REVIEW ARTICLE

GOVERNMENT BOND MARKET DEVELOPMENT – CASE OF BOSNIA AND HERZEGOVINA, CROATIA AND SERBIA

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ABSTRACT: Liquid and resilient government bond markets are often defined as an important goal of public debt management. Although similar in many aspects, regulatory frameworks related to financial services in Bosnia and Herzegovina, Croatia and Serbia are experiencing a time lag in the implementation of the European Union acquis. In addition, these countries have sometimes made different policy choices when it comes to public debt management. This provides a unique opportunity to conduct a cross-dimensional and temporal analysis and assess the impact that different regulatory solutions and policy choices can have on the market. The research demonstrates that despite common and obvious limitations related to market size, the impact of policy and regulatory choices is not negligible. It also demonstrates the importance of a comprehensive strategy integrating factors such as debt structure, liquidity enhancement techniques and quality of the institutional investor base.

JEL: H63, G23, G28

1 INTRODUCTION

Government bond markets are the main source of financing of budget deficits in developed economies. Because governments want to finance their deficit at the lowest cost, even in adverse market conditions, they are interested in creating liquid and resilient primary and secondary markets. Another important aspect of debt management is currency risk: the successful issuance of local currency debt reduces exposure to currency risks. On average, domestic currency issuance by emerging market sovereigns accounted for 90% of total issuance between 2000 and 2019 (OECD 2020, p. 34).

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Besides their primary function in financing deficits, government bond markets are also considered to be a fundamental building block of capital markets. Firstly, they are the base for the development of other instruments such as corporate bonds and derivatives. Secondly, the continuous and sufficient supply of government bonds is necessary for maintaining the business of institutional investors. Developing government bond markets thereupon exerts a positive impact on economic growth and financial stability through its impact on the development of capital markets. It is widely documented in literature that developed capital markets support economic growth by fostering the volume or the productivity of investment and contribute to financial stability by mitigating the negative effects of bank credit cycles (Carvajal and Bebczuk 2019, p. 25).

The following three areas are generally cited as preconditions for capital market development: a favorable macroeconomic environment, a certain level of development of the financial sector, and a strong legal and institutional environment. The quality of human capital and cultural attitude towards risk-taking, trading and transparency also play an important role (Demekas and Nerlich, 2020). On top of these, two additional preconditions for the development of a government bond market are obvious: budgetary deficits and the existence of investors. Although this might appear counterintuitive, a “favorable macroeconomic environment” in this context includes budget imbalances and studies show that “the fiscal deficit to GDP, by fostering the government bond market, exerts a positive effect on the private sector bond market in both advanced and emerging countries” (Carvajal and Bebczuk 2019, p. 15). However, this should be taken with caution as excessive fiscal borrowing can lead to macroeconomic imbalances that will eventually jeopardize market development. Another downside of the issuance of government bonds on the local market is the risk of crowding out the private sector.

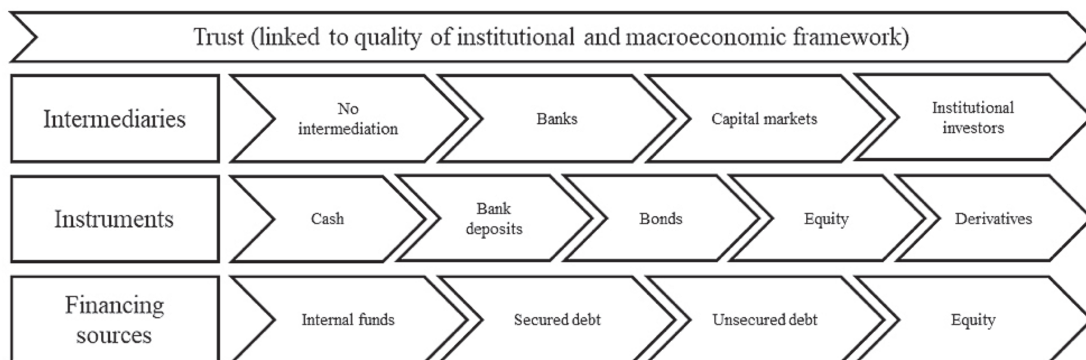
Thanks to the role played by governments in terms of supply, regulation and infrastructure, and their relatively low risk, government bond markets tend to develop first and to be the most liquid segment of local capital markets (OECD 2019). Nevertheless, just as it is the case for capital markets in general, liquid government bond markets often remain an elusive goal for smaller and less developed economies. The level of GDP per capita and the absolute level of GDP play an important role here because both supply and demand in primary and secondary markets tend to be larger in larger economies with higher savings.

