the composition of their bond portfolios in search of yield, but there is little evidence that they are willing to shift out of bonds and into stocks.

Furthermore, lower rates mean lower borrowing costs, which provide support for productivity and, consequently, stock prices. Low interest rates also allow companies to borrow money cheaply to spend on stock-boosting strategies, such as paying higher dividends or buying back their own stock. Dobbs et al. (2013) suggest that low interest rates improve corporate profitability (as a result of lower borrowing costs), with a positive effect on stock prices. Evidence of a negative relationship between interest rates and stock prices is provided by Uddin and Alam (2007) and by Geetha et al. (2011). The recent rise in US stock prices in the

presence of rising interest rates does not rule out the suggested negative relationship between stock prices and interest rates, but rather means that other factors must have pushed stock prices up, overriding the interest rate effect.

The effect of QE can also work through inflation and economic activity. The basic idea is that QE stimulates economic activity, but it is also inflationary. The problem is that the effect of inflation on stock prices is not as clear as the available empirical evidence indicates. For example, Lintner (1973), Fama and Schwert (1977) and Geetha et al. (2011) provide evidence of a negative effect, but Firth (1979) finds a positive effect while Gjerde and Saettem (1999) and Chen, Roll, and Ross (1986) find an insignificant effect. DeFina (1991) suggests that nominal contracts represent the key to the effect of inflation on economic activity and that the interaction of inflation with nominal contracts lowers stock prices. In terms of economic activity, it is plausible to suggest that a vibrant economy produces a vibrant stock market. Masuduzzaman (2012) and Chen, Roll, and Ross (1986) provide evidence of a positive association between industrial production and stock prices.

Ross (2015) suggests that QE distorts financial prices because it involves the manipulation of price signals, which are in the form of lower interest rates, higher demand for funds and lower purchasing power of money. Instead of stock prices acting as an accurate reflection of company valuation and investor demand, manipulated prices force market participants to adjust their strategies to chase rising stocks without their underlying companies actually becoming more valuable. This is another channel through which QE affects stock prices.

The literature identifies two types of QE bond-buying “leakage” that negatively affect a monetary shock or the stimulus of the economy: bank lending-distorting effects and non-resident bond-buying. Furthermore, we identify indirect effects resulting from low interest rates and exchange rates.

Bridges and Thomas (2012) identify two effects of QE that worsen bank lending in the UK. The first effect is that banks use the favorable conditions to recapitalize, ie. issue more capital (which for simplicity is assumed to be held by pension funds). In that case no money is created, despite the ECB's QE operation. According to Bridges and Thomas (2012) the repair of bank balance sheets implies a "leakage" of about 30 percent of UK QE.

When discussing the second effect Bridges and Thomas (2012) note for the UK that QE is unlikely to increase the supply of credit through the money multiplier. In their view, it is more likely that demand for credit has increased as a result of QE, for example from private non-financial institutions (ie firms) issuing bonds and equity to pay off bank debt. This process accelerated the transition in the UK from bank finance to capital markets. Bridges and Thomas (2012) find that accelerating the shift from bank finance to capital markets implies a “leakage” of another 8 percent.

The purchase of domestic bonds held by non-residents is briefly discussed by Bridges and Thomas (2012) as a potential “leakage” of QE. However, they do not find any significant leakage from overseas bond sales.

3. Data collection and research methodology

The data collection process for this research endeavor was carried out meticulously, drawing from reputable sources including the European Central Bank (ECB), the World Bank and Yahoo Finance. Each database was searched with precision to offer a comprehensive understanding of the complex relationship between European share prices and key economic indicators, in this case quantitative easing by the ECB.

The variables that were selected are the following, Euro Stoxx 50 Monthly Return, Quantitative Easing Measures, Eurozone GDP Growth Rate, Eurozone Inflation Rate, US GDP Growth Rate, ECB Announcements, Euribor, 1 Month Interest Rate.

