

Comparative Analysis of the Macedonian and Bratislava Stock Exchanges: A Study of Market Structure, Size, and Regulatory Frameworks

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Abstract: The purpose of this study is to conduct a comprehensive analysis of the Macedonian and Bratislava Stock Exchanges. By examining their market structure, size, and regulatory frameworks, the study identifies both similarities, as well as their differences. The findings show that while the MSE plays a relatively larger role in its national economy despite being young and illiquid, the BSE demonstrates a broader and more diverse range of listed companies but faces significant challenges in market capitalization and liquidity. This study provides valuable insights for investors, policymakers, and financial analysts aiming to understand the dynamics and growth potential of stock exchange markets in North Macedonia and Slovakia.

Key Words: stock exchange, financial landscape, market size, liquidity challenges, regulatory framework.

1. INTRODUCTION

Stock exchange markets play a key role in the financial landscape, serving as platforms for companies to raise capital and for investors to purchase ownership stakes in businesses. These markets provide mechanisms for capital allocation, risk management, fostering economy growth and innovation in modern economies. The major stock exchange markets, such as those in the United States, Europe, and Asia, are highly developed, characterized by high liquidity, large market capitalization, and a diverse range of financial instruments. Emerging markets, on the other hand, are gaining significance for their high growth potential and risk-reward opportunities, despite being relatively less liquid and more volatile than developed markets.

The globalization has led to increased interconnectivity among these markets, with events in one region often affecting markets worldwide. Economic globalization refers to the increased mobility of goods, services, technology, and capital across borders, making countries and regions highly interdependent. As nations rely on each other for essential commodities, services, and products, this interdependence is reflected in global markets and economies. Globalization has led to increased synchronization of stock markets, meaning that economic fluctuations in one part of the world can quickly impact stock exchanges globally. Globalization has made markets and economies highly interdependent, and digitalization accelerates the transmission of economic trends, impacting global stock exchanges. (Benabed, A. & Ciobotea, A., 2023).

The growth of technology and digital platforms has further accelerated the integration of stock exchange markets. The rapid growth of technology and digital platforms has significantly transformed

stock exchange markets by enhancing their integration and overall functionality. Key technological advancements such as artificial intelligence (AI), blockchain, and cloud computing have played a critical role in reshaping the landscape of global stock exchanges. AI has brought transformative changes to stock exchanges by enhancing data analytics and trading strategies. AI algorithms process vast amounts of data in real-time, enabling traders and investors to make informed decisions by identifying patterns, trends, and anomalies. AI's ability to automate and improve over time through machine learning further enhances its impact, allowing for adaptive and efficient decision-making. Blockchain is revolutionizing stock exchanges by offering decentralized, secure, and transparent transaction methods. This technology reduces reliance on intermediaries, cutting costs and improving transaction speeds. Blockchain creates tamper-proof records, fostering greater trust among market participants through real-time data access and fraud prevention. Furthermore, decentralized trading platforms, driven by blockchain, introduce peer-to-peer trading and smart contracts that automate processes. These features increase efficiency, liquidity, and trust in financial markets. (AcademyFlex Finance Consultants, 2024)

Stock markets play a significant role in economic development, despite some analysts in developing countries viewing them as speculative "casinos." Recent evidence, however, suggests that stock markets can positively impact economic growth. One key factor is liquidity, which allows investors to quickly buy and sell equity, reducing the risk of long-term investments. This makes investment more attractive and enables companies to access capital continuously. By providing liquidity, stock markets encourage more investment, better capital allocation, and ultimately support long-term

economic growth. Investors are more likely to participate when investments carry lower risk, offer higher profitability, and provide the flexibility to exit easily. (Levine, R. 1996, p.7)

In her 2016 study, beyond liquidity, Dike also stresses the significance of global risk diversification, the mobilization of savings, lower information costs, as additional factors contributing to the positive impact of stock markets on economic development. However, while greater risk sharing and liquidity can stimulate growth, they can also theoretically lower savings rates, potentially slowing growth (Devereux & Smith, 1994; Levine, 2004 as cited in Dike, 2016).