The purpose of this paper is to analyse and compare the current state of development of government bond markets in three countries from the SEE region (BH, Croatia and Serbia) and to find which features and techniques have a positive impact on market liquidity. Findings can be used by policymakers when shaping their debt management policies. These countries are relevant peers based on geographic proximity, similar legal and judicial frameworks, and the dominance of same European financial conglomerates on their domestic market. In addition, the European Union acquis related to financial markets is being implemented in all concerned jurisdictions, albeit at a different pace. As a member

state of the EU, Croatia is fully aligned with the acquis. Serbia was granted candidate status in 2012 and has since made significant steps towards the transposition of Chapter 9 “Financial services” of the acquis into its legislative framework. Finally, the legislation in RS and FBiH was showing a tendency to adopt solutions inspired by the acquis even before BH was granted conditional candidate status in December 2022. This asynchrony in transposition of the acquis together with autonomous policy choices made within a common background provide a unique opportunity to conduct a cross-dimensional and temporal analysis and assess the impact that different regulatory solutions and policy choices can have on the market.

BH, Croatia and Serbia have a developed banking sector and adequate market infrastructure (exchanges, central securities depositories and settlement systems) to support capital market transactions. However, their capital markets still suffer from severe lack of liquidity. From the perspective of the sequencing theory of capital market development presented in Figure 1, the development of government bond markets and the institutional investor base should be a central topic to policymakers involved with capital markets development as they should gradually create demand for riskier financial instruments such as corporate bonds, equities or derivatives.

Figure 1: The sequencing theory of capital market development



Source: Carvajal and Bebczuk 2019, p. 25

The theoretical underpinning for sequencing lies in the asymmetric information framework where the emergence of more advanced types of intermediaries, instruments and financing sources depends on the level of trust. Simply said, where the level of trust is low, market participants will prefer safer investments, simpler contracts, shorter maturities, and more direct control. This is fully in line with the above-mentioned preconditions for capital market development, in particular “strong legal and institutional environment”. Assessment of this criteria using World Bank Worldwide Governance Indicators (100 is the highest rank) for 2021 suggest that substantial reforms in the field might be necessary to support capital market development. For example, in terms of Regulatory Quality, BH

was ranked in the 47th percentile, Serbia in the 54th percentile, and Croatia in the 70th percentile. In terms of Rule of Law, BH was ranked in the 43rd percentile, Serbia in the 51st percentile, and Croatia in the 61st percentile. Slovenia, in contrast, was ranked in the 76th percentile for Regulatory Quality and 84th percentile for Rule of Law.

In the remaining part of the paper, Section 2 brings an overview of the literature dealing with the topic of government bond market development, Section 3 analyzes key features of the primary and secondary markets in government bonds in BH, Croatia and Serbia, and Section 4 provides a critical overview of the role of institutional investors in government bond markets in those countries. Section 5 presents results from the comparative analysis and concludes.

2 LITERATURE REVIEW

A vast body of literature deals with capital market development. The topic has also attracted interest from international financial institutions and multilateral organizations which have attempted to add clarity and system into this complex matter. Carvajal and Bebczuk (2019) lay down a comprehensive overview of the theoretical and empirical research produced in the past 20 years on the causes, effects, and sequencing of capital markets development. Demekas and Nerlich (2020) find that the specific preconditions and drivers that determine the success of capital market development depend on the stage of development of the markets. They also find that capital markets often fail smaller countries and companies and that “soft” factors such as the quality of human capital and relation of a society to risk-taking, transparency and trading also play an important role. The BIS (2019) also examines the factors that foster the development of robust capital markets and highlights in particular the importance of macroeconomic stability, market autonomy, strong legal frameworks and effective regulatory regimes.

The World Bank and the IMF (2001) have published a handbook on the development of government bond markets covering key aspects of the process: costs and benefits, prerequisites, money markets and monetary policy operations, issuance strategy, investor base, secondary markets, settlement infrastructure, legal and regulatory framework, taxation, linkages of government securities markets to subnational and private sector bond markets and sequencing of reforms. More recently, the IMF and The World Bank (2021) have prepared a comprehensive guidance note focused on developing local currency bond markets. The guidance note follows a similar structure as the 2001 handbook. The OECD publishes on a yearly basis its Sovereign Bond Outlook which covers the most salient topics related to sovereign debt management. It also lays down valuable information gathered through surveys among OECD member countries. Blommestein (2009) shows that the increased integration of global financial markets has been an important catalyst in the standardization of the structure and types of instruments as well as the convergence of general procedures and policies for the issuance of government debt.

