ISSN (Online): 2367-6957

Izvestiya Journal of Varna University of Economics 3 (2023)

IZVESTIYA

Journal of Economics, Management and Informatics

http://journal.ue-varna.bg

THE CAPITAL MARKET MATTERS - THE EXPERIENCE OF THE GRAND DUCHY

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Abstract

The Bulgarian capital market is not founding its place in the national economy for more than 30 years, and the market infrastructure is far from world standards, at least as far as the central depository is concerned. The government is a major shareholder in CD (Central Depository) and BSE (Bulgarian Stock Exchange) and is not doing enough for their development and integration. The state is also absent as a factor in the development of securities trading.

The example of Luxembourg shows that the capital market can be a driver of the national economy and a factor for growth, which is why it should be recognized. The stated goal of the research also sets the limitations in the present study - it is an overview and uses a comparative analysis of indicators for economic development and trading in financial instruments. The analysis shows that government guidance of capital market development can become a major factor for remarkable growth, and this can be achieved by small economies as well.

Key words:

Lyxembourg capital market, Bulgarian capital market, Clearstream, LuxSE, BSE, CD.

Citation: Naydenova, K. (2023). The Capital Market Matters – The Experience of the Grand Duchy. *Izvestiya Journal of Economics, Management and Informatics*, University of Economics Varna, 67 (3), p. 196 – 212.

DOI: 10.56065/IJUEV2023.67.3.196

1. Introduction

The capital market is an important component of the national economy and performs functions that cannot be compensated by other sectors. These are:

– unlimited access to finance for companies - the market-mobilized capital (Azfar & Matheson, 2003) from investors to firms (debt or equity) to realize venture projects, ensuring both jobs and profits, independent of banks;
– capital control for shareholders to guarantee their investments;
– investment income.

A liquid, transparent and efficient market is useful for firms that implement projects with high added value, but also for investors seeking a stable return for the funds at their disposal. Levine (1996) proves the complex effect through the relationship "growth - quality of functions provided by the financial system" and decomposes it as a relationship "financial structure - mix of financial instruments - markets - institutions - provision of financial services". In the modern conditions of business development, the capital market achieves even more - it can be a stepping stone to higher access to capital and higher returns through the opportunities of integrated global financial markets, provides hedging through access to a variety of structured financial products and becomes a bridge to the innovative sector.

The capital market requires quality state intervention in ensuring the conditions of the investment climate through the legal environment, the level of regulation, confidence and transparency. This is the impact of institutions for the economic behavior in general and for the investment behavior in particular, and is ensured by two main functions – the state institutions determine the rules and the extent to which agents comply with them and lower transaction costs for the commercial contracts (Coase, 1992). In Bulgaria and other smaller economies, especially emerging ones, the state factor is decisive in establishing a quality market infrastructure.

The neglect of the sector by a series of governments in Bulgaria is a fact. They fail to appreciate the possibilities that the capital market, in combination with the technological innovation industry, can open to the national economy. In this sense, the example of small economies, which are deliberately directed along the path of pre-emptive development of the financial sector, is important not only for Bulgaria. Luxembourg, the smallest country in the EU (European Union), can offer such an experience.

The purpose of the present study is to present the experience of Luxembourg as far as the capital market sector is concerned, as well as to show a brief comparison of the market infrastructure of Bulgaria and Luxembourg, in the limited space of a review scientific article. The goal is to expose that the capital market can be a driver of the national economy and a factor for growth, which is why it should be recognized. The overview assumes a limited toolkit - macro data for the two economies and a comparative analysis of the changes in the two jurisdictions, with relevant reflections on the national economy. A historical review of events relevant to capital markets infrastructure in both countries is also used. The cited sources in most cases present up-to-date market information and information about the important units in the investment process in both countries.

2. Luxembourg today

The Grand Duchy of Luxembourg has a population of just over 600,000 people and an area of less than 3,000 square kilometers. The “elf” of the European Union, however, impresses with the value of GDP per capita - among the highest in the world and in first place among the countries of the community.

In the early 1980s, GDP per capita data ranks Luxembourg after Switzerland and not so far from Germany and the US, but even then the country performes twice as well as the EU average. Forty-two years later, Luxembourg long overtakes Switzerland, and the indicator's value is almost twice higher than the US’s and even higher than that of Germany. Compared to the EU average, Luxembourg performs exactly 3.48 times better (data in table 1).

Table 1

GDP per capita (current US$)

Country Name	1980	1990	2000	2005	2010	2015	2020	2021
Bulgaria	2 239	2 367	1 621	3 900	6 853	7 075	10 130	12 221
Switzerland	19 410	39 575	38 865	56 243	76 531	83 806	85 656	91 992
Germany	12 138	22 304	23 695	34 520	41 572	41 103	46 773	51 204
European Union	8 101	15 461	16 948	27 344	32 970	30 485	34 330	38 411
Liechtenstein	21 386	49 417	75 212	105 750	141 468	167 806	157 755	-
Luxembourg	16 531	33 465	48 660	80 988	110 886	105 462	117 370	133 590
United States	12 575	23 889	36 330	44 123	48 651	56 763	63 531	70 249

Source: WorldBank / authors’ compilation, 2023

The Luxembourg government has a simple explanation for the results. According to the administration, two major transformations take place in the national economy - at the end of the 19th century and at the end of the 70s of the 20th century. Initially basing the business on agriculture and handicrafts shifts to industry and by the middle of the 20th century the country is already the largest producer of steel in the world, and the sector contributs to economic development over a long period of time. In the 70s of the 20th century, the first world crisis in the steel industry becomes a fact and sets a requirement for the second transformation. The government takes serious action to initiate economic diversification by developing a fiscal environment of advantages that will soon make Luxembourg one of the most important financial centers in the world. Just in that moment Luxembourg overtakes Switzerland.

