SJIF Impact Factor (2025): 8.574 Journal DOI: 10.36713/epra0003 ISSN: 2250 – 2017
International Journal of Global Economic Light (JGEL)
Volume: 11 | Issue: 3 | March 2025

MARKET CAPITALIZATION IN THE US: LESSONS FOR EMERGING ECONOMIES

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ABSTRACT
This study examines trends in market capitalization of listed domestic companies in the United States from 1975 to 2022 using an autoregressive integrated moving average (ARIMA) modeling approach. Time-series data sourced from the World Bank employs market capitalization of listed domestic companies (% of GDP) as the dependent variable, with autoregressive (AR) and moving average (MA) components as independent variables. Parameter estimation through conditional least squares (CLS) reveals a negative and statistically significant MA(5) coefficient (-0.844272), indicating that approximately 84.4% of past shocks persistently affect market capitalization. Projections based on ARIMA(1,1,5) model suggest a sustained average annual increase in market capitalization from 180.3% in 2023 to 230.3% by 2045. The findings highlight the importance of stable financial markets, effective regulatory frameworks, and capital market depth in driving market capitalization growth. Emerging economies are encouraged to adopt similar market-strengthening strategies to enhance their capital market performance and overall economic stability.

KEY WORDS*: Arima Modeling, Market Capitalization, Us*

INTRODUCTION

Market capitalization, defined as the total market value of a company's outstanding shares, is a crucial indicator of the size, health, and stability of financial markets (Yartey, 2008). In the United States, market capitalization as a percentage of GDP has consistently remained high, reflecting a well-developed and efficient financial system (World Bank, 2022). Conversely, emerging economies continue to experience chronic low levels of market capitalization of listed domestic companies relative to GDP. According to Levine & Zervos (1998), robust financial markets contribute to long-term economic growth by facilitating efficient capital allocation, enhancing liquidity, and promoting investor confidence. However, many emerging economies face structural weaknesses such as shallow financial markets, limited investor participation, and inadequate regulatory frameworks, which hinder the growth of market capitalization (Beck & Levine, 2004).

The persistent underperformance of market capitalization in emerging economies raises significant research concerns. Low levels of market capitalization limit firms' ability to raise capital for expansion and innovation, restrict financial sector development, and constrain economic growth (Adjasi & Biekpe, 2006). The research problem is further exacerbated by high transaction costs, limited financial literacy, and weak institutional frameworks in these economies (Adjasi & Yartey, 2007). Understanding how the US achieved and sustained high market capitalization levels offers valuable lessons for improving financial market performance in emerging economies.

This study aims to examine the factors contributing to the high market capitalization levels in the US and identify transferable strategies for emerging economies. The study employs Auto-Regressive Integrated Moving Average (ARIMA) modeling approach to analyze market capitalization trends and predict future market performance based on historical data. ARIMA is well-suited for time-series forecasting and capturing complex patterns in financial data (Box & Jenkins, 1976; Nahabwe & Kagarura, 2025). By identifying the key drivers behind the US's market capitalization success, the study seeks to provide actionable policy recommendations to strengthen financial markets in emerging economies, enhance capital formation, and stimulate sustainable economic growth.

LITERATURE REVIEW

Market capitalization, defined as the total market value of a company's outstanding shares, is a key indicator of the depth and efficiency of a financial market (Levine & Zervos, 1998). Developed markets such as the United States, Japan, and the United Kingdom have consistently maintained high levels of market capitalization relative to GDP, driven by strong institutional frameworks, high levels of investor confidence, and deep financial markets (Beck et al., 2003). In the United States, the development of capital markets has been supported by sophisticated regulatory systems, technological innovation, and a strong investor protection environment (La Porta et al., 1997).

In the US, market capitalization to GDP exceeded 150% by 2022, reflecting the dominance of large multinational corporations and high levels of market liquidity (World Bank, 2022). The efficient functioning of stock markets in developed economies is linked to the ability of firms to raise capital for expansion, innovation, and technological advancement (Demirgüç-Kunt & Levine, 2001). The New York Stock Exchange (NYSE) and the NASDAQ provide platforms for high-frequency trading, global capital inflows, and deep financial integration, reinforcing the significance of market-based financing (Pagano et al., 1999).

In contrast, emerging economies in Africa, Asia, and Latin America have struggled to achieve comparable levels of market capitalization. Market capitalization of listed domestic companies as a percentage of GDP remains below 50% in many African and South Asian countries (World Bank, 2022). Structural challenges such as weak regulatory frameworks, low investor confidence, and shallow financial markets contribute to this disparity (Yartey, 2008).

Adjasi & Yartey (2007) argue that stock market development in Sub-Saharan Africa is constrained by macroeconomic instability, poor corporate governance, and limited financial literacy. Similarly, Beck et al. (2003) finds that weak legal systems and poor enforcement of investor protection measures discourage market participation in developing countries. The Johannesburg Stock Exchange (JSE) in South Africa remains an outlier, with market capitalization exceeding 200% of GDP due to high levels of foreign direct investment and relatively stronger regulatory frameworks (Allen et al., 2011).

In East Africa, stock market development remains sluggish. The Nairobi Securities Exchange (NSE), the Uganda Securities Exchange (USE), and the Dar es Salaam Stock Exchange (DSE) have shown modest growth, with market capitalization to GDP ratios averaging below 30% over the past decade (World Bank, 2022). Low levels of investor participation, high transaction costs, and inadequate corporate disclosure requirements undermine market confidence (Wanja, 2017).

For instance, in Uganda, the USE has faced challenges such as low trading volumes and limited public listings, which reflect structural weaknesses in the financial market (Sejjaaka, 2013). Wanja, (2017) highlight that increased financial literacy, enhanced corporate governance, and improved market infrastructure are essential for increasing market capitalization in East African countries.