Some of the research has a narrower scope and focuses on specific microstructural aspects of primary and secondary markets in government debt. Arnone and Iden (2003), Arnone and Ugolini (2005) and The World Bank (2010) lay down a comprehensive overview of the objectives, benefits, costs and preconditions for the introduction of a primary dealer system. Preunkert (2020) uses a sociological perspective and argues that banks participating in primary dealer systems have prioritized long-term social relationships with governments, and their reputations on the global financial market, over short-term economic interests. Blommestein, Elmadag and Ejsing (2012) give an in-depth overview of buyback and exchange operations conducted by debt management offices with the intention of lowering refinancing risk and increasing the liquidity of on-the-run securities. The World Bank Group (2015) provides an in-depth review of securities lending facilities provided by debt management offices as an instrument to enhance the liquidity of secondary markets.

More recently, research on government bond markets has been interested in the impact of market turmoil caused by the GFC and the COVID-19 pandemic, as well as monetary and regulatory policy responses to these shocks. De Pooter, Martin and Pruitt (2018) show how interventions by the European Central bank through large-scale asset purchases influenced sovereign bond liquidity premia. BIS (2014) analyses current trends in market-making and finds that market-makers have recently withdrawn from market-making activities, in particular in riskier and less liquid assets due to decline in risk tolerance and regulatory change after the GFC. Bonner, van Lelyveld and Zymek (2013) analyze the impact of liquidity regulation on the determinants of banks' liquidity buffers. Petrella and Resti (2016) investigate the liquidity of government bond markets in times of market turmoil and find that liquidity is driven by market factors such as the quality spread between BBB- and AAA rated bond yields, and bond-specific factors (such as duration, ratings and size). USAID (2022) reviews key concepts central to public debt theory and lays down a framework to detect early warnings of debt vulnerabilities in the new global set up where public sector indebtedness has seen a steady increase after the GFC and the COVID-19 crisis.

The novelty of this paper is that it applies a standard methodological framework applied in the field of government bond market development on the case of three comparable countries (BH, Croatia and Serbia) evolving in a similar legal framework but with a time delay. This approach allows to identify impacts of specific policy choices on the development of government bond markets and provides valuable information for policymakers.

3 KEY FEATURES OF THE PRIMARY AND SECONDARY MARKET

Table 1 shows the structure of government debt in the analyzed group of countries. It is visible that BH has by far the lowest debt/GDP ratio in the group and the lowest absolute amount of debt. Interestingly, figures for FBiH and RS diverge significantly and reveal that RS has a much higher relative level of debt. Second, BH has the largest relative weight of foreign debt in total debt (82,3%), followed by Serbia (60,54%) and Croatia (34,79%). Obviously, this does not work in favor of development of the domestic market in government bonds in BH as higher volumes usually lead to higher liquidity. It must be highlighted here that for the purpose of this analysis it is the debt of FBiH and RS that is termed "government debt" as BH does not issue bonds at country level. Amounts for District Brčko and central BH institutions are negligible and account for the difference between data at BH level and the sum of data for FBiH and RS in Table 1.

Table 1: Internal and external central government debt as of 31 December 2021

	FBiH	RS	BH	Croatia	Serbia
GDP (EUR mn)	12.881	6.391	19.754	58.254	53.329
Internal debt (EUR mn)	389	733	1.122	29.040	11.344
Out of which bonds (EUR mn)	322	511	833	22.803	10.759
No. of issues	21	32	53	19	15
External debt (EUR mn)	2.117	2.772	4.947	15.495	17.407
Out of which bonds (EUR mn)	-	468	468	9.285	7.316
No. of issues	-	2	2	15	6
Total debt (EUR mn)	**2.507**	**3.505**	**6.012**	**44.535**	**28.752**
Out of which bonds (EUR mn)	**343**	**979**	**1.322**	**32.089**	**18.074**
Total debt/GDP	19,5%	54,9%	30,4%	76,5%	53,9%

Sources: statistical bulletins from minisitries of finance and central banks

Table 1 also reveals that all three countries have dominantly recourse to issuance of government bonds when it comes to internal debt (83,86% for BH; 78,52% for Croatia; and 94,83% for Serbia). Generally, larger bond issues are related to higher levels of liquidity. Figures show that the average amount per bond issued is highest in Croatia (EUR 1,2 billion), closely followed by Serbia (EUR 717,2 million). In contrast, the average amount of domestic government bond issues in BH is only around EUR 15,72 million and is similar in FBiH and RS. The dispersion of debt across a larger number of issues is generally not considered supportive of secondary market liquidity. In contrast to its very small domestic issues, RS has issued two eurobond issues for a total amount of EUR 468 million.

Debt management strategies might shed some light on the debt structure presented in Table 1. The debt management strategy for BH states that the fundamental goal of

debt management is to secure financial funds at an acceptable level of financing costs and risks. The development of domestic securities market is stated as a secondary goal (MFBH 2022). At entity level, RS puts some emphasis on bond market development by mentioning: (i) broadening of the institutional investor base; (ii) financing mostly through bond issuance on international and domestic financial markets; (iii) continued implementation of a transparent and predictable borrowing process; (iv) maintaining the supply of debt securities on the domestic market; and (v) exploring options for improvement of issuance procedures and harmonization with EU market (MFBH 2022, pp. 16-30). On the other hand, FBiH strategy simply states that it will continue its policy of maximizing borrowing from multilateral financial institutions (MFBH 2022, p. 46) without elaborating further the goal of developing the securities market.