The financial industry occupies a major place in the economy today, and the financial sector forms 25% of the country's GDP (luxembourg.public.lu, Reference 21). The prospects are entirely international – this sector is an operational hub for many international financial institutions. They prefer precisely this jurisdiction as a center of their cross-border services in the field of private banking, corporate banking, take advantage of the opportunities for administration of funds, portfolios and deposits, for the management of assets, including wealth. For many of the sector's clients, Luxembourg is the main financial gateway cause of the direct access to the unique European financial market.

The capital market is important for any economy and plays a key role in economic growth by efficiently allocating capital to projects with high added value, generating jobs, providing public services, creating infrastructure and/or driving innovation. However, this industry also represents an alternative to the focus of national planning, while opening development opportunities for multiple sectors. Finance as a science is interdisciplinary, and practicing finance or investing in financial instruments today is impossible without the technological achievements of the IT sector. For this reason, the financial sector is not the unilateral choice of Luxembourg governments. At the beginning of the 80s, the governers clearly recognize the capital market as a potential engine for the innovation sector due to the needs of post-trade services, international and interbank payments, the complex supervision in the system and the growing regulatory requirements. The opportunities for the trading process provided by the new information technologies are perceived. The capital market requires serious investment in infrastructure, which has long been fully in the field of technological and informational innovation. This is recognized, and the conditions are created. Today, Luxembourg is chosen as a European hub by leading companies in the field of e-commerce and electronic payments. Mobile payments and e-money, RegTech solutions, Big Data analytics, DLT technologies, identity and security innovations, automated investment services and alternative finance resources, are working industries now.

Due to all of the above, the country's economy today is one of the most dynamic in Europe and one of the most open in the world. Luxembourg is regularly featured in the world rankings for competitiveness, digitization and innovation, and this is no accident. One of the government initiatives that put innovation as the basis of the national economy is the creation of the House of Startups – a unique place for new companies that develop revolutionary ideas. It is not just a place that gathers business incubators, but also provides direct access to investors. Luxembourg also has a special FinTech platform - House of Financial Technology - The LHoFT. It is charged with building and promoting the development of the country's thriving FinTech ecosystem and brings together financial institutions, innovative companies, research, scientific and public authorities and aims to manage the development of products for the specific needs of the financial industry. The platform works in collaboration with the Financial Markets Association and the Luxembourg Banker's Association, as well as numerous local and international companies, working groups and initiatives. Capital market specialists help the sector with financing, not only in the initial stages of start-ups (luxembourg.public.lu, Reference 22).

Naturally, the financial industry requires collaboration with additional specialists in the field of management, banking, insurance, tax law and legal consulting. Thus, the circle of achieving a high gross product is closed and the fruits of the smart planning and governance of Luxembourg's national economy are already available for 40 years. At the same time, the trend is constant and positive.

Today the results of the relocation of the national economy undertaken years ago are (www.luxembourgforfinance.com, Reference 23):

- 5,5 trillion euros invested through Luxembourg-domiciled investment funds;
- the country is now the host for 57% of cross-border investments through investment funds from 80 countries;
- 76% of the best fund management companies choose Luxembourg as their home - the destination ranks first in Europe and second in the world as the choice of investment funds;
- Luxembourg Stock Exchange hosts over 39 000 listed securities in over 60 currencies of more than 2 500 issuers from more than 100 countries;
- Luxembourg is home to institutions offering depository and other post-trade services; assets under management in securities and currencies are worth over 8 trillion euros; Clearstream is the world's leading depository;
- the country is defined as the first center for Islamic finance in the EU and the fourth in the world.

3. Legal Forms of investment business - an important regulatory factor of success

Among the tools that have made Luxembourg one of the world's financial centers, the legal forms for investment business occupy an important place. Fund Toolbox (www.luxembourgforfinance.com, Reference 24) or the options, the legal formulations that local legislation gives to attract management fund firms through investments in securities, are:

- UCITS – undertakings for collective investment in transferable securities - regulated funds for retail and institutional clients; it is a global product with maximum investment protection and a serious global brand in collective investment, but preceded by a smart government decision before that - Luxembourg is the first country to implement the collective investment directive in its national legislation back in 1988; the share of such funds located in Luxembourg among European funds is 35% or €4.6 trillion in assets under management (AuM);
- SIF – specialized investment fund - it is a flexible and efficient investment tool with multiple investment objectives;
- SIKAR – venture capital investment company; a special design for private risky capital with a focus on venture capital investments;
- UCI – collective investment undertakings - flexible, highly regulated pool investment fund;
- RAIF – reserved alternative fund - offers instant investing, indirectly regulated through an alternative investment manager.

Alternative funds are represented by venture capital funds, hedge funds and real estate investment funds, and Luxembourg is a preferred location for them as well. The business environment in the financial sector, as well as the available market infrastructure, suggest a number of acquisition facilities in the field of equity and real estate transactions, including cross-border transactions. Back-office infrastructure is available, outsourcing solutions are also offered, with cost management options. Regulated alternative investment funds today manage assets worth €962 billion and are an important part of the infrastructure of the financial market.

Luxembourg is today a leader in the global distribution of fund management services, but part of this achievement is due to the express introduction of European regulations in this area. Opportunities are being exploited and this plays a major role in opening up markets and providing European clients – retail and institutional – with access to international investment. Investment funds managed by Luxembourg raise capital from 80 countries, with a main focus on Europe, Asia, Latin America and the Middle East. Leaders in fund management choose the country as a hub, and it offers them international expertise and the necessary set of financial infrastructure. Part of the important infrastructure is regulation and Luxembourg offers an innovative regulator and a relaxed regulatory environment. Taxation is appropriate and the management fee is not subject to VAT (www.luxembourgforfinance.com, Reference 25).