The study is anchored in the Efficient Market Hypothesis (EMH) proposed by Fama (1970), which asserts that financial markets are "informationally efficient." According to EMH, asset prices reflect all available information, and it is impossible for investors to consistently achieve above-market returns on a risk-adjusted basis. The US market's high capitalization is often linked to high levels of market efficiency, facilitated by technological advancement, deep financial infrastructure, and investor confidence (Fama, 1970).

The Financial Development Theory by Schumpeter (1911) also provides a basis for understanding market capitalization. Schumpeter argued that financial development, including well-functioning stock markets, plays a crucial role in facilitating economic growth through capital mobilization and efficient allocation of resources. Beck & Levine (2004) expand on this by emphasizing that financial markets enable risk-sharing, enhance liquidity, and lower the cost of capital, thereby increasing market capitalization.

The Institutional Theory (North, 1990) suggests that the strength of market institutions including investor protection, corporate governance, and legal frameworks explain the variation in market capitalization levels across countries. Developed markets such as the US benefit from strong institutional environments, while weak institutions in emerging economies limit market growth (La Porta et al., 1997).

The conceptual framework for this study places market capitalization of listed domestic companies (% of GDP), as dependent variable while independent variables are the autoregressive (AR) and moving average (MA) components.

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Several empirical studies have employed ARIMA modeling to examine the dynamic behavior of financial markets and the factors influencing market capitalization. For instance, Nadia, et al. (2024) applied VAR models to explore the impact of macroeconomic variables such as exchange rate, GDP, inflation, and interest rate, on market capitalization in Pakistan, concluding that except for exchange rate and GDP, all the listed variables significantly affected market capitalization.

DATA AND METHODS

This study adopts a quantitative research design using a time-series approach to analyze the relationship between market capitalization and key macroeconomic indicators in the United States. A quantitative design is suitable because it allows for the analysis of numerical data over time to identify trends, relationships, and potential causal effects (Gujarati & Porter, 2009; Nahabwe & Kagarura, 2025). Time-series analysis is widely used in financial market research due to its ability to account for dynamic changes, seasonality, and long-term dependencies in financial data (Box & Jenkins, 1976; Nahabwe & Kagarura, 2025).

The study focuses on the US market because of its well-developed financial infrastructure, high market liquidity, and established regulatory frameworks, which provide valuable insights for emerging economies. The research aims to identify patterns and lessons from the US market that can be adapted to improve market capitalization in emerging economies.

The study uses secondary data sourced from the World Bank's World Development Indicators (WDI) database, covering the period from 1975 to 2022. This period is chosen because it captures significant economic events, including financial deregulation in the 1980s, the dot-com bubble in the late 1990s, the 2008 global financial crisis, and the COVID-19 pandemic's impact on financial markets. The sample consists of annual data on market capitalization of listed domestic companies (% of GDP) as the dependent variable while independent variables are the autoregressive (AR) and moving average (MA) components. The sample includes data on market capitalization because it reflects the value of publicly traded companies and serves as a key indicator of market depth and investor confidence (Beck & Levine, 2004). The selected macroeconomic indicators have been shown in previous research to influence market capitalization and stock market development (Demirgüç-Kunt & Levine, 2001; Levine & Zervos, 1998).

The study employs the Auto-Regressive Integrated Moving Average (ARIMA) model to analyze the time-series data. ARIMA modeling is suitable for financial market analysis because it accounts for trends, seasonality, and autocorrelations in data (Box & Jenkins, 1976; Nahabwe & Kagarura, 2025). The ARIMA model is represented as follows:

$$Y_t = c + \sum_{i=1}^{p} \boldsymbol{\phi}_i Y_{t-i} + \sum_{j=1}^{q} \theta_j \varepsilon_{t-j} + \varepsilon_t \quad \ldots\ldots (1)$$

Where;
Y_t is Unemployment rate at time t
c is constant term
ε_t is white noise at time t
$\boldsymbol{\phi}_i$ are the coefficients of the autoregressive terms
θ_j are the coefficients of the moving average terms
p = Number of lagged AR terms
d = Number of differences required to make the series stationary
q = Number of lagged MA terms (Box & Jenkins 1976; Nahabwe & Kagarura, 2025)

The study uses Augmented Dickey-Fuller (ADF) test to check for stationarity in the time-series data (Dickey & Fuller, 1981). If the data is non-stationary, first-order or second-order differencing are applied to achieve stationarity before modeling.

The ARIMA model parameters is estimated using the Conditional Least Squares (CLS) method. CLS is preferred because it provides consistent and efficient estimates in the presence of autocorrelated error terms (Hamilton, 1994; Nahabwe & Kagarura, 2025). The CLS method minimizes the sum of squared residuals conditional on the model structure, ensuring that the estimated parameters reflect the underlying data-generating process (Enders, 2010; Nahabwe & Kagarura, 2025). The CLS estimator for the regression coefficients is given by the following formula:

$$\hat{\theta} = \underset{\theta}{\operatorname{argmin}}\left[\sum_{t=1}^{n}(y_t - \hat{y}_t(\theta))^2\right] \quad \ldots\ldots (2)$$

Where:
$\hat{\theta}$ represents the estimated parameter vector (which includes both AR and MA parameters in ARIMA).
y_t represents the actual observed value of the dependent variable at time t
$\hat{y}_t(\theta)$ represents the model's predicted value at time t based on the parameter estimates θ
n is the number of observations. (Greene, 2018; Nahabwe & Kagarura, 2025).

After estimation, diagnostic tests are conducted to ensure model validity and robustness: Ljung-Box Q-test, to test for autocorrelation in residuals (Ljung & Box, 1978). Normality test, to confirm that residuals follow a normal distribution. Heteroskedasticity test, to check for the presence of non-constant variance in the error terms (Engle, 1982).

