

**REVIEW**  
**for obtaining the educational and scientific degree "Doctor"**  
**in SA "D. A. Tsenov"- Svishtov**

**Reviewer: Prof. Bojidar Violinov Bojinov, DSc**

**Author of the dissertation:** Borislav Krasimirov Kirov, applying for the educational and scientific degree "Doctor" in professional field 3.8 "Economics", scientific specialty "Money circulation, credit and insurance" (Finance)

**Dissertation topic:** "Investments in Mortgage-Backed Securities"

The review was prepared in accordance with the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria - ZRASRB, the Regulations for Implementation of the ZRASRB and the Regulations for the Development of the Academic Staff in the Academy of Economics "D.A. Tsenov", Svishtov. The review was prepared on the basis of Order № 1036 / 02.12.2021 for approval of the composition of the scientific jury on the open procedure for public defense of a dissertation on "Investments in Mortgage-Backed Securities", developed by Borislav Krasimirov Kirov, for the acquisition of educational and scientific degree "Doctor" in professional field 3.8. 02/05/05 Economics, Scientific Specialty "Finance, Money Circulation, Credit and Insurance" (Finance).

**The normative requirements for the dissertation work for acquiring the educational and scientific degree "Doctor"** are available in Art. 27 of the Regulations for application of the Law for the development of the academic staff in the Republic of Bulgaria and art. 68 of the Regulations for development of the academic staff in SA "Tsenov", according to which:

(1) The dissertation must contain scientific or applied scientific results, which represent an original contribution to science. The dissertation must show that the candidate has in-depth theoretical knowledge in the relevant specialty and abilities for independent research.

(2) The dissertation must be presented in a form and volume corresponding to the specific requirements of the primary unit. The dissertation must contain: title page; content, introduction; exhibition; conclusion - summary of the results obtained with a declaration of originality; bibliography.

Art. 72, item 4 of the Regulations for development of the academic staff in SA "DA Tsenov" also presupposes the requirement to meet the minimum national requirements for obtaining the **educational and scientific degree "Doctor"**.

**Starting point for the review are:**

1. **Dissertation " Investments in Mortgage-Backed Securities"** in a volume of 174 pages. Attachments are attached to the dissertation. I accept the total volume of 161 pages as sufficient to clarify the author's thesis.

2. **List of the candidate's publications on the topic**, including the following publications:

1. Kirov, B. **Investments of insurance companies in Bulgarian Mortgage-Backed Securities - challenges and risks.** // Annual almanac "Research of PhD students", SA "D. A. Tsenov", book 14, Svishtov, AI "Tsenov", 2018, pp. 205-217.

2. Kirov, B. **The effect of European credit regulations on mortgage lending and investment in Mortgage-Backed Securities.** // Annual almanac "Research of PhD students", SA "D. A. Tsenov", book 15, AI "Tsenov", Svishtov, 2019, pp. 79-98.
3. Milinov, V., Kirov, B. **Evolution of the mortgage market and the housing market.** // International Scientific Conference "Integration Processes in the Global Economy", 25 Years of the Department of International Economic Relations, May 11-12, 2018, Svishtov, AI "Tsenov", 2018, pp. 62-69.
4. Kirov, B. **Mortgage-Backed Securities and opportunities for direct financing of commercial banks from the Bulgarian capital market.** // International Scientific Conference "Integration Processes in the Global Economy", 25 Years, Department of IIE, May 11-12, 2018, AI "Tsenov", Svishtov, 2018, pp. 62-69.
5. Kirov, B. **Changes in the European regulatory capital requirements for Asset-Backed Securities in times of crisis.** // International Scientific and Practical Conference "Sustainable Development and Socio-Economic Cohesion in the XXI Century - Trends and Challenges", AI "Tsenov", Svishtov, 2021.
6. Kirov, B. **Investment Banks and Mortgage-Backed Securities.** // National Scientific Conference "75 years of the Union of Scientists in Bulgaria - for the benefit of science and education" September 26-28, 2019, MDU "Frederic Joliot-Curie", resort "St. St. Constantine and Helena", Varna, 2019, pp. 196-205.