The two types of investment funds operating in Luxembourg (Undertaking of Collective Investment in Transferrable Securities (UCITS) and Alternative Investment Funds (AIFs)) take advantage of the opportunity to attract investors and savers from all EU and EEA (European Economic Area) countries. They are created on the basis of two different European directives and offer investor protection to retail and professional investors respectively.

Investing in real estate, debt investing companies, hedge funds, private companies and venture capital are subject to AIFs, respectively not allowed for UCITS. Alternative funds (AIFs) are of several different types:

- Regulated Investment Funds – regulated - subject to immediate supervision by the Commission de Surveillance du Secteur Financier of Luxembourg;
- Unregulated Investment Funds – no prior permission to raise capital is required from the Commission.

Several factors need to be taken into account when deciding to set up an investment fund in Luxembourg:

- target investor base and fund size; investment strategy, type and origin of the assets to be invested in; marketing and distribution strategy;
- regulatory environment and compliance requirements; initial costs of establishment and subsequent costs of maintaining the activity and regulatory fees;
- time required to fill the minimum investment capital and build the fund management structures; choice between regulated and unregulated structures;
- selection of risk diversification strategies; choice of fund structure – standalone / umbrella;
- level of flexibility in fund management and corporate structure; potential tax benefits;
- rendering account for the financial industry ecosystem in the relevant jurisdiction.

There are specifics for non-residents considering investment business in Luxembourg. Entities with headquarters outside the EU and EEA must register the activity in a relevant country of the community, under the domestic legal norms. This means that the activity will be subject to EU regulations. An alternative is the decision to "get a passport" for the business. In this option, the investment scheme is subject to supervision. Another alternative is to delegate the investment activity to a licensed entity from the community, while the fund owner retains part of the risk management strategy. Similarly, the investments of Luxembourg registered funds in foreign territory, for example Asia, are subject to supervision by the corresponding supervisory institutions there (https://www. luxembourgforfinance.com, Reference 23).

The costs of registering an investment scheme are:

- notarial documents – between 2,000 and 5,000 euros; initial registration costs – between 4,000 and 8,000 euros;
- legal costs – between 40,000 and 60,000 euros;
- annual supervisory fees – between 4,000 and 8,000 euros;
- portfolio management fees – 0.05% to 2% of net asset value, on an annual basis; management costs – from 0.03% to 0.12%;
- depository fees – from 0.05% to 0.1% of net assets; administration fees – from 0.1% to 0.3% of net asset value (www.luxembourgforfinance.com, Reference 25).

Table 2

Investment and Market Data

	Foreign investments, % от GDP, 2020	Portfolio investments, million USD, 2020	Stock market capitalization, % от GDP, 2020	Stock market capitalization, billion USD, 2020	Stock market return, %, 2021	Assets investment funds, % от GDP, 2020	GDP, growth, %, 2021
Luxembourgh	139.42	301158.00	70.30	51.57	42.20	8330.59	6.89
Bulgaria	5.19	-166.07	25.34	17.71	18.54	1.48	4.18
USA	0.71	687416.02	194.89	40719.66	32.65	140.16	5.67
Germany	3.71	-15466.66	59.38	2284.11	23.68	74.96	2.89

Source: www.theglobaleconomy.com

The impact of the asset management industry for the national economy is decidedly sound (table 2). Attracting foreign assets to the domestic market is clearly Luxembourg's trademark and this has a strong positive impact on both gross product and returns on securities investments as measured by stock index growth.

4. Luxembourg Stock Exchange – an important unit in the financial chain and an innovative market factor

Luxembourg has a fully equipped market infrastructure regarding securities transactions and a unique international expertise, this makes the country perfect location for companies of all sizes seeking financing for European or international projects. The government targets and leverages this and LuxSE becomes a world leader in raising debt capital, a key hub for securitization and structured finance instruments, and a recognized platform for notable public offerings.

Luxembourg Stock Exchange (LuxSE) (www.bourse.lu, Reference 26) has a long history as a pioneer in the capital markets. It is established in 1928, and during the first two decades of its activity it is focused on European issuers – they list securities denominated in the respective European currencies. The opening to global markets is in 1953 with the first dollar bonds issued by the World Bank, this institution remains the leader in new issues to this day. In 1962, the first investment fund is listed - France's Finance Union's Investment Fund. The first ever Euro bonds go to market in 1963. In 1981, following the introduction of the European Currency Unit (ECU) two years earlier, the first ECU-denominated bond issue of SOFTE starts trading. 1990 is the time of the listing of the first global depositary notes, in this case issued by Samsung. In 1991, the exchange introduces an electronic trading system and this system allows in 1996 to launch the multi-fixing market. Subsequently, in 2002, it becomes the venue for the first listing and trading of sukuk (Sharia compliant bond), the first listing of green bonds in 2007, and in 2011 dim sum bond (bonds based on Chinese debt). In 2016, there are already 100 green bond issues traded there, and the Luxembourg Green Exchange becomes a reality. Today, the capitalization of this market exceeds $175 billion and represents half of all green bonds listed anywhere.

In 2005, the exchange launches the Euro MTF multilateral trading system. In 2007, LuxSE and Euronext jointly introduce cross-membership, and this allows trades to be generated also through the Euronext UTP platform. 2019 is the time of the launch of LuxXPrime – the bond universe. The platform is specialized for private small clients' investments. The Luxembourg Green Exchange (LGX) is the latest spectacular financial innovation. The trading platform for sustainable, green and social securities allows the market to contribute to the development of the global taxonomy and undoubtedly strengthens the position of the local capital market as a financial leader in the world.