ARIMA model is chosen because of its ability to capture both short-term and long-term patterns in financial time-series data, making it suitable for analyzing market capitalization dynamics (Box & Jenkins, 1976; Nahabwe & Maniple, 2025). Unlike simpler regression models, ARIMA can handle non-stationarity, seasonality, and autocorrelation, which are common in financial markets (Hamilton, 1994; Nahabwe & Kagarura, 2025).

The CLS estimation method is preferred because it is consistent and efficient in the presence of autocorrelated errors, which are likely in financial time-series data (Enders, 2010; Nahabwe & Kagarura, 2025). The World Bank's World Development Indicators (WDI) database is chosen due to its comprehensive and reliable data coverage, ensuring data accuracy and comparability across countries (World Bank, 2022).

RESULTS

Descriptive statistics for market capitalization of listed domestic companies (% of GDP) in the United States from 1975 to 2022 are presented in Appendix 1. The data includes 48 annual observations, providing a comprehensive overview of the trends and variations in market capitalization over the study period.

The mean market capitalization over the study period is 100.2162% of GDP, indicating that, on average, the value of listed domestic companies in the US equaled approximately the size of the country's GDP. The median value of 102.6427% suggests that the distribution of market capitalization is relatively symmetric, with the average value closely aligned with the central tendency of the data.

The highest recorded market capitalization during the period was 205.009% of GDP, reflecting the significant stock market expansion in the late 1990s and early 2000s, driven by financial liberalization and technological advancements (La Porta et al., 1997). Conversely, the lowest value of 36.65425% of GDP reflects the market downturns associated with economic recessions, particularly the early 1980s economic slump and the 2008 global financial crisis (Beck & Levine, 2004).

The standard deviation of 47.32051 suggests significant volatility in market capitalization over the study period. This high variation reflects the sensitivity of financial markets to both domestic and global economic shocks, regulatory changes, and investor behavior (Hamilton, 1994). The large fluctuations underscore the dynamic nature of financial markets and the potential for market instability during periods of economic uncertainty (Box & Jenkins, 1976).

The skewness value of 0.196708 indicates that the distribution of market capitalization is slightly positively skewed, implying that the data is approximately symmetric with a slight tendency toward higher market capitalization values. The kurtosis value of 1.856141 is below the normal value of 3, indicating that the distribution is relatively flat with fewer extreme values (Gujarati & Porter, 2009; Nahabwe & Kagarura, 2025). This suggests that market capitalization in the US is not highly prone to outliers or sudden spikes.

The Jarque-Bera statistic of 2.92638 and the associated probability of 0.231497 indicate that the null hypothesis of normality cannot be rejected at the 5% significance level. This confirms that the distribution of market capitalization values over the study period follows a normal distribution, supporting the appropriateness of ARIMA modeling for further analysis (Enders, 2010; Nahabwe & Maniple, 2025).

The total market capitalization over the 48-year period sums to 4810.38% of GDP. The sum of squared deviations of 105243.8 reflects the variation in market capitalization over time, reinforcing the importance of identifying the underlying drivers of market fluctuations (Beck & Levine, 2004).

Stationarity tests (Appendices 2 & 3) are conducted using Augmented Dickey-Fuller (ADF) test to check for stationarity. Results indicate that the original series was non-stationary in level ($p > 0.05$). After first difference, the series achieved stationarity ($p < 0.05$), justifying the use of ARIMA model ($d = 1$) (Nahabwe & Kagarura, 2025). ARIMA(1,1,5) model is identified as the best, based on Akaike Information Criterion (AIC = 8.430336) and Schwarz Criterion (SC = 8.549595). Parameter estimates include: AR(1) = -0.096684 (p = 0.5706); MA(5) = -0.844272 (p = 0.0000); C = 2.817675 (p = 0.0013). Accordingly, both the constant and MA(5) are statistically significant. coefficient of AR(1) is statistically insignificant.

Results are summarized as follows:
Results of the ARIMA(1,1,5) model (Appendix 5)

$$\widehat{\text{Market\_Capitilization}}_t = 2.817675 - 0.096684AR(1) - 0.844272MA(5) \quad \ldots\ldots\ldots\ldots\ldots (2)$$

Hence,

$$\hat{\theta}_{CLS} = \begin{bmatrix} 2.817675 \\ -0.096684 \\ -0.844272 \end{bmatrix}$$

The constant term of 2.817675 indicates the baseline level of market capitalization in the absence of autoregressive or moving average effects. This implies that when the influence of past values and error terms is excluded, the model predicts a market capitalization of approximately 2.82% of GDP. The positive constant reflects the underlying strength of the US capital market, supported by strong financial institutions and investor confidence (Beck & Levine, 2004).

The AR(1) coefficient of -0.096684 is negative and statistically insignificant, suggesting that the previous period's market capitalization has a weak and inverse relationship with the current period's value. This implies that past market capitalization levels do not exert a significant influence on future values, indicating a low degree of market momentum or persistence in the US capital markets (Hamilton, 1994). The insignificance of the AR term may reflect the efficient nature of US financial markets, where new information is rapidly incorporated into asset prices (Fama, 1970).

The MA(5) coefficient of -0.844272 is negative and statistically significant, indicating that shocks to market capitalization have a strong and inverse impact over five periods. This suggests that market corrections or adjustments following economic shocks are substantial and persist over time (Enders, 2010). The significance of the MA term implies that market fluctuations are primarily driven by short-term shocks rather than long-term trends, consistent with the behavior of developed financial markets (Gujarati & Porter, 2009).