As shown in Table 1, Croatia has the largest debt to GDP ratio among the three countries covered by this analysis. However, the last debt management strategy was published by the Ministry of Finance for the 2019-2021 period. That document does not discuss development of the government debt market (MFRH 2019). Moreover, a debt management strategy or transition plan for the period after Croatia's accession to the eurozone (1 January 2023) isn't accessible either. It must be emphasized that entering the eurozone is a tectonic shift for government debt management both in the primary and secondary markets. Besides making the "local currency" vs "foreign currency" debate largely obsolete, it also has the potential to erase borders between domestic and foreign investors and markets and consequently to diversify the investor base, increase liquidity and further reduce borrowing costs.

Among the three countries analyzed, Serbia has the most transparent debt management process and appears dedicated to implement its strategy. The PDA within the Ministry of Finance regularly publishes comprehensive debt management strategies. Its strategy for the period 2022-2024 states that the primary goal is to issue RSD denominated benchmark bonds on the local market to reduce currency risks. It also states that it wishes to remain part of the J.P. Morgan Government Bond Index-Emerging Markets as a means to attract foreign investors (PDA 2022).

In addition to or in spite of broader factors affecting the potential for development of the government bond market, such as absolute and relative size of debt, its currency structure and the size of the local market, a series of techniques and arrangements have been successfully applied in various jurisdictions to increase liquidity and build a longer and more representative yield curve (BIS 2019; Demekas and Nerlich 2020; OECD 2019; OECD 2018). These microstructural tools include:

- respecting a pre-announced auction calendar;
- building a yield curve through regular issuance of government paper on selected maturities ("benchmark issues");
- use of reopenings, tap sales, buy-backs, and switch operations to increase the size of benchmark securities while reducing refinancing risk;

- active role of debt management offices in the secondary markets via securities lending facilities and secondary trading;
- implementation of secure, transparent, and cost-efficient electronic trading systems;
- implementation of well-designed primary dealers' and market makers' arrangements;
- development of complementary markets (e.g., repo markets);
- development of investor relations activities to broaden the investor base.

Both entities issuing debt in BH are issuing domestic bonds through auctions based on pre-announced auction calendars. They are neither trying to increase the volume of benchmark issues through reopenings or switch operations, nor do they have a primary dealer system in place. Formal market makers don't exist either. The analysis of published auction calendars against actual auctions in FBiH for 2021 reveals that three out of six bond auctions initially planned were cancelled. The total face value of bonds issued by FBiH in 2021 was approximately EUR 46 million. Past calendars of auctions are not available in RS. In 2021, one auction was held in February and the other in March, with total face value of EUR 23 million. Irregular auctions and cancellations don't facilitate liquidity planning for institutional investors and make the implementation of an investment strategy difficult. As regards trading systems, both FBiH and RS require trading in government bonds to be conducted via their respective exchanges – BLSE and SASE – for primary and secondary markets. This appears to be a complex and costly set up working against institutional investors' interests and whose only advantage might be transparency. The fact that issuers are not exempt from the obligation to publish a prospectus and that there is no automatic recognition of authorizations for investment activities across entities does not contribute to easy and flexible issuance and trading either.

Croatia does not use auctions to issue bonds. Instead, it uses a syndicate of banks. A rather loose plan of issuance is published yearly. Reopening of issues is the only liquidity enhancing technique used by the Ministry of Finance. There is no system of primary dealers or formal market makers. It is interesting to note that currently only five EU governments don't have primary dealer systems: Croatia, Cyprus, Estonia, Malta and Luxembourg (Preunkert 2020, p. 4). Although bonds are formally listed on the ZSE, trades are almost exclusively conducted OTC. The central securities depositary doesn't have any links with foreign central securities depositaries.

By contrast, Serbia has implemented a series of liquidity enhancement techniques. Domestic bond auctions are organized through a proprietary platform managed by the PDA and opened to authorized investment firms and local banks authorized under the Capital Markets Law. Auctions respect a yearly issuance framework and calendar. There is no system of primary dealers in place, although media reports dating from 2018 can be found stating that the Ministry of Finance intended to implement one. However, the PDA

is active on the secondary market through buybacks of older bonds and their replacement with newer benchmark bonds with longer maturities. Although bonds are listed on the Belex, they are almost exclusively traded OTC. Finally, the Central Securities Depositary and Clearing House has created links with Clearstream in 2021, with the aim of facilitating settlement of local bonds by foreign investors.