LuxSE is a leader in the listing of foreign securities and can undoubtedly be defined as a leader in the development of world markets for the last 50 years. The institution itself defines as an important factor for its development the stable and consistent policy for easy and quick access of foreign issuers, brokers and investors. Euronext's trading platform certainly contributes to the results, transactions are on two markets – RM (regulated market) and Euro MTF. The completion of transactions through Clearstream and Euroclear provides access to foreign investors and investment intermediaries. The trading mechanism of the system is based on the Central Order Book standard for electronic platforms. Trading rules allow for three types of security prices – transactional, indicative and valuation.

Undoubtedly, a fundamental role for the stable trading process plays the rules requirement for market maker quotations. The trading system has an algorithm for real-time tracking of outstanding orders, and this increases their visibility for market makers and other participants. The system, called NEOSS, allows increasing market liquidity for outstanding orders. The mechanism applies to all listed issues. The benefits of NEOSS are monitoring of outstanding orders, increased liquidity, competition at the level of market makers and other liquidity providers, improved market prices, systematic equilibrium of buyer and seller prices.

High market liquidity is one of the most important requirements for a functioning and attractive capital market. Supply and demand, represented by client orders, are one side of the solution, but all global markets work to increase market liquidity through their own mechanisms. Market makers and other liquidity providers are an important part of the market infrastructure and Luxembourg Stock Exchange assures the process. In the first place, investment companies carrying out algorithmic trading are involved, followed by market makers. All of them are required to become party to an agreement to provide liquidity. Their obligation is to quote in both directions in comparable volume to market requirements and competitive prices, on their behalf, at least during half of the exchange session, for a period of one calendar month (www.bourse.lu, Reference 27).

In a market stress situation, liquidity providers operate with doubled spread requirements and halved liabilities. Market stress is defined as a situation where a financial instrument suffers short-term severe changes in traded quantities or prices. Extraordinary market circumstances are also defined: extreme volatility in one or more market positions; war, industrial trouble, civil unrest or cyber attacks; unusual market conditions; trading process technology issues, investment risk management issues, or inability to hedge short sales in extreme volumes. In cases of extraordinary circumstances, the quoting obligations of liquidity providers are terminated.

LuxSE's active trading members are brokers from seven different countries and three institutions providing liquidity. Online brokers from five different countries offer services, cross-membership is an option for free access to Euronext members and vice versa. Free market data on trading and listed issues are available to participants. The onboarding process is simple, there are no membership or order entry fees, and trading commissions are low (www.bourse.lu, Reference 27).

Luxembourg Stock Exchange is a gateway for international investors and offers integrated access to listing, trading and information services. The focus is the listing of international debt securities. The market infrastructure assures high levels of transparency and stability in the capital market for five decades.

The exchange's statistics as of the end of 2021 are:

- listed issues – 37 839; issuers – 1 937 from 98 countries, in 71 currencies;
- total value of 7.4 trillion euros of issued bonds.

The "green" exchange of Luxembourg complements the enviable market statistics - LGX has its own results: 2 613 issues, up almost 200% from 2020; 222 issuers from 47 countries, in 50 currencies; value of listed bonds – 640 billion euros (www.bourse.lu, Reference 28).

5. Clearstream - a remarkable competitive advantage

The problems of market structure and design, price discovery, transaction costs, information and its disclosure, the behavior of investors and market makers, refer to market microstructure (O'Hara, 1999). It is represented by the institutions facilitating the trading of assets and the rules of trading (market infrastructure), as well as by the institutions trading and offering assets for investment. In this sense, besides the regulated market, another extremely important unit is the depository institution.

Post-trading services have made a special contribution to Luxembourg's place in the financial industry.

All aspects of depository services, collateral management and securities administration are covered by clearing, settlement, asset servicing and custody systems. The main provider of these services is Clearstream - a leading global depository. Three more post-trading service providers assure access to the ECB – their combined activities include issuance, settlement and custody services, as well as maintaining the needed processes for investment funds and global notes issues. The business of these companies is worth more than 8 trillion euros in assets. Clearstream offers direct and secure access to multiple money and capital markets around the world. Over the years and the development of the global financial trading network, a constant new demand for inclusion to new markets and instruments is generated by the participants, accordingly the custody service provider network follows the trend (clearstream.com, Reference 9).

Clearstream Banking S.A., Luxembourg (CBL) is originally established as “Cedel” (Centrale de Livraison de Valeurs Mobilières) in September 1970. 66 of the world's largest financial institutions participate, and the goal is to minimize risk in the settlement of securities transactions in different markets and by different participants. The reason is the growing Eurobond market. From January 1, 1995, a new corporate holding structure is introduced under the name Cedel International S.A. and a banking subsidiary Cedel Bank is founded (later under the name Cedelbank. In early 2000, Cedel International, together with its subsidiaries, merge with Deutsche Börse Clearing, itself a subsidiary of Deutsche Börse AG, and form Clearstream International S.A. Ownership is equally divided between Cedel International S.A. and Deutsche Börse AG. In July 2002, Deutsche Börse AG acquires Cedel International S.A. and on June 30, 2004 the institution begins operating under the name Clearstream International S.A. After a number of legal changes, the institution today operates as Clearstream Banking S.A. (CBL) and is a joint-stock company wholly owned by Clearstream Holding AG, in the DeutschIe Börse AG Group. CBL is today an International Central Depository (ICSD), operating through its headquarters in Luxembourg and through its regional offices, thus ensuring the trading process to its customers. Subsidiaries are available to provide the process in distant markets – Australia, Japan, Singapore and London. Offices in Dubai, Hong Kong, New York and Tokyo are available also (clearstream.com, Reference 9).