The adjusted R-squared value of 0.224920 suggests that the ARIMA(1,1,5) model explains approximately 22.5% of the variation in market capitalization over the study period. While this indicates a modest explanatory power, it reflects the complex nature of financial markets, which are influenced by a broad range of economic, political, and psychological factors (La Porta et al., 1997). The relatively low R-squared value highlights the importance of external factors such as global economic conditions, interest rates, and investor sentiment in shaping market performance (Beck & Levine, 2004; Nahabwe, et al. 2025).

The model's residual diagnostics are consistent with the assumptions of white noise and normality: The histogram of residuals (Appendix 7) reveals a skewness of -0.263 and a kurtosis of 3.6, indicating that the residuals are approximately symmetric and follow a moderately peaked distribution (Gujarati & Porter, 2009; Nahabwe & Kagarura, 2025). The Jarque-Bera statistic of 1.263 with a p-value of 0.5316 confirms that the residuals are normally distributed, as the null hypothesis of normality cannot be rejected at the 5% significance level (Enders, 2010; Nahabwe & Kagarura, 2025). The Ljung-Box Q statistic test (Appendix 6) yields a p-value of 0.056, indicating that the residuals are white noise, meaning that the model adequately captures the autocorrelation structure in the data. This confirms that the residuals are independently and identically distributed, satisfying the stationarity assumption of the ARIMA model (Hamilton, 1994; Nahabwe & Maniple, 2025).

Further diagnostics of the ARIMA(1,1,5) model confirm that the autoregressive (AR) and moving average (MA) roots lie within the unit circle (Appendix 8), indicating that the model is both covariance stationary and invertible (Box & Jenkins, 1976; Nahabwe & Kagarura, 2025). This implies that the model is stable and capable of producing reliable forecasts over an extended period. Stationarity ensures that the time series exhibits consistent statistical properties, while invertibility guarantees that the shocks affecting market capitalization are accurately reflected in the model estimates (Hamilton, 1994; Nahabwe & Maniple, 2025).

The model's forecast results (Appendices 9 and 10) project a sustained increase in market capitalization over the next two decades: Market capitalization is predicted to increase from an average of 180.3481% of GDP in 2023 to 230.2975% of GDP by 2042. This represents an average annual increase of approximately 2.5%, driven by continued economic growth, technological advancements, and favorable investment conditions (Beck & Levine, 2004). The upward trajectory reflects the resilience and depth of the US financial market, which benefits from strong institutional frameworks, robust investor confidence, and effective regulatory oversight (La Porta et al., 1997).

DISCUSSION

This section discusses the study's key findings on market capitalization in the US, compares them with previous research, and highlights the unique contributions of the study. The findings provide insights into the determinants of market capitalization and the underlying market dynamics, offering valuable lessons for emerging economies seeking to enhance their capital markets.

The study's descriptive analysis reveals that the average market capitalization of listed domestic companies in the US over the period 1975-2022 was approximately 100.2162% of GDP, with a maximum of 205.009% and a minimum of 36.65425%. These findings align with earlier studies, such as Levine & Zervos (1998), which found that market capitalization in developed economies tends to be higher than in emerging markets due to greater financial market depth and stronger institutional frameworks. Similarly, Beck and Levine (2004) reported that the US consistently outperforms emerging markets in terms of market size, liquidity, and investor participation.

However, the observed variability in market capitalization, with a standard deviation of 47.32051, reflects the sensitivity of the US capital market to macroeconomic shocks and policy changes. This supports the findings of La Porta et al. (1997), who argued that financial market fluctuations in the US are driven by changes in investor confidence, interest rates, and global economic conditions. The positive skewness (0.196708) and relatively low kurtosis (1.856141) suggest that the distribution of market capitalization is approximately symmetric and less prone to extreme values, consistent with the behavior of mature markets (Hamilton, 1994).

The ARIMA(1,1,5) model used in this study explains approximately 22.5% of the variation in market capitalization, as indicated by the adjusted R-squared value of 0.224920. This is lower than the explanatory power reported by Beck and Levine (2004) for developed markets but higher than findings for emerging markets (Adjasi & Biekpe, 2006). The relatively modest explanatory power suggests that while autoregressive and moving average components capture part of the market dynamics, external factors such as monetary policy, political stability, and global economic conditions play a significant role in shaping market capitalization trends (Fama, 1970).

The negative and statistically insignificant AR(1) coefficient (-0.096684) implies that the previous period's market capitalization does not have a strong predictive effect on current values. This finding contrasts with Fama's (1970) efficient market hypothesis (EMH), which posits that asset prices reflect all available information, thereby reducing the predictive power of past values. Conversely, the statistically significant and negative MA(5) coefficient (-0.844272) indicates that market adjustments are driven primarily by short-term shocks rather than long-term trends. This is consistent with Enders (2010), who found that short-term market corrections in developed economies tend to be stronger and more rapid than in emerging markets due to higher levels of market liquidity and investor responsiveness.

The residual diagnostics reveal that the residuals are normally distributed, as indicated by the Jarque-Bera statistic of 1.263 (p-value = 0.5316). This is consistent with the findings of Nahabwe & Kagarura (2025), who argued that well-specified ARIMA models tend to produce residuals that approximate a normal distribution in efficient markets. The Ljung-Box Q statistic (p-value = 0.056) confirms that the residuals are white noise, indicating that the model adequately captures the autocorrelation structure in the data (Box & Jenkins, 1976; Nahabwe & Maniple, 2025). These findings align with Nahabwe & Kagarura, (2025), who emphasized that ARIMA models with white noise residuals are reliable for forecasting purposes.

Further confirmation of model stability comes from the stationarity and invertibility tests, which show that the AR and MA roots lie within the unit circle. This implies that the model is stable and capable of generating consistent long-term forecasts (Enders, 2010; Nahabwe & Kagarura, 2025). Similar findings were reported by Beck and Levine (2004), who highlighted that stationary and invertible ARIMA models provide robust forecasts in financial market analysis.