Andriansyah, A. & Messinis, G. (2014) examined the role of both primary and secondary equity markets in economic growth. While the primary market is not found to be a significant determinant of economic growth directly, it plays an essential role in facilitating the development of the secondary market. The study emphasizes the importance of liquidity in secondary markets, which drives capital accumulation and allocation, ultimately contributing to long-term growth. The findings suggest that while the secondary market positively impacts economic growth, the primary market's influence is indirect, raising the need for further research on its role in innovation and capital formation.

In their study, Harvey and Lundblad (2005, p. 40) find that, although significant research has been conducted on the relationship between financial development and economic growth, the finance and development literature still lacks a comprehensive analysis of the effects of the equity market liberalization process on economic growth. The key findings indicate that equity market liberalization has a significant positive effect on growth, with GDP growth rates increasing post-liberalization in many countries. This effect is more obvious in countries with higher levels of financial development and better institutional environments.

Economic and financial considerations such as financial development, economic growth, globalization trends, and successful liberalization policies have played major roles in stimulating countries to establish their own stock exchanges. The stock exchange markets of Central and Eastern European countries (CEECs)¹ and the Former

Yugoslav Republics experienced both quantitative and qualitative changes. The two regions are in different stages of the economic development processes and are substantially different from each other in terms of stock market regulation and financial systems.

Thorough research by several Macedonian academics has shown that the Macedonian stock market is both young and illiquid. Despite a long transition towards a market economy, North Macedonia still lacks a developed capital market. The capital market in the country significantly lags behind developed financial markets. Although market liberalization and reforms have increased market capitalization in North Macedonia, the level remains unsatisfactory. The Macedonian stock market faces several challenges, including a lack of investor education, no investment tradition, limited financial instruments, low accumulation power, and an unstable macroeconomic and political environment. This situation deters foreign investors and results in a poor variety of traded securities. While financial derivatives have been traded globally since the 1970s and 1980s, they remain largely absent in North Macedonia. The Macedonian stock market faces significant challenges due to a limited range of financial instruments, mainly offering only shares and government securities, which fails to attract investors. The market also suffers from low liquidity, making it difficult for investors to convert securities into cash. These issues are reflected in low market capitalization and trading volumes relative to GDP, and the market is highly sensitive to economic fluctuations and global economic and financial crises. (Boškowska et al., 2017)

Key findings of the Bukowski, S. (2014) suggest that while the Slovak stock exchange market is relatively small compared to other Eurozone economies, there is a statistically significant correlation between equity market development and economic growth in Slovak economy. Additionally, the paper highlights that Slovakia's equity market was more integrated with global markets from 1999 to 2004, but post-2005, it became more closely linked to the Eurozone. The study concludes by discussing the challenges of Slovakia's equity market, including its small size and limited attraction for foreign capital.

The rest of the study is structured as follows. Section 2 provides a brief description of the materials, methods and research questions used in

¹ Is an OECD term for the group of countries comprising Albania, Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, the Slovak Republic, Slovenia, and the three Baltic States: Estonia, Latvia and Lithuania.

(<https://www.unescwa.org/taxonomy/term/8712?page=21>)

the preparation of this study. In Section 3, we compare stock exchange markets in North Macedonia and Slovakia and Section 4 presents the conclusions drawn from the study.

2. MATERIALS, METHOD AND RESEARCH QUESTIONS

The comparative analysis framework used in this study provides a structured approach for systematically comparing the stock exchange markets in North Macedonia and Slovakia. This framework focuses on key aspects of market structure, size and liquidity which are critical for understanding the comparative dynamics between the two markets.

To achieve the aim of this paper, secondary research was conducted, using relevant studies, working papers, press releases, and document analysis related to the research topic.