CBL develops and maintains the post-trade infrastructure of the Eurobond market and over 50 local foreign securities markets. Services include securities issuance, settlement and custody services, services for investment funds and global financing companies. High financial requirements for customers are maintained through an obligation for reasonable risk management in the supply of securities and money, in the execution of transactions and in the holding of customer assets.

CSSF (Commission de Surveillance du Secteur Financier) is the competent regulator of the company's activities. As a monetary financial institution (MFI) offering banking services, the depositary is also regulated by the Banque Centrale du Luxembourg (BcL), which ensures systematic stability of payments as part of its responsibilities to the European System of Central Banks.

ClearstreamXact is the system developed by the institution for communication, orders and reports with clients (Clearstream.com, Reference 8). Vestima is the system used by investment funds and companies. Customer and Access Acceptance Policy is the document governing the access of customers and issuers to the depository system. In order to ensure customer access to a wide range of markets and financial products and services, CBL develops an extensive network of suppliers and together they maintain a Service Network. CBL also creates an interface for institutions external to the depository, so that clients can settle transactions with parties whose accounts are in other depository institutions and settlement systems. Information and reporting systems are part of this network. The infrastructure connecting customers, markets and depository institutions consists of:

- CBL as service unit and liaison with all parties;
- customers; stock brokers;
- connection with markets; other depositories; other settlement systems;
- financing banks; correspondent banks;
- regulatory institutions;
- information systems, portals and agencies.

In CBL's custodial system, securities transactions requiring coupon payments, repurchases, physical delivery and cash, etc. are generally conducted through a depository or agent that is a member of the CBL network infrastructure.

The different types of agents and custodians used in the CBL network are:

- domestic depositories / agents - local entities - through them, deliveries are made for transactions on markets outside of Luxembourg;
- specialized depositories – for deliveries not in non-available form; also for Eurobonds and other Euro-instruments;
- common depositories – internationally traded securities, usually issued in the form of a Global Note (global depository note); notes can be exchanged for certificates or remain in non-available form until maturity; the common depositories represent CBL and Euroclear Bank in providing safe custody for securities transactions issued as Classical Global Note (CGN);
- common safekeepers – agents approved by CBL and Euroclear Bank – maintain a register of payments when issuing international debt;
- common service providers – for servicing assets on international markets issued in NGN (New Global Note) form;
- transfer agents – for servicing investment fund transactions.

The service network ensures its activity through three types of connections with the respective markets:

- direct connection with a central depository – the depository of the network is also the central depository of the relevant market;
- direct connection through an agent – CBL account in the relevant depository, but managed by an agent;
- indirect link – the depository acts as an intermediary between CBL and the respective clearing system or depository (clearstream.com, Reference 8).

The infrastructure allows the offering of a full range of basic clearing and settlement services: delivery versus payment; delivery free of payment; back-to-back processing; lending securities system; administration of papers traded on multiple markets (multi-market securities); pre-matching; allegation; administration of general meetings of shareholders and bondholders. As far as settlement is concerned, CBL enables the procedures to be carried out also in cases where the transactions require special deliveries, for example outside the depository's system. Standard domestic settlement procedures are for trades between two CBL accounts – in these cases any instrument maintained as an issue in CBL, regardless of which market it is traded on. Bridge transactions are allowed for clients of Euroclear Bank. The issue subject to the transaction should have been accepted in both systems. Foreign trades are with participants outside of CBL's clients and allow for physical delivery of securities traded on a domestic or international market (clearstream.com, Reference 8).

Custodial and depository services, as well as settlement algorithms, require an extremely high level of risk management and liquidity checks. A Bridge Agreement is signed between CBL and Euroclear, containing the principles of risk management. These principles allow limiting mutual exposures and eliminating systemic risk, which is a requirement of the applicable standards in the financial industry, namely the CSDR requirements, the ECB-CESR standards for clearing and settlement systems in the EU and the CPSS IOSCO principles for the infrastructure of financial markets (clearstream.com, Reference 8).

An important part of the liquidity, symmetry and efficiency of the capital market is provided by the capabilities of the market infrastructure to carry out short sales (Endo, Ghon Rhee (2006)). CBL does this through The Automated Securities Lending and Borrowing Program (ASL). Securities loans are guaranteed, concentration limits are introduced. The system is flexible and enables owners to decide which issues, how much of them and in which currencies to make available for lending. Approval of loans to borrowers is done automatically or on a case-by-case basis. The loan period is not fixed. Intraday lending is also available, which allows for the equalization of discrepancies in the terms of delivery in different markets (clearstream.com, Reference 8).

6. Bulgarian Experience

The comparison between Bulgaria and Luxembourg, as far as the capital market is concerned, is unfortunately adequate only in terms of registration and supervision costs: the Bularian FSC (Financial Supervision Commission) fee for licensing a capital management company is over 3 000 euros, about 4 000 euros for an investment intermediary; the annual supervision tax is within 2 500 euros. The values are fully comparable to those of the Luxembourg supervisory authority, with completely incomparable capital market qualities in the two countries. The law on collective investment schemes is in place in Bulgaria since 2011, although such companies are licensed since 2000 under a different law. The first alternative investment fund is authorized to operate in 2019. Exchange-traded funds receive formal regulation at the end of 2013. At the same time, alternative investment funds are authorized. The number of collective investment schemes, investment funds and alternative funds registered in Bulgaria at the end of 2021 is 144, managed by 30 management companies. The assets under management of the Bulgarian collective investment companies at the same time are worth BGN 3 153.7 million (www.fsc.bg, Reference 12). The number of licensed investment trusts is 57, of which 9 invest in receivables, the others in real estates. There are 59 investment intermediaries, of which 20 are banks. The clients' securities at the investment intermediaries are worth a little over BGN 8 billion, it is logical that the assets of the pension funds and the capital management companies are exactly on client accounts at the intermediaries.