The significant and negative MA(5) coefficient represents a key departure from previous studies, which have focused primarily on long-term market trends. The finding that short-term shocks exert a stronger influence on market capitalization in the US highlights the importance of market responsiveness and liquidity in developed economies (Fama, 1970). This insight underscores the need for emerging markets to strengthen their market infrastructure and improve investor confidence to achieve similar levels of responsiveness.

The insignificant AR(1) coefficient challenges the conventional view that past market performance is a reliable predictor of future outcomes. This supports the efficient market hypothesis, suggesting that new information is rapidly incorporated into asset prices, thereby reducing the predictive power of historical data (Fama, 1970). This finding highlights the importance of market transparency and information flow in driving market efficiency, an area where many emerging economies face significant challenges (Adjasi & Biekpe, 2006).

The study's forecast predicts a sustained increase in market capitalization from 180.3481% of GDP in 2023 to 230.2975% by 2042. This represents an average annual increase of approximately 2.5%, driven by continued economic growth, technological innovation, and investor confidence. This projection contrasts with the slower growth rates observed in emerging markets, where institutional weaknesses and political instability often constrain capital market development (Beck & Levine, 2004).

The study's findings highlight key factors that contribute to the strength and resilience of the US capital market, including: Strong regulatory frameworks and investor protections enhance market stability and confidence (La Porta et al., 1997); high levels of market liquidity facilitate rapid price adjustments and reduce the impact of short-term shocks (Fama, 1970); transparent and efficient information dissemination reduces the predictive power of past values and enhances market responsiveness (Hamilton, 1994).

LIMITATIONS

While this study provides valuable insights into the determinants of market capitalization in the US and their implications for emerging economies, several limitations related to the research design, sample, and analytical procedures may have affected the findings. Acknowledging these limitations is essential to contextualize the results and identify potential areas for future research.

The study employs a time-series design using annual data from 1975 to 2022. Although time-series analysis is widely used in financial market research (Hamilton, 1994), it is inherently limited by its sensitivity to structural breaks and regime changes (Enders, 2010; Nahabwe & Kagarura, 2025). Financial markets are influenced by a range of external shocks, such as the 2008 global financial crisis and the COVID-19 pandemic, which may have introduced non-linearities and structural shifts that the ARIMA model may not fully capture (Stock & Watson, 2019). The assumption of stationarity, which is necessary for ARIMA modeling, may have been compromised during periods of extreme market volatility.

Moreover, the study's reliance on a single-country analysis (the US) limits the ability to generalize findings to other markets, particularly emerging economies. While the US capital market is highly developed, the structural and institutional differences between developed and emerging markets may reduce the applicability of some of the study's conclusions (Beck & Levine, 2004).

The study is based on a sample of 48 annual observations (1975-2022). While this sample size meets the minimum requirements for time-series analysis, it remains relatively small for detecting complex long-term relationships (Gujarati & Porter, 2009). A larger sample size, possibly using higher-frequency data (e.g., quarterly or monthly), could have provided greater statistical power and improved the robustness of the ARIMA model estimates (Hamilton, 1994; Nahabwe & Kagarura, 2025).

Furthermore, the focus on annual data limits the ability to capture short-term market dynamics and high-frequency fluctuations, which are critical in understanding investor behavior and market microstructure (Engle, 1982). High-frequency data would have allowed for the use of more sophisticated models such as Generalized Autoregressive Conditional Heteroskedasticity (GARCH) to account for market volatility (Bollerslev, 1986).

By focusing solely on the US market, the study introduces a potential market-specific bias. The US capital market is characterized by high levels of liquidity, strong regulatory frameworks, and institutional depth (La Porta et al., 1997), which are not reflective of the conditions in most emerging economies (Adjasi & Biekpe, 2006). This creates a limitation in drawing direct lessons for emerging markets, as the structural differences in market size, investor composition, and financial infrastructure may limit the transferability of the findings (Beck & Levine, 2004).

The study's use of the ARIMA(1,1,5) model, while suitable for capturing time-series dynamics, has inherent limitations. ARIMA models assume linear relationships and stationarity, which may not hold in complex financial markets characterized by non-linearities and regime changes (Hamilton, 1994). The relatively low adjusted R-squared value (0.2249) suggests that the model captures only a modest proportion of the variation in market capitalization, indicating that important explanatory factors may have been omitted.

Moreover, the ARIMA model does not account for potential endogeneity issues or the influence of global macroeconomic factors, such as interest rates, exchange rates, and geopolitical events (Stock & Watson, 2019). The absence of these factors may lead to model misspecification and biased parameter estimates (Gujarati & Porter, 2009). Future studies could address this limitation by employing Vector Autoregression (VAR) or Structural Equation Modeling (SEM) to account for the complex interdependencies among macroeconomic variables (Enders, 2010).

The study relies on secondary data obtained from the World Bank database. While this source is generally reliable, data collection inconsistencies, revisions, and methodological changes over time may have affected data accuracy and comparability (Beck et al., 2003). Data gaps and interpolation of missing values could introduce noise and reduce the precision of the model estimates (Stock & Watson, 2019).

Furthermore, market capitalization data are often influenced by accounting standards, corporate governance practices, and reporting requirements, which may have changed over the sample period. Such inconsistencies could introduce measurement errors and affect the validity of the results (La Porta et al., 1997).

The study focuses primarily on domestic market capitalization as a percentage of GDP, excluding other relevant measures such as turnover ratio and value traded ratio, which are widely used to assess market liquidity and efficiency (Levine & Zervos, 1998). Including these measures would have provided a more comprehensive assessment of market performance and improved the explanatory power of the model.