The research questions of the study, which help guide the comparative analysis and provide a framework for the paper, are as follows:

1. What are the differences in market capitalization between the stock exchanges in North Macedonia and Slovakia?
2. How do the number of listed companies and their sectoral distribution compare between the Macedonian and Slovakia stock exchanges?
3. What are the differences in market liquidity between these two markets?
4. What are the regulatory frameworks governing stock exchanges in North Macedonia and Slovakia?

The selected research questions are designed to systematically guide the analysis, ensuring that key dimensions, such as market size, liquidity, and regulatory frameworks are thoroughly examined and compared.

3. COMPARATIVE ANALYSIS OF MSE AND BSE

To compare the stock exchanges of North Macedonia and Slovakia, we need to examine their structures, including the market size, types of listed companies and regulatory framework.

3.1. Overview of market capitalization

Both stock exchanges serve as the primary equity trading platforms, reflecting the economic activities and market structures of their countries. Slovakia’s EU membership and integration into the broader European economy provide BSE with a more interconnected market environment compared to

MSE. Despite BSE's earlier foundation, both exchanges have operated in transitional economies emerging, with evolving regulatory and institutional frameworks. Both exchanges are small relative to major European exchanges like those in Frankfurt or London. However, the BSE benefits from a more diversified economy and greater access to foreign investments, largely due to Slovakia’s EU membership. The MSE, by contrast, operates in a smaller and less integrated market, limiting its growth potential and investor reach. (Table 1)

Table 1: Overview of the Macedonian and Bratislava Stock Exchange Markets

	Macedonian Stock Exchange (MSE)	Bratislava Stock Exchange (BSE)
Location	Skopje, North Macedonia	Bratislava, Slovakia
Year of foundation	1995	1991
Market Size	Relatively small compared to major European exchanges markets	Also relatively small, but generally larger and more diversified compared to the MSE
Key Indices	MSE Index (MBI10)	SAX Index

Source: www.mse.mk & www.bsse.sk/bcpb/en/

The size of the capital market is usually measured by comparing market capitalization to gross domestic product (GDP). Market capitalization represents the value at which investors evaluate a company on a specific day. It is calculated by multiplying the total number of issued shares by the average share price on that day. This provides an estimate of the company’s market value or capitalization. For the analysis of the development of the capital market, a more relevant indicator is the market capitalization expressed as a percentage of GDP. (Boškovska et al., 2017, p.59,61)

Stock market capitalization to GDP (%) refers to the total value of all listed shares in a stock market as a percentage of GDP.² The ratio of total stock market capitalization to GDP measures the stock market's value compared to economic growth. We can use this ratio to assess whether stock valuations are growing out of solid GDP support. A high ratio suggests that the stock market is growing faster than the economy. The ratio is also known as the Buffett Indicator, named after Warren Buffett, who

² <https://databank.worldbank.org/metadataglossary/global-financial-development/series/GFDD.DM.01>

remarked that it is a useful tool for assessing the overall valuation of the stock market (MacroMicro, n.d.).

The MSE has a significantly higher market capitalization relative to GDP (27.5%) compared to the BSE. This suggests that, although the Macedonian economy is smaller, its stock market plays a relatively larger role in the national economy. In contrast, the BSE's market capitalization (1.5%) represents a much smaller share of Slovakia's GDP, indicating that stock market activity is relatively minor in Slovakia's economy, with more dependence on other forms of financial intermediation. (Table 2 & Chart 1)

The MSE is dominated by a few key sectors (finance, utilities, manufacturing), reflecting a concentrated market structure. The BSE, with a broader and more diversified range of sectors and more listed companies, might offer more investment opportunities, but its smaller size relative to the Slovak economy suggests that the market do not play large role in Slovakia's financial system. (Table 2 & Chart 2)