To conclude this section, it is worth mentioning that another tool which can play a noticeable role in the development of government bond markets are repo or securities lending markets. Central banks often play a catalytic role in the development of repo markets through the conduct of monetary policy and market operations (BIS 1999). However, expansionary monetary policies conducted by most central banks for over a decade have not been supportive of repo markets development. In addition, debt management offices' activity in securities lending markets can be expected only where there is active market making. Hence, the absence of developed securities lending or repo markets in BH, Croatia or Serbia doesn't come as a surprise. An additional force impeding the development of the repo market in BH might be the fact that it has implemented a currency board. Where the central bank does not pursue an active monetary policy through repo transactions, the banking sector might not find enough incentives to work on the development of the repo market. As far as Croatia is concerned, it remains to be seen whether accession to the eurozone will boost the repo market in domestic bonds. At the moment, only Croatian international bonds are accepted as collateral for ECB's monetary operations. The SKDD is currently working on a project to join the TARGET2-Securities platform the result of which will be that Croatian locally issued bonds will be accepted as collateral by the ECB. However, for foreign investors to seamlessly transact in Croatian domestic bonds through TARGET2-Securities, the SKDD will also have to create links with foreign central securities depositaries.

4 INSTITUTIONAL INVESTOR BASE

The institutional investor base is probably the single most important catalyst for the development of government bond markets and capital markets in general. Research reveals a strong correlation between the depth of the institutional investor base on the one side, and capital market development and stability of long-term government bond yields on the other side. In addition, empirical evidence shows that institutional investors can lead capital markets development in emerging markets, even before the appearance of a strong retail market (BIS 2019). Literature usually lists the following benefits for capital markets provided by institutional investors: (i) long-term investment philosophy (mainly pension funds and insurance companies); (ii) enhanced corporate governance; (iii) professional service; (iv) channelling household savings to the real economy; (v) creating liquidity (mostly institutional investors with shorter-term investment horizons like investment funds) (IOSCO 2012; OECD 2021; BIS 2019).

Various reforms have been put in place around the world with the purpose of developing the institutional investor base. A frequently used method is to use favourable tax treatment for targeted products like life insurances or pension savings. Other countries have mandated the population to place funds with institutional investors (e.g., mandatory pension funds). As we will see on the case of Croatia, the size of the institutional investor base alone is not sufficient to create a vital market. Attention should be paid to creating a broad and diversified base with investors displaying different investment horizons and strategies.

Table 2 shows the absolute size of non-banking institutional investors in FBH, RS, Croatia, and Serbia at the end of 2021. In relative and absolute terms, Croatia is the outlier with 49,43% of GDP held in assets by institutional investors. A closer look at the table reveals that this high figure is due to mandatory pension funds. Nonetheless, even without them, Croatia would still score 19% of GDP, which is much higher than other countries in the group.

Table 2: Comparative data for non-bank institutional investors as of 31 December 2021

	FBiH	RS	BH	Croatia	Serbia
GDP (EUR mn)	12.881	6.391	19.754	58.254	53.329
Insurance companies (EUR mn)	836	294	1.130	6.423	2.840
Investment funds (EUR mn)	396	86	482	3.645	660
Voluntary pension funds (EUR mn)	0	9	9	1.038	418
Mandatory pension funds (EUR mn)	0	0	0	17.690	0
TOTAL (EUR mn)	**1.232**	**389**	**1.621**	**28.796**	**3.918**
% **GDP**	**9,6%**	**6,1%**	**8,2%**	**49,4%**	**7,4%**
Banks' assets (EUR mn)	13.237	4.883	18.121	66.468	42.932
% GDP	102,8%	76,4%	91,7%	114,1%	80,5%

Sources: statistical bulletins from regulatory agencies and central banks

3.1 The banking sector

Research emphasizes the positive role that capital markets can play in mitigating the negative impact of bank loan contraction on economic activity (OECD 2021; Carvajal and Bebczuk 2019). However, empirical research also confirms that the preexistence of a well-developed and robust banking system is a precondition for capital markets to develop. Hence, deep capital markets and sound banking systems are complements, with banks being more specialized in rigid arrangements aimed at funding traditional activities, while capital markets are more specialized in longer-term, collateral-scarce and riskier activities (Carvajal and Bebczuk, 2019, p. 26).

Banks usually play a crucial role in the early phase of development of local short-term debt, repo, government securities and corporate bond markets. They underwrite issuances, act as primary dealers and market makers, serve as a bridge for foreign investors, and are often among the largest issuers of debt securities. In many economies, they are also major investors and dominate distribution of financial products to retail clients. As the market develops, banks' role typically diminishes and becomes more ambiguous: arguments can be found that in countries where domestic commercial banks own the largest broker-dealers, there are limited incentives to encourage corporate debt issuance (World Economic Forum 2015; Demekas and Nerlich 2020; BIS 2019). It is worth mentioning that the strict capital, organizational and transparency requirements imposed on banks after the GFC have significantly reduced banks' capacity and appetite for supporting markets through a market making role (BIS 2014).