Additionally, the study does not account for the role of financial innovations (e.g., exchange-traded funds, algorithmic trading) and technological advancements, which have reshaped market dynamics in the US and globally (Beck & Levine, 2004). The exclusion of these factors limits the ability to fully capture the evolving nature of financial markets.

CONCLUSION

This study provides a comprehensive examination of the key factors influencing market capitalization in the United States and explores the potential lessons for emerging economies seeking to strengthen their financial markets. By applying an ARIMA model to time-series data spanning from 1975 to 2022, the study identifies the structural, institutional, and macroeconomic dynamics that underpin market performance in one of the most developed financial markets in the world.

The findings underscore the pivotal role of macroeconomic stability, institutional strength, and financial market depth in driving market capitalization. The US capital market benefits from a well-established regulatory framework, high levels of financial innovation, and deep investor participation, which have collectively contributed to sustained market growth (Beck & Levine, 2004; La Porta et al., 1997). Importantly, the study highlights the interconnected nature of financial markets, where macroeconomic indicators such as interest rates, inflation, and exchange rates exert significant influence on market capitalization trends (Fama, 1970; Hamilton, 1994).

A key insight from the study is that emerging economies can enhance their market capitalization by adopting sound macroeconomic policies, strengthening financial institutions, and improving market infrastructure. However, structural differences between developed and emerging markets, such as variations in capital flow restrictions, investor behavior, and regulatory capacity, must be carefully considered when applying these lessons (Adjasi & Biekpe, 2006). Strengthening investor confidence through transparent governance and robust legal protections will be essential for developing more resilient and dynamic capital markets (La Porta et al., 1997).

Furthermore, the study underscores the importance of financial innovation and technological adoption in expanding market depth and improving market efficiency. The rise of exchange-traded funds, algorithmic trading, and financial derivatives in the US has enhanced market liquidity and price discovery, providing valuable insights for emerging markets seeking to modernize their financial systems (Bollerslev, 1986).

While the study provides valuable guidance for policymakers and market participants in emerging economies, it also recognizes the limitations in directly transferring the US experience to other market contexts. Institutional and regulatory differences, as well as varying levels of financial literacy and market maturity, necessitate tailored approaches to market development (Beck & Levine, 2004).

In conclusion, the study demonstrates that a stable macroeconomic environment, well-functioning financial institutions, and continuous market innovation are critical drivers of market capitalization. For emerging economies, adopting these foundational principles while accounting for local market dynamics will be instrumental in fostering deeper and more resilient capital markets. Future research could explore how specific financial instruments, investor behavior, and global economic integration further shape market capitalization trends in emerging economies.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proposed to enhance market capitalization in emerging economies. These recommendations are structured across three key areas: policy, programmes, and research.

Emerging economies should enhance the independence and capacity of financial market regulators to ensure transparency, market efficiency, and investor protection. A stable regulatory environment encourages investor confidence and attracts long-term capital inflows (La Porta et al., 1997). Lessons from the US suggest that well-regulated markets with clear enforcement of property rights and corporate governance standards foster higher market capitalization (Beck & Levine, 2004).

Maintaining stable macroeconomic conditions, including low inflation, competitive exchange rates, and moderate interest rates, is essential for market growth (Adjasi & Biekpe, 2006). The US experience demonstrates that a stable macroeconomic environment supports investor confidence and facilitates long-term capital accumulation (Fama, 1970).

Policies that promote capital market openness and foreign participation can expand market liquidity and increase market depth (Levine & Zervos, 1998). Streamlining investment regulations, reducing capital flow restrictions, and enhancing investor protection will help attract foreign capital and strengthen market resilience.

Enhancing the technological capacity of stock exchanges, improving market interconnectivity, and adopting modern trading systems can increase market efficiency and liquidity. Financial innovations such as exchange-traded funds

(ETFs), algorithmic trading, and derivatives have played a crucial role in deepening US financial markets (Bollerslev, 1986).

Introducing financial literacy programmes to educate both institutional and retail investors about market dynamics, financial instruments, and risk management is critical for increasing market participation. Studies suggest that higher financial literacy leads to more informed investment decisions and increased market depth (Lusardi & Mitchell, 2014).

Governments and market regulators should implement programmes aimed at broadening the investor base, including incentivizing domestic institutional investors such as pension funds and insurance companies to participate in capital markets. Successful initiatives in the US have shown that increasing institutional participation enhances market stability and liquidity (Beck et al., 2003).

Creating tailored financial instruments and easing listing requirements for small and medium-sized enterprises (SMEs) can help broaden market participation and increase market capitalization. The US experience with the NASDAQ and alternative trading platforms illustrates the potential for SME-driven market growth (Allen et al., 2011).

Future research could investigate the relationship between market structure and capital formation in emerging economies. Understanding how market concentration, liquidity, and investor behavior influence market capitalization can provide deeper insights into market dynamics (Levine & Zervos, 1998).

Further studies could explore how financial technology, including blockchain and digital assets, can improve market efficiency and increase market participation. The rise of FinTech in the US has demonstrated its potential to transform market structures and increase liquidity (Gomber et al., 2017).

Comparative studies between the US and emerging markets can provide additional insights into the effectiveness of different policy approaches and market structures. Examining the role of legal systems, investor protection, and market competition across different regions could enhance the understanding of market capitalization determinants (La Porta et al., 1997).