Table 2: Market Capitalization

	Macedonian Stock Exchange (MSE)	Bratislava Stock Exchange (BSE)
Market Capitalization (as of Dec 2023)	27.5% of GDP ³	1.5% of GDP ⁴
Market Structure	Primarily consists of companies from various sectors including finance, utilities, and manufacturing.	Includes a broader range of sectors and generally has a larger number of listed companies compared to MSE. ⁵

Source: <https://www.mse.mk/> & www.bsse.sk/bcpb/en/

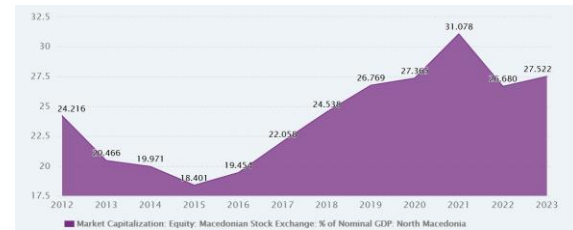
Chart 1 displays the market capitalization of the Macedonian Stock Exchange as a percentage of nominal GDP from 2012 to 2023. The market capitalization as a percentage of GDP fluctuated over the period, starting at 24.216% in 2012 and ending at 27.522% in 2023. From 2016 onward, the

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<https://www.ceicdata.com/en/indicator/macedonia/market-capitalization--nominal-gdp>

market capitalization steadily increased, reaching a peak of 31.078% in 2021. After peaking in 2021, the percentage drops to 25.680% in 2022 before recovering slightly to 27.522% in 2023. This suggests market volatility in the post-pandemic period.

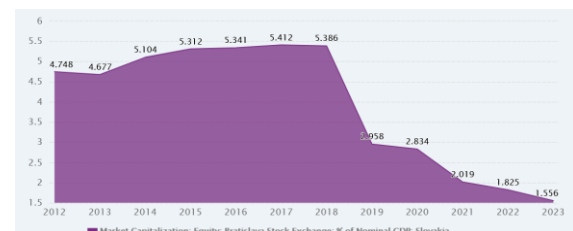
Chart 1: North Macedonia's Market Capitalization: % of Nominal GDP from 2004 to 2023



Source: www.ceicdata.com/en

Chart 2 shows the market capitalization of the Bratislava Stock Exchange as a percentage of Slovakia's nominal GDP from 2012 to 2023. From 2012 to 2017, the market capitalization remained relatively stable, fluctuating between 4.677% and 5.412% of GDP. From 2017 onwards, a significant drop is observed, with market capitalization falling from 5.386% in 2017 to 2.958% in 2019. After 2019, the downward trend continues, with market capitalization falling to 1.556% by 2023. The consistent decline over these years suggests that the stock market's relative importance to the Slovak economy has reduced.

Chart 2: Slovakia's Market Capitalization: % of Nominal GDP from 2001 to 2023



Source: www.ceicdata.com/en

Unlike North Macedonia, which saw recovery after a period of decline, Slovakia's stock market as a percentage of GDP has consistently dropped, indicating weaker market activity relative to its GDP.

3.2. Sector Diversity and Liquidity Comparison

Types of companies that are listed on the **Macedonian stock exchange** include a mix of private sector companies, many of which are mid-sized. The number of listings is relatively small, with

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<https://www.ceicdata.com/en/indicator/slovakia/market-capitalization--nominal-gdp>

⁵ <https://www.bsse.sk/bcpb/en/>

the market concentrated in a few sectors such as services, industry, pharmaceuticals, trade, agriculture, construction, catering, banking, trade with petroleum products, insurance, catering and tourism. Out of the 94 companies listed on the Macedonian Stock Exchange, 68 reported a profit, 21 experienced a loss during 2023, 1 did not published financial statements, while 4 companies were long-term suspended from listing. The report of the Macedonian Stock Exchange provides financial results for companies with listed securities as of March 18, 2024. Key highlights include (MSE, 2024):