Data from Table 2 shows that banks are clearly dominating the financial sector in BH. As of December 2021, the total assets of the banking sector in BH stood at EUR 18.12 billion. Available reports show that banks were holding EUR 958 million in RS and FBiH bonds (ABRS 2022, p. 40; FBA 2022, p. 37). Comparing this figure with the total amount of RS and FBiH bonds issued (Table 1) reveals that banks hold 72,5% of total domestic and international RS and FBiH bonds. This clearly demonstrates the crucial role that banks play or could play in the bond market in BH. However, banks in BH have not shown a lot of interest in participating, either directly or indirectly, in capital markets: only a few banks are authorized for investment activities, one owns an investment firm (authorized only to provide brokerage services) and one owns an investment fund management company.

Unlike BH and Serbia, the institutional investor base in Croatia is better developed, and banks play an important role within it. The largest banks are owners of the largest investment fund and pension fund management companies. Using their retail distribution channels, they have played a crucial role in building the institutional investor base. The largest banks are also important players in the bond market, as issuing agents and unformal market makers for local government bonds. Twelve banks are authorized to perform investment activities and provide investment services.

Banks in Serbia also play an important role in the capital market. Eight banks are authorized to perform investment services and provide investment activities. They have also entered the non-banking financial services sector by establishing investment and pension fund management companies.

3.2 Insurance companies

Insurance companies, in particular their life insurance arms, usually play an important role in capital markets. Because they need to match the maturity and currency structure of their liabilities, they tend to invest their assets locally and play an important role on

the demand side for longer term investments. However, insurance companies are mostly buy-and-hold investors and do not contribute much to secondary market activity.

The regulatory framework for insurance companies' investments in the EU is based on a complex, risk-weighted set of calculations laid down in the Solvency II framework. The influence of Solvency II on regulation in Serbia and BH is also visible. In a recent report, the European Commission noted that the Solvency II framework may provide disincentives to invest in equity and suggested that "prudential rules should be reviewed to facilitate long-term equity investments" (European Commission 2021, p. 7). In the meantime, the regulatory framework creates a bias towards government securities.

As shown in Table 2, total assets of insurance companies in FBiH and RS as of 31 December 2021 amounted to EUR 1,13 billion. The detailed aggregated breakdown by asset class is not available. Nevertheless, data published by the CBBH uncovers that at the end of December 2021, BH insurance companies held EUR 281,5 million in "securities except stocks". Assuming that "securities except stocks" are local bonds, insurance companies might hold up to 21,3% of government bonds issued in BH (less if they hold foreign bonds).

Total assets of Croatian insurance companies at the end of 2021 amounted to EUR 6,42 billion. Data about the asset structure is not available for 2021 but based on data for 2020 when they held EUR 2,87 billion in government bonds (HANFA 2021), it can be safely assumed that a large part is still invested in this asset class. Data at EU level shows that debt securities accounted for 35,6% of the sector's total assets in the second quarter of 2022 (ECB 2022). The larger weight of debt securities in the balance sheet of Croatian insurance companies can be partly explained by the fact that Croatian government bonds provided attractive returns for years, compared to their euro zone peers. In any case, insurance companies are large but not active players in the Croatian capital market.

Total assets of the insurance sector in Serbia stood at EUR 2,84 billion, as of December 2021, out of which 60% or EUR 1.7 billion were invested in bonds (NBS 2022).

3.3 Investment funds

Investment funds are investment products created with the purpose of gathering investors' capital and investing that capital collectively. As a key feature of most investment funds investing in public securities is to offer daily liquidity to investors, their behaviour tends to replicate market trends: they deepen market crashes and inflate market bubbles. Procyclicality risks are particularly present on small markets where they have significantly outgrown the liquidity of the market. Therefore, unlike pension funds or insurance companies, investment funds do not contribute to market stability. On the other hand, they contribute to secondary market liquidity.

Investment funds in BH originated from the mass privatization of state-owned enterprises and the creation of PIFs. Based on a series of regulatory reforms, PIFs were first

transformed into closed-end funds (Rovčanin and Halilbašić 2005; Bojat and Rebić 2018) and then into open-end funds. They are now characterized by small AUM and illiquid portfolios concentrated in BH equity. A notable exception are funds managed by a fund management company from FBiH that is member of a banking group. This company is the only provider of investment funds covering money market and fixed income strategies. It is interesting to note that other banking groups present in BH have not shown interest to add an asset management arm to their local operations. According to statistical data published by the CBBH, total AUM of investment funds in BH at the end of 2021 amounted to EUR 482,35 million, out of which EUR 395,56 million from FBiH (KVP 2022).