For each of the above sub-items, data has been collected from 2015 to 2023 on a monthly basis, with the exception of the US and Eurozone GDP Growth Rate, which were on an annual basis but were proportionally converted to a monthly basis. Quantitative easing programs are normalized to the total assets of the ECB, in order to avoid potential problems when regressing values that vary drastically.

The next step is to check for multicollinearity, interpret variable coefficients appropriately, and assess overall model fit and validity using diagnostic tests and goodness-of-fit metrics.

Table 1. Correlation matrix

	QE_ABSPP	QE_CBPP3	QE_CSPP	QE_PSPP	EURIBOR_1M	HICP_EU	GDP_EMU	GDP_USA
QE_ABSPP*	1,0000	0,7817	0,0549	0,5978	- 0,2527	- 0,4246	0,0941	0,0547
QE_CBPP3*	0,7817	1,0000	- 0,0468	0,6920	- 0,2128	- 0,4397	0,1176	0,0781
QE_CSPP*	0,0549	- 0,0468	1,0000	0,4195	- 0,4812	- 0,2736	0,0073	- 0,1381
QE_PSPP*	0,5978	0,6920	0,4195	1,0000	- 0,3668	- 0,4852	0,1534	0,0300
EURIBOR_1M	- 0,2527	- 0,2128	- 0,4812	- 0,3668	1,0000	0,4389	- 0,1010	0,1226
HICP_EU	- 0,4246	- 0,4397	- 0,2736	- 0,4852	0,4389	1,0000	0,2561	0,2339
GDP_EMU	0,0941	0,1176	0,0073	0,1534	- 0,1010	0,2561	1,0000	0,9414
GDP_USA	0,0547	0,0781	- 0,1381	0,0300	0,1226	0,2339	0,9414	1,0000

*** - normalized by the ECB's total assets, QE_ABSPP - asset-backed securities purchase programme, QE_CBPP3 - third covered bond purchase programme, QE_CSPP - corporate sector purchase programme, QE_PSPP - public sector purchase programme, EURIBOR_1M - Euribor, 1-month interest rate, ES50_MY - Euro Stoxx 50 monthly return, HICP_EU - Eurozone inflation rate, GDP_EMU - Eurozone GDP growth rate, GDP_USA - US GDP growth rate**

According to the correlation matrix shown above, the quantitative easing programs have a mutual positive correlation, which indicates parallel implementation, which is described above in the text. On the other hand, the Euribor and the inflation rate have an inverse correlation, but they have a positive and relatively high correlation between them.

Table 2. Multicollinearity testing methods

	VIF	Eigenvalue	Толеранција
QE_ABSPP*	4,170982895	3,05365489	0,239751643
QE_CBPP3*	5,970722201	2,089480284	0,167483927
QE_CSPP*	3,404525786	1,343352586	0,293726664
QE_PSPP*	5,413698682	0,596494062	0,184716597
EURIBOR_1M	3,411994163	0,464220474	0,293083737
HICP_EU	2,477120388	0,296556822	0,40369455
GDP_EMU	17,26338383	0,140321829	0,057926071
GDP_USA	22,9467422	0,015919052	0,043579171

*** - normalized by the ECB's total assets, QE_ABSPP - asset-backed securities purchase programme, QE_CBPP3 - third covered bond purchase programme, QE_CSPP - corporate sector purchase programme, QE_PSPP - public sector purchase programme, EURIBOR_1M - Euribor, 1-month interest rate, ES50_MY - Euro Stoxx 50 monthly return, HICP_EU - Eurozone inflation rate, GDP_EMU - Eurozone GDP growth rate, GDP_USA - US GDP growth rate**

According to Table 2, multicollinearity tests show different values, which suggests that the selected variables are compatible for further research.

The condition number is **13.8501**, which is below 30, suggesting that multicollinearity is not present in the selected variables.

The following text explains the research model, the hypotheses and the obtained results.