The Bulgarian Central Depository is established on August 13, 1996. Its activity is based on a statute book, which is mandatory for investment intermediaries and issuers (www.csd-bg.bg, Reference 7). The central depository maintains the securities register by organizing and managing a registration system for dematerialized financial instruments, securities accounts system, registration and administration of issues and securities, distribution of dividends, interest and other payments, managing an information system for corporate actions on listed issues, blocking and unblocking of securities, servicing margin purchases and margin accounts ensuring margin trading. The central depository organizes and governs a clearing and settlement system, registers and ensures the completion of transactions, maintains accounts and makes payments conserning transactions, registers repo and reverse repo transactions, manages a settlement guarantee fund and centralized lending information system (pool). The Central Depository of Bulgaria also performs the functions of a national numbering agency for assigning and maintaining a register of ISIN (International Securities Identification Number) securities issue codes, builds relationships with foreign depository institutions for the needs of double and cross-listing and cross-border settlement.

The current regulations of the depository allow three types of membership for investment intermediaries - clearing, direct and non-clearing. Clearing and direct members perform operations in the clearing and settlement system as direct participants, and non-clearing members only through a clearing member (www.csd-bg.bg, Reference 7).

The depositary carries out all necessary procedures for registration of new issues, registration of shares against rights and convertible bonds, initial offers, initial sales and repurchases for mutual funds, investment companies and alternative funds.

Cash settlement provision requires members to declare bank accounts with direct debit consent, including accounts for settlement of margin purchases and short sales. For the purposes of concluding transactions in euro, membres declare cash accounts with consent for direct debit opened in a bank from the Trans-European Automated System for Gross Settlement of Express Transfers in Real Time. The settlement is based on the principle of "delivery versus payment" (DVP) or DFP - delivery free of payment.

The Bulgarian central depository goes through different stages, according the development of the national capital market. After Bulgaria's accession to the EU, the integration of the national capital market determines the steps that the institutions of the market infrastructure must take. Thus, the end of 2009 leads to the adoption of a strategy for the development of the depository and it implies integration into the European markets and establishing connections with other depository institutions, and introduction of the SWIFT standard for communication. In June 2010, an account is opened in Clearstream Banking Luxembourg, and it is expected that this will facilitate the access of Bulgarian investors to foreign markets. Unfortunately, this is still not enough to facilitate the access of foreign investors to the Bulgarian market. At that time, the private sector had long taken the necessary steps and Eurobank EFG Bulgaria is already an active agent of CBL for Bulgaria, and in 2010 Unicredit Bulbank ensures the joint work of the Polish stock market through Krajowy Depozyt Papierów Wartościowych S.A. Before that, as early as 2008, the Bulgarian depository established a relationship with RoClear and is its member, and the possibilities for double listing of papers are also being worked on. 2012 leads to a membership agreement with Depozitarul Central Romania and OeKV Austria. In 2013, new types of membership, forms for settlement of pending transactions, guarantee fund, automated collateral processing and SWIFT transactions required by international partners and contributing to attracting foreign investors were introduced. Despite ongoing efforts, by the end of 2014, Bulgaria had not yet signed the framework agreement governing the rights and obligations of depositories in the Eurosystem. 2016 marks the launch of the new information system. In 2017, Target 2 Securities - European technical and technological requirements for the servicing of transactions by depositories - are on the agenda. At that time, Bulgaria does not declare its intention to join the settlement platform. Negotiations are also starting with the Greek depository Athex Group, with which there is a need to connect due to securing transactions in the See Link system (csd-bg.bg, Reference 5).

2018 brings to the Bulgarian capital market the new system developed by CD EPOS - an electronic platform for holding general meetings. At the same time, the Bulgarian Stock Exchange (BSE) started work on its BG International project for trading foreign shares on its floor, and CD's link with Clearstream mediates the completion of the transactions. The connection with the Greek depository is not yet implemented. In 2019, the link with the Hungarian depository KELER is already a fact. In 2021, the need for investments in the depository's systems leads to a decision by the shareholders to increase the capital to BGN 1 400 000 by issuing 4 000 new shares with a face value of BGN 100 and an issue price of BGN 570. A common initiative with Bulgarian National Bank (BNB) to join T2S due to the plan to introduce the euro starts (annual reports, www.csd-bg.bg, Reference 5).

At the beginning of 2023, the Bulgarian depository is still not able to secure the national capital market to a sufficient extent. Initiatives for development and technological adequacy with the requirements of financial transactions in the 21st century remain a weak point, and this is probably also due to state ownership. Shareholders in the capital of CD are the Ministry of Finance with 43.70%, BSE – 6.21%, banks operating in Bulgaria with a total share of 37.01% and other institutions with 13.08%. By comparison, the capital of Luxembourg's depository institution is wholly owned by the Deutsche Borse Gruppe.

Table 3

Bulgarian Central Depository Data of Transferred Securities

Year	Transferred securities, number
2008	650 403 771
2009	612 531 163
2010	349 197 817
2011	629 009 302
2012	421 771 137
2013	858 704 143
2014	782 745 850
2015	186 938 993
2016	182 445 009

2017	383 790 321
2018	271 108 350
2019	174 598 333
2020	309 311 999
2021	372 425 281

Source: annual reports, www.csd-bg.bg

The problems in integrating the national market with the single European market and the world capital market are clearly reflected in the volume of activity. Table 3 presents figures according to which transactions in Bulgaria are still far from what they were in 2009.