- The total net profit for all listed companies in 2023 was 19.66 billion MKD, a 22.25% increase compared to 2022. The profits totaled 21.41 billion MKD, while losses amounted to 1.75 billion MKD.
- In 2023, notable performers included Alkaloid AD Skopje, which posted a net profit of 1.576 billion MKD, reflecting a 7.75% increase from 2022. Komercijalna Banka AD Skopje also performed strongly, achieving a significant profit growth of 65.88%, bringing their total to 3.602 billion MKD. ZK Pelagonija AD Bitola experienced the most remarkable rise, with its profits soaring by 1197.86% to reach 504 million MKD.

The report reflects a mixed performance across industries, with significant gains in certain sectors despite ongoing challenges in others. Pharmaceutical and banking sectors were among the best performers, while some trade companies especially those involved in trade of petroleum products, experienced a decline in their net profits. This is confirmed by the results of Makpetrol AD Skopje, which experienced a 40.30% decrease, and OKTA AD Skopje with a significant decline in profits of 64.89%, highlighting a tough year for the oil industry.

The **Bratislava Stock Exchange**, located in The Slovak Republic, features a diverse range of companies, including both large multinational corporations and smaller domestic firms. The BSE market covers various sectors, with companies in industries such as services, industry, banking, and trade, among others. While the BSE includes a wide range of sectors, it also supports a larger number of listed companies (261 across market types) compared to the MSE, providing a healthier trading environment for investors.⁶

In recent years, the Slovak regulated market has been one of the least liquid and least active in the EU, with low levels of liquidity, depth, volumes, and market capitalization. In 2021, the most notable share issues were Vseobecna uverova banka (EUR 5.72 million), Tatry Mountain Resorts (EUR 1.2 million), and Biotika (EUR 0.44 million). For debt securities, significant issues included AUCTOR 5.00/2025 (EUR 25.65 million), D Alpha Quest 5/2025 (EUR 21.59 million), and JOJ Media House 2021 (EUR 16.57 million) (Mihailkova and Kozak, 2023).

A significant barrier to the development of the Macedonian market is its low liquidity, which discourages investors due to difficulties in converting securities into cash and vice versa. Evidence that the Macedonian capital market is very small and underdeveloped, with low liquidity, is reflected in the values of market capitalization and stock market turnover as a percentage of the real GDP of North Macedonia. The market reacts strongly to both minor and major trading activities involving stocks and bonds and has not remained immune to the effects of the global economic and financial crisis. (Boškowska et al., 2017, p.126)

With 94 companies listed, the MSE is more concentrated with a smaller number of firms that could lead to higher volatility in individual stock prices and potentially lower market depth. This is particularly evident in niche sectors like petroleum products where significant losses were reported in 2023.

The BSE's larger number of listings companies provides greater market depth and a more diverse investment environment compared to the Macedonian stock exchange market. However, despite the higher number of listed companies, the market has struggled with low liquidity and limited trading volumes, which suggests that the larger number of companies does not necessarily equate to more active trading.

Both the Macedonian and Bratislava stock exchange face challenges related to liquidity and market depth. While Slovakia benefits from its EU membership, which might offer some advantages in terms of investor access, both markets show limited liquidity and trading volumes compared to larger and more developed markets.

3.3. Analysis of Regulatory Landscapes

The **Macedonian Stock Exchange**, officially known as the Macedonian Stock Exchange AD Skopje, is the primary securities exchange in North Macedonia. It

⁶ <https://www.bsse.sk/bcpb/en/securities/>

serves as a central marketplace for trading and investment activities in the country. The exchange operates under the supervision and regulation of the Securities and Exchange Commission of North Macedonia (SEC) (Financial Reports (n.d.)).