### 3. List of contributions, including 6 defined contributions, namely:

**First** . Research and analysis of the financial crisis of 2008-2009 show the wrong approach to the US-adopted "structural securitization", which was seen as a universal scheme to eliminate risk, manage financial turnover for faster profits at "low risk". This myth was shattered by the global crisis, which showed that such a system could not be a positive driver of the investment process associated with massive investment in "risk-free" assets (real estate, Mortgage-Backed Securities and Asset-Backed Securities). The introduction of new European regulations in mortgage lending and the issuance of Asset-Backed Securities affect to varying degrees the liberalization of capital flows, the behavior of credit institutions and requires training and accountability of bank management, which is a prerequisite for greater transparency and sustainability of the financial system.

**Second** . The adoption of European Directive (EU) 2019/2162 on Asset-Backed Securities sets a very ambitious goal of stabilizing the banking sector and stimulating financial markets in the EU. With the creation of such regulatory "double guarantees" for investors, they will "build on the existing regulatory framework of Mortgage-Backed Securities" in the introduction of the new European regulatory framework, and is expected to increase interest in newly adopted European countries such as Bulgaria

with underdeveloped investment policy to the issuance and investment in Mortgage-Backed Securities / Asset-Backed Securities. This will guarantee new opportunities for alternative financing of credit institutions in the future rising interest rates and stable economic development.

**Third .** The identification in the dissertation of the mentioned possible problems are related to the policy of the European Central Bank and the national central banks towards maintaining low interest rates, which in the period 2019-2021 provides a strong growth of mortgage loans in the EU and creates conditions for "bursting another property price bubble" such as the financial crisis in 2008-2009, as in major European cities and capitals housing prices in 2020-2021 rise at double-digit rates and accumulate financial risks caused by high real estate prices, low economic growth - in conditions of negative interest rates on deposits.

**Fourth .** Mortgage-Backed Securities / Asset-Backed Securities investments had similar regulatory support, with "good yield and low risk" insurance guarantees, making them a preferred financial asset among institutional investors in the United States and around the world before the 2008-2009 financial crisis. After the crisis, interest in them is expected to "cool down" permanently, which poses the ambitious task of the new European legal framework to present them as a "new" low-risk financial asset with "double guarantees" and good returns. However, institutional investors must have an investor's expectation of future profitability and risk, which is based on the view that "the future is a repetition of history with small changes".

**Fifth .** High competition between credit institutions and aggressive mortgage lending are pushing the "price bubble, as mass home sales could lead to a collapse in real estate prices, which will have a negative effect on Mortgage-Backed Securities / Asset-Backed Securities prices and all the negative consequences of this event, central banks must monitor and regulate the activities of credit institutions in a pandemic and economic recession with unclear horizons. This will be a prerequisite for avoiding new financial and economic crises, bankruptcies or large losses for institutional investors.

**Sixth .** The new European legislative initiatives of 2020-2021 related to Mortgage-Backed Securities / Asset-Backed Securities emphasize transparency and require the disclosure of more information and competence related to the "double guarantee" for investors in countries such as Bulgaria, where such an investment policy is poorly developed. Throughout this process, the necessary balance must be struck between a stable banking sector, active mortgage lending, stable real estate prices and optimal investment in Mortgage-Backed Securities / Asset-Backed Securities for sustainable financial market development, which will require the BNB and the FSC as supervisory institutions to use more effectively the tools for countercyclical, crisis regulation.

4. **Abstract** in the amount of 48 pages.

5. **Information on the implementation of the minimum national requirements and publications on the dissertation**, with 4 publications, allowing the collection of 40 points on the national requirements.