The investment funds industry in Croatia began growing in the early 2000s, when the largest banks established their fund management companies as a strategic move to diversify the range of products offered to clients and to increase revenues from fees. At that time, money markets and bond markets were providing high returns compared to bank deposits, while exposing investors to a reasonably low level of risk. This allowed fund managers to grow their assets considerably. Another factor working in favour of the development of the fund industry was that regulatory requirements were much lower at that time. Access to the EU brought gradual integration of operations into group asset management companies and the opening of bank distribution channels to foreign funds. The introduction of the euro and further integration of the European capital markets are seen as a threat to local managers. As of 31 December 2021, total AUM of Croatian investment funds amounted to EUR 3,65 billion. Bond funds are currently dominating the market and retail investors make over 50% of assets.

In Serbia, AUM in investment funds stood at EUR 659,68 million as of 31 December 2021 with a strong dominance of money market funds. There were six fund management companies, with three being members of banking groups and two being members of foreign asset management groups. Serbia roughly aligned its investment fund regulation with the acquis in 2019 and 2020.

3.4 Pension funds

Funded pension plans, whether privately or publicly managed are among the largest institutional investors globally, and research supports the view that they contribute to the development of capital markets (Scharfstein 2018). The volume of assets in funded pension plans depends on incentives and/or requirements for participation and the generosity of pay-as-you-go systems. While mandatory contributions have been introduced in many countries (e.g., Australia, Chile, Switzerland, Bulgaria, Croatia), others rely on voluntary pension plans (e.g., United States and United Kingdom) and/or complementary schemes and incentives for workers to onboard.

The pension system in BH currently relies almost exclusively on the pay-as-you-go pillar. Despite the fact that the legal framework has been in place for years, the industry remains at an embryonic stage with one voluntary pension fund management company created in RS, and none in FBiH. According to data published by AZORS (2022) the net asset value of this fund as of 31 December 2021 stood at EUR 8,9 million. The PREF, established in 2010, is not included in this analysis as a pension fund because it is not gathering contributions from members. It is nevertheless a significant institutional investor with assets of EUR 121,78 million as of 31 December 2021 (PREF 2022).

Croatia introduced The World Bank's three-pillar model in the early 2000s. In the meantime, assets in the mandatory and voluntary pillars have been increasing steadily. The mandatory pillar, in particular, has gathered large amounts of assets and has become the most important player on the Croatian capital market. As of 31 December 2021, AUM of Croatian mandatory pension funds stood at EUR 17,69 billion (30% of GDP). It is fair to say that mandatory pension funds in Croatia have outgrown the local market. Their financial strength and long-term investment strategy have proven extremely precious in times of crises. However, their presence in the market has had a negative impact on stock liquidity (OECD 2021) and probably also on government bonds' liquidity and the government's motivation to improve public debt management tools and techniques. The growth in AUM in volunatry pension funds has been far less impressive: after twenty two years of existence, they were just over EUR 1 billion at the end of 2021, in spite of tax benefits and direct monetary subsidies.

Serbia introduced voluntary pension funds into its pension system in 2006. There are four fund management companies in the market, all related to large insurance and banking groups. As of December 2021, AUM stood at EUR 417,57 million. Just as in Croatia, this demonstrates how difficult it is to gather assets in the voluntary pension fund business and why new participants are reluctant to enter the market.

4 RESULTS AND CONCLUSION

Sections 3 and 4 have provided a comprehensive overview of the current state of the government bond markets in BH, Croatia and Serbia, including the tools and techniques used by their respective debt management offices and the depth and breadth of their institutional investor base. However, the analysis cannot be completed without an overview of market liquidity.

Table 3: Comparative data related to government bond markets as of December 2021

	FBiH	RS	BH	Croatia	Serbia
Volume of local bonds outstanding (EUR mn)	322	511	833	22.803	10.759
Local bonds as % of debt	9,6%	16,2%	12,7%	35,7%	27,9%
Secondary trading in 2021 (EUR mn)	0,1	30,5	31,6	490	281
Secondary trading as % of outstanding volume	0,03%	4,5%4	3,7%	3.0%	3.3%

Sources: Eurostat; Agency for Statistics of Bosnia and Herzegovina, ministries of finance from respective countries

BH has a small government debt market in absolute and relative terms. Its institutional investor base is shallow and lacks diversity but is not lagging Serbia's. The same can be said for its banking sector. Neither FBiH's nor RS' debt management offices actively use liquidity enhancement techniques. Moreover, auctions are not regular, calendars are not respected, and issues are small and scattered. However, secondary trading figures from Table 3 differ significantly between RS and FBiH government bonds. Surprisingly, secondary trading in RS bonds largely exceeded that of FBiH bonds, although the institutional investor base in RS is weaker. Two differences emerge that might explain this difference: the absolute volume of debt is higher and published debt management strategies in RS suggest there is more interest in debt markets than in FBiH. Government bond markets in both entities could profit if foreign debt was gradually replaced by local issues. However, it would be important to increase the absorption capacity of the local market in parallel, through legislative changes that would support the development of investment and voluntary pension funds and facilitate trading.