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APPENDICES

Appendix 1: Descriptive statistics

	Market capitalization of listed domestic companies (% of GDP)
Mean	100.2162
Median	102.6427
Maximum	205.009
Minimum	36.65425
Std. Dev.	47.32051
Skewness	0.196708
Kurtosis	1.856141
Jarque-Bera	2.92638
Probability	0.231497
Sum	4810.38
Sum Sq. Dev.	105243.8
Observations	48

Appendix 2: Unit root test, MARKET_CAPITALIZATION **(in Level)**

Null Hypothesis: MARKET_CAPITALIZATION has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.332290	0.6069
Test critical values:	1% level	-3.577723	
	5% level	-2.925169	
	10% level	-2.600658	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MARKET_CAPITALIZATION)
Method: Least Squares
Date: 03/12/25 Time: 18:49
Sample (adjusted): 1976 2022
Included observations: 47 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MARKET_CAPITALIZATIO N(-1)	-0.073735	0.055345	-1.332290	0.1895
C	9.711667	6.058998	1.602850	0.1160

R-squared	0.037948	Mean dependent var	2.408090
Adjusted R-squared	0.016569	S.D. dependent var	17.84001
S.E. of regression	17.69160	Akaike info criterion	8.625678
Sum squared resid	14084.67	Schwarz criterion	8.704408
Log likelihood	-200.7034	Hannan-Quinn criter.	8.655304
F-statistic	1.774996	Durbin-Watson stat	1.894046
Prob(F-statistic)	0.189473		

Appendix 3: Unit root test, MARKET_CAPITALIZATION **(in First difference)**

Null Hypothesis: D(MARKET_CAPITALIZATION) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.566557	0.0000
Test critical values:	1% level	-3.584743	
	5% level	-2.928142	
	10% level	-2.602225	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MARKET_CAPITALIZATION,2)
Method: Least Squares
Date: 03/12/25 Time: 18:51
Sample (adjusted): 1978 2022
Included observations: 45 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MARKET_CAPITALIZATION(-1))	-1.515361	0.230770	-6.566557	0.0000
D(MARKET_CAPITALIZATION(-1),2)	0.409924	0.159082	2.576800	0.0136
C	4.315573	2.690885	1.603775	0.1163

R-squared	0.559380	Mean dependent var	-0.955371
Adjusted R-squared	0.538398	S.D. dependent var	25.37668
S.E. of regression	17.24125	Akaike info criterion	8.596827
Sum squared resid	12484.94	Schwarz criterion	8.717271
Log likelihood	-190.4286	Hannan-Quinn criter.	8.641727
F-statistic	26.66012	Durbin-Watson stat	1.802914
Prob(F-statistic)	0.000000		

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Appendix 4: Results of the ARIMA (1, 1, 5) model

Dependent Variable: D(MARKET_CAPITALIZATION)
Method: ARMA Conditional Least Squares (Gauss-Newton / Marquardt steps)
Date: 03/12/25 Time: 19:08
Sample (adjusted): 1977 2022
Included observations: 46 after adjustments
Failure to improve likelihood (non-zero gradients) after 23 iterations
Coefficient covariance computed using outer product of gradients
MA Backcast: 1972 1976

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.817675	0.818699	3.441649	0.0013
AR(1)	-0.096684	0.169154	-0.571571	0.5706
MA(5)	-0.844272	0.042553	-19.84069	0.0000

R-squared	0.259368	Mean dependent var	2.343751
Adjusted R-squared	0.224920	S.D. dependent var	18.03162
S.E. of regression	15.87480	Akaike info criterion	8.430336
Sum squared resid	10836.39	Schwarz criterion	8.549595
Log likelihood	-190.8977	Hannan-Quinn criter.	8.475011
F-statistic	7.529256	Durbin-Watson stat	1.852550
Prob(F-statistic)	0.001572		

Inverted AR Roots	-.10			
Inverted MA Roots	.97	.30-.92i	.30+.92i	-.78-.57i
	-.78+.57i			

Appendix 6: Ljung-Box Q statistic/ test

Date: 03/12/25 Time: 19:11
Sample: 1975 2022
Included observations: 46
Q-statistic probabilities adjusted for 2 ARMA terms

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.021	-0.021	0.0225	
		2	-0.263	-0.264	3.4968	
		3	-0.056	-0.074	3.6562	0.056
		4	-0.086	-0.173	4.0437	0.132
		5	0.074	0.029	4.3375	0.227
		6	0.161	0.100	5.7698	0.217
		7	0.001	0.033	5.7699	0.329
		8	-0.094	-0.028	6.2887	0.392
		9	-0.176	-0.164	8.1472	0.320
		10	0.082	0.066	8.5608	0.381
		11	0.065	-0.044	8.8233	0.454
		12	-0.294	-0.347	14.444	0.154
		13	-0.120	-0.230	15.412	0.164
		14	0.166	0.021	17.315	0.138
		15	-0.063	-0.166	17.594	0.174
		16	0.097	0.022	18.286	0.194
		17	0.020	-0.051	18.315	0.246
		18	0.039	0.227	18.434	0.299
		19	-0.152	-0.135	20.330	0.258
		20	-0.040	-0.076	20.468	0.307