The SEC of North Macedonia has a wide range of functions, including monitoring and regulating issuers and participants in the securities market, as well as preventing dishonest and illegal activities. It issues licenses and approvals, regulates stock exchange trading, approves the acts of the depository and the stock exchange, and supervises investment funds. The Commission ensures a transparent and lawful market and actively cooperates with institutions both within and outside the country to protect the interests of investors (SEC, 2019).

The primary law governing securities operations in North Macedonia is the Securities Law. In addition to this law, the legal framework for securities in North Macedonia also includes the Law on Takeover of Joint-Stock Companies (LTJSC), the Law on Investment Funds (LIF), as well as the Law on Trade Companies, the Banking Law, the Foreign Exchange Operations Law, the Law on Prevention of Money Laundering and Other Proceeds of Crime, taxation regulations related to securities, and others. The Securities Law, which dates back to November 2005, has been revised several times. It is harmonized with the relevant directives of the European Union, as well as the standards and principles of the International Organization of Securities Commissions (IOSCO), of which the Macedonian Securities and Exchange Commission has been a full member since 1994. (Boškowska et al., 2017, p.85)

The current Securities Law in North Macedonia, while regulating the securities market and participants, is not fully aligned with the latest EU directives. To address this, two new laws have been passed: the Law on Financial Instruments and a Law on Prospectus and Transparency Obligations of Securities Issuers. These laws aim to incorporate recent European regulations and replace the existing Securities Law. The Law on Financial instruments entered into force on March, 28 2024, but will begin to apply 18 months from this date. Similarly, the Law on Prospectus and Transparency Obligations of Securities Issuers entered into force on March, 27 2024, and will also begin to apply 18 months from this date.

The **Bratislava Stock Exchange**, established in 1991 and operational since April 6, 1993, is the sole regulated securities market in Slovakia. It received its license from the Financial Market Authority in

2001 and became a full member of the Federation of European Securities Exchanges in 2004, following Slovakia's EU accession. In 2008, its license was extended to include a Multilateral Trading Facility. BSSE's operations are governed by the Securities Act and the Stock Exchange Act, among other regulations. The National Bank of Slovakia (NBS) oversees financial market supervision and regulates the BSSE, including approving the prospectus required for initial public offerings. (DEDÁK & Partners, 2023, p.1)

The MSE and the BSE each play crucial roles in their respective countries' financial markets. The MSE is governed by a comprehensive legal framework that includes recent updates to align with EU regulations, and BSE is integrated with European standards. The introduction of the Law on Financial Instruments and the Law on Prospectus and Transparency Obligations of Securities Issuers signifies a significant step towards modernizing the Macedonian securities market. Both exchanges demonstrate their commitment to regulatory alignment and market transparency, with the BSSE having a longer history of EU integration and the MSE advancing towards enhanced compliance with EU directives.

4. CONCLUSION

In previous sections, we describe the market structure, size, and regulatory framework of the Macedonian and Bratislava stock exchange markets. In this section, we summarize the findings of our study.

This study highlights the key differences and similarities in the structures, sizes, and regulatory frameworks of MSE and BSE. The Macedonian Stock Exchange is characterized by a larger market capitalization relative to its GDP, reflecting its significant role in the local economy despite its young and illiquid nature. In contrast, the Bratislava Stock Exchange showcases a more diverse listing of companies, yet its market capitalization has steadily declined, indicating a need for more substantial integration with regional financial systems.

Both exchanges face challenges related to liquidity and trading volume, with the MSE struggling with low investor participation and the BSE experiencing limited trading activity despite having more listed companies. Regulatory frameworks in both markets are evolving, with North Macedonia moving towards compliance with EU directives, while Slovakia has a more established regulatory environment due to its EU membership.

The analysis shows that, while both exchanges serve as essential platforms for raising capital in their

respective countries, there is a need for targeted reforms and innovations to improve market functionality and attract both local and foreign investors. Future research should focus on effective strategies to strengthen investment climates and address liquidity challenges to ensure sustained economic growth through capital market development.

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