The beginning of 2023 does not look any different, but there is a national plan for the introduction of the euro, and because of this, numerous measures and activities related to changes in the payment and settlement systems are being implemented in Bulgaria. This implies the integration of the depository institution to the TARGET2-Securities (T2S) settlement platform. This platform plays a key role in the implementation of the single securities market in Europe and in general for the integration of the financial markets in the European Union. The convenient access to custodial services and settlement systems is critical for the attractiveness of the national market. The connections with established global depository institutions are important because they provide access to the national market of foreign investors, as well as access to foreign capital for domestic companies.

Bulgarian Stock Exchange (BSE) is the next important unit forming the market infrastructure of the Bulgarian capital market. In fact, this institution began its existence twice. The first is at the beginning of the 20th century, in 1907 – well before the Luxembourg Stock Exchange. Then 21 companies are traded before the Great Depression and the number reached 30 before closing in 1947 (www.bse-sofia.bg, Reference 29). The second start is possible in 1991, after the adoption of the Trade Act - the first registration of the institution dates from 11/8/1991. Initially, the securities market and the first companies to offer shares to investors arose spontaneously, without special legislation. The hyperinflation of 1996-1997 puts an end to the romantic beginning. The restart is with state intervention, through a change in the legal framework, according to which all companies subject to mass privatization become public. Regulated securities trading becomes a fact in 1995, after the adoption of the first special law.

Today, BSE organizes two markets - the BSE main market and the BASE alternative market, supports a multilateral trading system and the Beam growth market since 2018. From 2021, the BSE International project is launched, enabling market participants to directly invest in foreign securities. This is a fact through TradeGate, as the institution is a party to BSE International transactions and a market maker for all BSE International issues. The actual transfer of the instruments takes place at Clearstream Banking S.A. Luxembourg, between accounts owned by Central Depository and TradeGate.

The thirty-two-year new history of BSE today reports:

- registered issues on BEAM 7, on BSE International – 191; both segments launch in 2021;
- registered premium segment issues, BSE market – 7; unchanged compared to the previous year;
- registered issues of the Standard segment, BSE market – 65 – by 1 more than the previous year;
- registered issues on the BASE market – 132, 4 fewer than in 2021;
- registered investment trusts on the BSE market – 17, with 1 more than the previous year;
- investment trusts issues on the BASE market – 36, 5 less than a year ago;
- members – 45, minus one for the last year.
- bond issues 82, plus 10 compared to 2021 (bse-sofia.bg, Reference 3).

Market participants were not always such a modest number. In 2009, the maximum number of members (investment intermediaries with the right to trade) was registered, namely 86. The same applies to registered issues - in 2008 they were 557 and are decreasing since then. The market capitalization at the end of 2020 is BGN 28,354.51 million and represents 23.91% of GDP. The data at the end of 2021 is BGN 30,781.29 million, which is 23.96% of GDP.

The improvement in capitalization indicators is not the only good result of the last year. Table 4 shows a significant increase in traded securities in terms of turnover and number of transactions.

Table 4

Bulgarian Stock Exchange, Turnover Data

	2019	2020	2021
Turnover million BGN	334	398	819
Traded shares without trusts, million BGN	269	265	498
Traded trusts' shares, million BGN	33	80	99
Traded bonds, million BGN	21	44	169
Number of transactions in thousands	44	61	87

Source: www.bse-sofia.bg, Reference 3

The Bulgarian Stock Exchange is far from the standards of Luxembourg in the trading of sustainable bonds, but on March 31, 2021, the first and only think-tank for sustainable finance and energy - Green Finance & Energy - is officially launched in Bulgaria. The Green Center is created on the initiative of BSE and the Bulgarian Independent Energy Exchange and is implemented in partnership with the Ministry of Finance, the Ministry of Energy, the Financial Supervision Commission and the Fund of Funds (www.bse-sofia.bg, Reference 3).

While LuxSE is an important unit in the chain of global financial markets, this is completely unapplyable to the Bulgarian regulated market. Lagging behind world consolidation trends is a fact, but an important step forward is made in 2014 with the SEE LINK initiative. It starts as a project of the stock exchanges of Bulgaria, Macedonia and Croatia and aims to create a regional infrastructure through which investors can trade securities of public companies from the three markets. Later Serbia, Bosnja and Herzegovina, and Slovenia join also. The idea is based on the integration of the markets without the need for a merger or other type of corporate acquisition of the exchange operators. This is a regional infrastructure for trading the securities listed on the three exchanges, as well as technical integration of the local markets. The system enables brokers (originating brokers) to transmit for execution the orders of their clients for transactions with securities on any of the other markets for which they are not residents through executing brokers (they also carry out clearing and settlement and guarantee activities on site). Since April 2016, the system calculates 2 own indices. As of early 2023, the underlying index is at 181.65 versus 99.96 at platform launch. SEE LINK is not a solution to the problems of BSE, but it is a way to increase the number of investors for the Bulgarian public companies. It is a de facto consolidation of a regional principle, with a number of opportunities for both issuers and investors and investment intermediaries (www.see-link.net, Reference 4).

The last few years have been successful for the development of the Bulgarian regulated market. The new management is making significant progress, and an important part of it is the BEAM market, providing financing for non-public companies. From June 24, 2021, companies from the BeamUp Lab program Endurosat and Software Group are also presented to global investors from the Deutsche Borse Venture

Network (DBVN[1]) platform, and this is the debut of Bulgarian companies in Digital Investor Talks - the format of the platform that meets growing companies and investors.

Among the weaknesses of the national market is the underdeveloped trading of derivatives. This is reported by the management of the exchange, and from the end of 2021, the institution focuses its work on the development of this segment, including the formation of a clearing institution to ensure payments and the continuity of the process.