For the purposes of this research, a linear regression model of the variables explained in the previous chapter was developed. Based on the above, the following hypothesis is set to be tested by this research.

> *H1 – Quantitative Easing programs implemented by the ECB lead to an increase in share prices in the Eurozone, especially in the short term.*

To test the hypothesis above, while isolating the immediate impact of key ECB announcements and disentangling this effect from the broader impact of quantitative easing (QE) measures on European stock prices, an additional variable, ECB_ANN, is added to the model.

By introducing this binary variable, we aim to capture the unique contribution of ECB announcements in driving short-term stock price fluctuations, distinct from the long-term effects of QE implementation. These announcements, which often signal changes in the stance of monetary policy or provide forward guidance, have the potential to trigger rapid market reactions, leading to immediate adjustments in investor behavior and asset prices.

By isolating the immediate effect of ECB announcements, we can better understand their role as market-moving events and their subsequent impact on stock price dynamics. At the same time, this approach allows us to see the underlying impact of QE measures on European stock prices over longer periods, allowing a more nuanced assessment of the persistent effects of monetary stimulus on financial markets. Thus, the inclusion of the significant variable "ECB Announcements" facilitates a comprehensive analysis, disentangling immediate market reactions to ECB communications from the broader impact of QE measures on European stock prices.

The regression model is as follows:

$$\text{ES50_MY} = \beta_0 + \beta_1 QE_ABSPP^* + \beta_2 QE_CBPP3^* + \beta_3 QE_CSPP^* + \beta_4 QE_PSPP^* + \beta_5 EURIBOR_1M$$

$$+ \beta_6 HICP_EU + \beta_7 GDP_EMU + \beta_8 GDP_USA + \beta_9 ECB_ANN + \epsilon$$

After conducting diagnostic tests and examining the residuals of the linear regression model, we observed clear evidence of heteroskedasticity in the residuals of the regression model. Specifically, the residuals showed a pattern of increasing variance with higher fitted values, indicating that the spread of the residuals varies systematically across the range of the independent variable. In addition, formal tests such as the Breusch-Pagan test confirmed the presence of heteroskedasticity ($p < 0.05$), further confirming our observations.

Table 3. Statistical tests

Durbin-Watson	2.20521
Shapiro-Wilk_stat	0.97506
Shapiro-Wilk_pval	0.0398417
Breusch-Pagan_stat	23.9929
Breusch-Pagan_pval	0.00431257

Given the violation of homoscedasticity, it is imperative to use a regression technique that can accommodate different error variances. Ordinary least squares (OLS) regression, which assumes constant error variance, can produce biased and inconsistent estimates under conditions of heteroscedasticity. Therefore, we opt for weighted least squares (WLS) regression as a more appropriate method to address this question.

The results are summarized in Table 9. The beta coefficients of the asset-backed securities purchase program and the third covered bond purchase program are statistically significant, but the beta coefficients of the corporate sector purchase program and the public sector purchase program are statistically insignificant. Furthermore, none of the beta coefficients of

the other variables are statistically significant. And the statistical tests presented suggest that the null hypothesis cannot be rejected with these results.

Table 4. Results of the weighted regression analysis

	coef	std err	t	P>|t|	[0.025	0.975]
β_0	0,0734	1.613	0,045	0,964	-3.127	3.274
QE_ABSPP*	-80,5401	33.092	-2.434	0,017	-146.211	-14.869
QE_CBPP3*	13,0326	7.120	1.830	0,070	-1.097	27.162
QE_CSPP*	3,2853	7.016	0,468	0,641	-10.638	17.208
QE_PSPP*	-0,7877	0,996	-0,791	0,431	-2.765	1.190
EURIBOR_1M	0,7405	0,673	1.101	0,274	-0,594	2.075
HICP_EU	-0,3074	0,227	-1.353	0,179	-0,758	0,143
GDP_EMU	8,2153	23.065	0,356	0,722	-37.556	53.986
GDP_USA	-2,6429	26.976	-0,098	0,922	-56.175	50.889
ECB_ANN	1,4520	0,982	1.479	0,142	-0,496	3.400
R^2	0,105		Adj. R^2		0,022	
Omnibus	1,798		Durbin-Watson		2,223	
Prob(Omnibus)	0,407		Jarque-Bera (JB)		1,832	
Skew	0,296		Prob(JB)		0,400	
Kurtosis	2,761		Cond. No.		392	