Croatia has the highest absolute and relative level of debt and local bonds among the countries covered by this analysis. It also has the strongest institutional investor base by large. However, secondary trading data for local government bonds is not reflecting these advantages. Unfortunately, due to uncomplete reporting architecture under the MiFID2 Directive, consolidated data about secondary trading in bonds in the EU is not available. Hence, it is difficult to estimate secondary trading for Croatian local government bonds. According to data published by the ZSE for 2021, only 337 trades were reported for locally issued bonds with a total trading volume of EUR 490 million (see Table 3), or 3% of their outstanding volume. Since trades were probably reported with other approved publication arrangements (APAs), real trading volumes are higher. For instance, Bloomberg reported 347 million for the same period and same bonds. Unfortunately, the level of overlapping can't be estimated. An informed guess would be that trading volumes for 2021 were between EUR 490 million and EUR 840 million, or somewhere between 3% and 5% of the outstanding volume. This is not an impressive result. In contrast, reported secondary trading for Croatian international bonds on Bloomberg was EUR 12,12 billion for 2021. This is a clear demonstration of the importance of the breadth of the investor

base. Lack of initiative of the debt management office when it comes to liquidity enhancing techniques and the dominance of buy and hold investors on the local market are the main cause of this result. Accession to the eurozone is a unique opportunity for Croatia to revitalize its local debt market, but it remains to be seen whether it will capitalize on it.

Serbia has the most transparent and active debt management office among the group of three countries analysed. It is using a range of liquidity enhancement tools and making efforts to attract foreign investors through a link with foreign central depositories and inclusion in leading bond indices. However, its institutional investor base is still in an embryonic stage of development and below BH in relative terms. As could be expected, liquidity in secondary markets in government bonds is reflecting this situation. This is probably caused by a weak local institutional investor base, and this should be the main focus of further reforms in order to strengthen the local government debt market.

To conclude, the analysis shows that despite obvious limitations to the development of government bond markets, in particular the size and the level of GDP per capita in BH, Croatia and Serbia, the impact of policy choices is not negligible. For example, the market in BH is the least developed among the three countries included, but notable differences between RS and FBiH suggest that policy choices can indeed have a significant impact on market performance. Likewise, the absolute dominance of Croatia in terms of institutional assets would suggest the existence of a liquid and vibrant secondary market for government bonds. However, data shows just the opposite. Probably due to lack of proactive policy choices by the debt management office. Serbia, on the other hand, is the only country in the group to have systematically implemented standard policies and liquidity enhancing techniques and arrangements in the field of government bond management. Even though it lacks institutional assets, its secondary market is not lagging much behind Croatia's. These insights can be used as guidelines for policy choices related to the development of government bond markets.

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ACRONYMS AND ABBREVIATIONS

ABRS	Banking Agency of Republika Srpska
AUM	Assets under management
AZORS	Insurance Agency of the Republic of Srpska
BH	Bosnia and Herzegovina
Belex	Belgrade Stock Exchange
BLSE	Banja Luka Stock Exchange
CBBH	Central Bank of Bosnia and Herzegovina
CEE	Central and Eastern Europe
CNB	Croatian National Bank
ECB	European Central Bank
EU	European Union
EUR	Euro (currency)
FBA	Banking Agency of the FBiH
FBiH	Federation of Bosnia and Herzegovina
GDP	Gross domestic product
GFC	Global Financial Crisis (2008-2009)
HANFA	Croatian Financial Services Supervisory Agency
HRK	Croatian kuna
KM	Convertible mark
KVP	Securities Commission of the Federation of Bosnia and Herzegovina
MFBH	Ministry of Finance and treasury of Bosnia and Herzegovina
MIFID2	Directive 2014/65/EU on markets in financial instruments
NADOS	Agency for the Supervision of Insurance of the Federation of Bosnia and Herzegovina
NBS	National Bank of Serbia
OTC	Over the counter
PDA	Public Debt Administration of the Republic of Serbia
PIF	Privatization investment fund
PREF	Pension Reserve Fund of Republic of Srpska
RS	Republic of Srpska
RSD	Serbian dinar
SASE	Sarajevo Stock Exchange
SEE	South East Europe
SKDD	Central Depositary and Clearing Company (Croatia)
USD	United States dollar
ZSE	Zagreb Stock Exchange