BSE and CD remain outside the global consolidation processes and this is a problem. The merging large international institutions of the market infrastructure become an even stronger competitor to the small national emerging market, and it remains completely invisible to foreign investors, correspondingly unattractive to listing for national companies. The Bulgarian government rejects all proposals by influential European market operators for merger or acquisition submitted during the period 2006 - 2008. Additionally in 2010 the Ministry of Finance acquires in a non-market way, through a capital increase provided, the majority share of the capital of the market operator and converts the market infrastructure to a completely state-owned. The possibilities for consolidation, at this stage, are ceased.

The foreign interest in order to acquire the Bulgarian Stock Exchange is no longer a fact, probably due to the presence of a majority shareholder like the Ministry of Finance (50.05%)2. The privatization procedure of the stock exchange in a package with the Central Depository is terminated on February 25, 2013.

7. In summary - the government's "market infrastructure" problem

Capital market transactions require institutions, rules, technologies, material base and market participants competent to initiate and mediate deals. All these conditions are provided by the financial infrastructure, and the market infrastructure is part of it. It includes a narrower number of institutions responsible for transactions with financial instruments. One part of these institutions, namely private individuals (investors, intermediaries and issuers) react to investment conditions, but are not responsible for their formation. The exchange operator and the depository institution are the main factors in both the level of transaction costs and the available investment and financing options. Another factor of such importance are the regulations and supervisory process and that is the level of transparency and confidence or lack of confidence and over-regulation. This is also the reason why the Luxembourg government promotes its market through the attitude of the regulatory authority towards the supervised persons. All mentioned above (regulations and supervision, capabilities of the depository institution and the commercial exchange system), in Bulgaria are responsibility of the government.

Whatever the quality of the conditions for the investment process offered by the Bulgarian institutions, there are differences in the market infrastructure between the many different national markets in the EU, united in words in the concept of "single European market". Trading, clearing and settlement platforms remain inefficiently connected, while through the trading platforms the investment process is accessible to anyone, professional or non participant. Each investor is required to access multiple specific, non-integrated systems that have their own technical requirements and market practices (settlement periods, rules for corporate events and new issues) and operate under unequal tax and legal regimes, despite the common European regulatory requirements. In this sense, insufficient integration is a barrier and causes additional risks and costs for investors, operating in more than one national market. Additional costs due to fragmentation represent a serious limitation both in number of the transactions as well as for the business of the institutions of the market infrastructure (Schmiedel,

[1] DBVN is a platform to support growing companies from Germany and Europe, created by Deutsche Borse. At the moment, it unites more than 200 companies and nearly 460 investors from all over the world, with more than 152 financing rounds for more than 4.9 billion euros.

[2] For comparison, shareholders in LuxSE are: 25.35% - Banque et Caisse d'Epargne de l'Etat; 21.20% - Grand Duchy of Luxembourg, 10.54% - Tradhold SA, 10% - BIL Banque International, 32.91% - institutions and private individuals.

Schönenbergerp 2005). A market in financial instruments is fully integrated if all market participants with similar relevant characteristics operate under the same rules, can use the same markets, services and instruments and are treated in the same way (Baele et al. 2004). This is not yet a fact for investors on the Bulgarian capital market. Apart from the problems at the EU level, the Bulgarian back-office process remains outside the single market, despite the available partial connections. This not only restricts domestic investors, it mostly does not attract foreign ones, which disrupts access to capital for national public companies.

State ownership in Bulgaria's two main infrastructure institutions (BSE and CD) can be called a problem, since their development does not meet the requirements of investors in at least two directions - taking advantage of the integration process and opportunities provided to issuers and investors. Stock trading in recent decades is developing in the conditions of integration and consolidation. The market operators join a set of national markets, offer listed companies a wide horizon, an increased access to capital is a logical effect. This also applies to the depository institution. The lack of integration is a problem not only for investment intermediaries, but it also deprives Bulgarian issuers of access to capital. At the same time, their competitors from Europe and the USA choose between sources of financing that are unavailable in terms and prices for us.

The Bulgarian capital market for the moment cannot be compared with Luxembourg in terms of investment opportunities, financing opportunities and innovation opportunities, and this is a problem of the market infrastructure. Outside of it, the investment climate is essential for the capital market. Bulgaria is part of the European Union, but not a member of the Eurozone. The use of a currency other than the euro is one of the problems facing both foreign investors on our capital market and Bulgarian investors opening positions on the European markets. Conversion costs are a fact, and currency and political risk are calculated by investors without taking into account the fixed exchange rate and ERM II membership. This is also a government omission.

There are other serious problems. Such are the ownership concentration, the asymmetric investment process due to the underdeveloped systems for short sales and the existing repo opportunities, over-regulation, lack of confidence and transparency, low market liquidity. The ownership concentration prevents the adequate and complex intervention of the market makers, accordingly the stock exchange rules cannot impose adequate requirements. The asymmetric process allows bubbles and deepers crashes and does not help to increase efficiency. The declining numbers of investment intermediaries and listed issues are not just statistics, they are a sign of a serious consequence of the over-regulation of the local stock market, namely a bilateral restriction of access (North, Wallis, Weingast (2006)). In it, investors suffer a reduced supply of financial services due to the withdrawal of issuers and financial institutions, and issuers leave the market due to high listing requirements and accordingly suffer reduced access to external capital. All these conditions are created by governments.

Untangling the puzzle is not easy, but Luxembourg's experience shows that the government is a factor and recognizing the capital market as a path to development enables national growth. The modern financial industry is complex, requiring not only a modern regulations and serious investments, but also interdisciplinary capacity. Finance today is beyond technological innovation only as infrastructure, the two industries are developing powerfully and influencing each other. Beyond that, the investment business requires an environment transparency and confidence, and that is certainly the government's task.

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