*** - normalized by the ECB's total assets, QE_ABSPP - asset-backed securities purchase programme, QE_CBPP3 - third covered bond purchase programme, QE_CSPP - corporate sector purchase programme, QE_PSPP - public sector purchase programme, EURIBOR_1M - Euribor, 1-month interest rate, ES50_MY - Euro Stoxx 50 monthly return, HICP_EU - Eurozone inflation rate, GDP_EMU - Eurozone GDP growth rate, GDP_USA - US GDP growth rate**

From the above data, it can be concluded that the model and data used in this research cannot confirm the hypotheses stated above. According to the data obtained, there is insufficient evidence to suggest that quantitative easing programs implemented by the ECB lead to an increase in the prices of shares in the Eurozone, especially in the short term.

Endogeneity can be cited as a limitation of this research. The simultaneous influence of various factors on both QE measures and stock prices makes it difficult to establish a clear causal relationship. Despite efforts to mitigate endogeneity through econometric techniques, fully disentangling the effects of QE from other factors remains complex. Anticipating market behavior presents another challenge. Stock prices may already reflect expectations regarding QE measures prior to their official implementation, potentially confounding the analysis by anticipating and incorporating future policy actions into current valuations.

In addition, behavioral factors and market sentiment can have independent effects on stock prices that are not fully captured by quantitative analysis. These qualitative aspects of market dynamics may introduce unmeasured confounding factors, complicating the interpretation of results. The presence of unobserved variables also poses a threat to the validity of the analysis. Factors not included in the model that affect both QE and stock prices may lead to biased estimates or omitted variable bias, which undermines the credibility of the findings. In addition, the lagged effects of QE on stock prices must be considered. The impact of QE measures on stock prices may not manifest immediately, requiring careful modeling to accurately capture delayed responses.

4. Conclusion

This research aimed to determine the impact of quantitative easing (QE) programs by the European Central Bank (ECB) on asset prices in the Eurozone, especially in the short term. Using a linear regression model and introducing a binary variable to capture the immediate effects of ECB announcements, the study attempted to distinguish between the different impacts of monetary policy communication and broader QE measures on stock price dynamics.

The results of this research reveal statistically significant beta coefficients for certain components of the ECB's QE initiatives, in particular the asset-backed securities purchase program and the third covered bond purchase program. However, the beta coefficients for other programs, such as the corporate sector purchase program and the public sector purchase program, are statistically insignificant. Furthermore, none of the beta coefficients for the other variables show statistical significance, leading to the inability to reject the null hypothesis based on these findings.

The resulting data do not provide conclusive evidence to support the hypothesis that the ECB's QE programs lead to an increase in asset prices in the Eurozone, especially in the short term. This finding, challenges conventional wisdom regarding the effectiveness of QE measures in influencing financial markets and highlights the complexities of the relationship between monetary policy and asset prices.

Despite the decisive results, limitations inherent in the research methodology must be acknowledged. Endogeneity, arising from the simultaneous influence of different factors on both QE measures and stock prices, poses a significant challenge in establishing a clear causal relationship. Additionally, predicting market behavior and incorporating qualitative market dynamics introduces additional complexities in data interpretation.

In conclusion, although the analysis does not definitively confirm the hypothesized relationship between the ECB's QE programs and asset prices in the Eurozone, it sheds light on the complexity of this relationship. Addressing methodological limitations and improving analytical approaches in future research efforts may yield a more comprehensive understanding of the effects of QE on financial markets.

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