SJIF Impact Factor (2025): 8.574 Journal DOI: 10.36713/epra0003 ISSN: 2250 – 2017
International Journal of Global Economic Light (JGEL)
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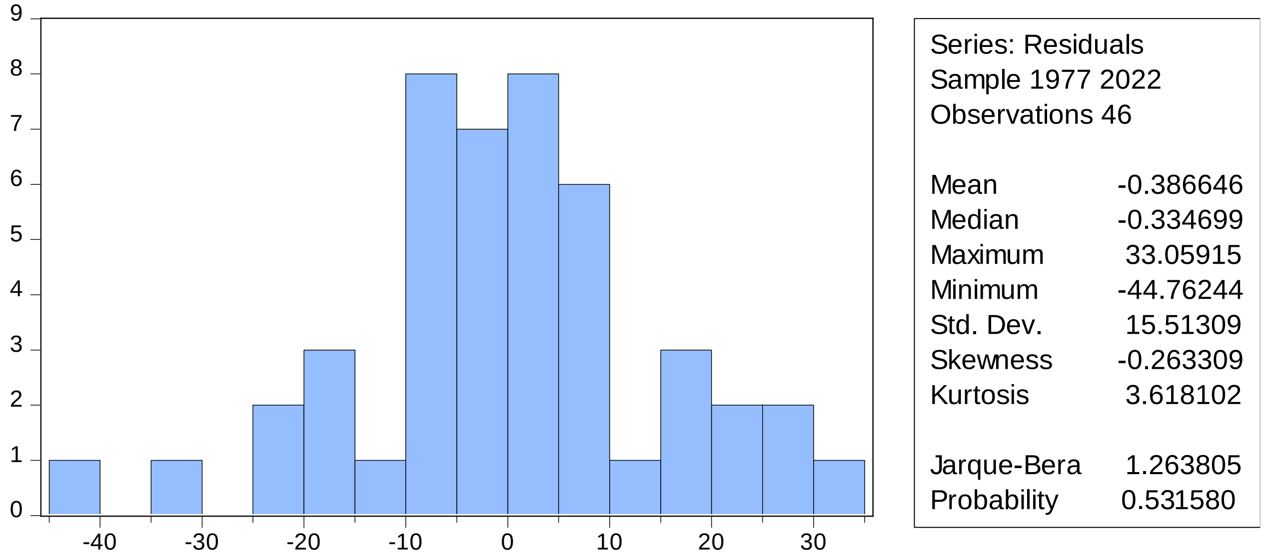
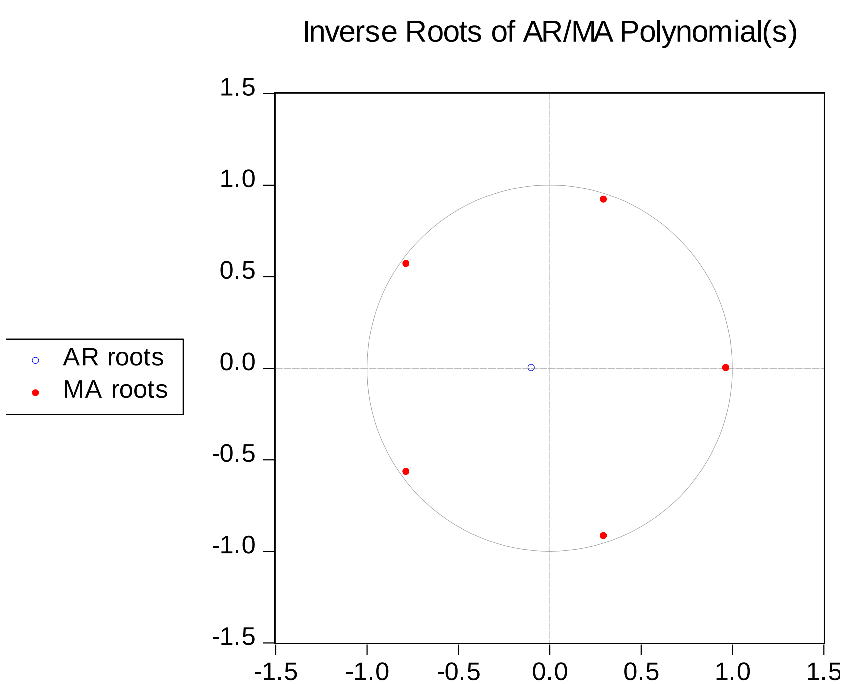
Appendix 7: Histogram of residuals



Appendix 8: ARIMA Structure



Appendix 9: MARKET_CAPITALIZATION FORECAST

Year	MARKET_CAPITALIZATION	MARKET_CAP_FORECAST
1975	41.77093	41.77093
1976	47.13859	47.13859
1977	40.07242	40.07242
1978	36.65425	36.65425
1979	37.81747	37.81747
1980	47.59019	47.59019
1981	39.39958	39.39958
1982	43.56929	43.56929
1983	49.78028	49.78028
1984	39.68086	39.68086
1985	53.02763	53.02763
1986	55.41805	55.41805
1987	52.14533	52.14533
1988	53.08839	53.08839
1989	59.95189	59.95189
1990	51.87613	51.87613
1991	67.54641	67.54641
1992	69.71804	69.71804
1993	76.56243	76.56243
1994	70.50327	70.50327
1995	90.99809	90.99809
1996	105.0461	105.0461
1997	125.562	125.562
1998	142.589	142.589
1999	153.4329	153.4329
2000	147.379	147.379
2001	132.1467	132.1467
2002	101.1467	101.1467
2003	124.5261	124.5261
2004	133.6127	133.6127
2005	130.3828	130.3828
2006	141.6442	141.6442
2007	137.6397	137.6397
2008	78.47249	78.47249
2009	104.1388	104.1388
2010	114.8481	114.8481
2011	100.2627	100.2627
2012	114.854	114.854

2013	142.3808	142.3808
2014	149.5365	149.5365
2015	137.0184	137.0184
2016	145.4524	145.4524
2017	163.78	163.78
2018	147.3449	147.3449
2019	158.244	158.244
2020	194.6692	194.6692
2021	205.009	205.009
2022	154.9512	154.9512
2023	NA	180.3481
2024	NA	158.6413
2025	NA	141.7506
2026	NA	142.0826
2027	NA	182.9323
2028	NA	182.0729
2029	NA	185.2461
2030	NA	188.0294
2031	NA	190.8504
2032	NA	193.6677
2033	NA	196.4854
2034	NA	199.3031
2035	NA	202.1208
2036	NA	204.9384
2037	NA	207.7561
2038	NA	210.5738
2039	NA	213.3915
2040	NA	216.2091
2041	NA	219.0268
2042	NA	221.8445
2043	NA	224.6622
2044	NA	227.4798
2045	NA	230.2975

Appendix 10: Graph showing MARKET_CAPITALIZATION FORECAST results