6. **List of the doctoral student's participations in scientific forums**, with indicated participations in 6 scientific forums, namely:

1. Participation in the Doctoral Scientific Session 2018, held in Svishtov

2. Participation in the Doctoral Scientific Session 2019, held in Svishtov
3. Participation in the International Scientific Conference "Integration Processes in the Global Economy", 25 years of the Department of IIE, May 11-12, 2018, Svishtov
4. Participation in the International Scientific and Practical Conference "Sustainable Development and Socio-Economic Cohesion in the XXI Century - Trends and Challenges", Svishtov
5. Participation in the National Scientific Conference "75 years of the Union of Scientists in Bulgaria - for the benefit of science and education" September 26-28, 2019, MDU "Frederic Joliot-Curie", kk. "St. St. Constantine and Helena "

In fulfillment of my duties as a reviewer, I present the following findings and conclusions:

### **I. General presentation of the dissertation:**

The title of the dissertation "Investing in Mortgage-Backed Securities " fully corresponds to the content. I consider the volume of 174 pages to be sufficient to clarify the author's thesis. The subject of the study, formulated on pages 7-8, is the retrospective, diagnostic and prognostic analysis of the mortgage market for the period 2010-2020 in the context of its transformation into a Asset-Backed Securities market, ie a market of new well-advertised, risk-free and popular financial instrument, examining the specifics of investment risks that accompany the new regulatory changes in the trade in Mortgage-Backed Securities / Asset-Backed Securities, as well as the evolution of mortgage lending (credit register, mortgage insurance, securitization of mortgages, etc.), in order to optimize the state of the mortgage market and prevent it from "bubbling".

Structurally, the dissertation is structured and logical - three chapters, introduction and conclusion, and additional applications. In my opinion, the structure of the dissertation, the balance between the parts, and especially their content present the doctoral student as an extremely conscientious researcher.

The first chapter is entitled "**Analysis of modern financial practices in mortgage collateral**" and it presents the main characteristics and features of mortgage lending and Mortgage-Backed Securities. A systematic analysis of mortgage loans and interest rates on them has been performed. According to the author, the main indicators for analysis of the state of the real estate market are derived and characterized .

Chapter Two - "**International regulatory standards and their impact on mortgage lending and investment in Mortgage-Backed Securities and Asset-Backed Securities**" focuses on the evolution of commercial and investment banking in the context of new international regulations, with special attention paid to changes in international banking regulations for financially stable banking sector. The possibilities for maintaining the dominant role of the banking sector in the mortgage market in the new restrictive conditions for institutional investors are analyzed.

The third chapter "**Credit and investment risk management in Mortgage-Backed Securities and Asset-Backed Securities**" presents a methodology for diversifying investment risk when investing in Mortgage-Backed Securities or Asset-Backed Securities. The process of securitization of mortgage loans and its connection with the crisis in the banking sector in the conditions of liberalization of the capital markets are analyzed. Guidelines for improving the

investment policy of institutional investors in investing in Mortgage-Backed Securities and Asset-Backed Securities have been defined.

I accept the structure (and its corresponding research logic) as completely successful and sufficiently balanced, and the presented assessments and conclusions - accurate and correctly (personal) formulated.

The literature used for writing the dissertation includes 73 literary, informational and Internet sources, of which 72 in Bulgarian, 10 in Russian, 45 in English and 10 normative and 9 Internet sources. In my opinion, the sources used are correctly used in the dissertation. The study also includes 7 applications.

## **II. Assessment of the form and content of the dissertation.**

The topic of the research is dissertable, topical and significant from a theoretical and practical point of view. The author gives convincing evidence for the topicality of the topic on pages 4-7, which allows me to confirm that the topic is original and relevant.

The object of research of the dissertation are Mortgage-Backed Securities and the effects of modern international regulatory standards, leading to the transformation of the Mortgage-Backed Securities market into a Asset-Backed Securities market.

The subject of the study, formulated on page 7, is the retrospective, diagnostic and prognostic analysis of the mortgage market for the period 2010-2020 in the context of its transformation into a Asset-Backed Securities market, ie a new well-advertised, risk-free and popular financial market. tool.

The main research thesis is that achieving an optimal balance in the development of the real estate market, mortgages, regulations and investments in Mortgage-Backed Securities / Asset-Backed Securities is an important factor in achieving long-term stability of credit institutions, financial markets and the economy, country requires this process to be the focus of international regulators and financial managers, when making important investment decisions for global investments in Mortgage-Backed Securities or Asset-Backed Securities. (p. 8).

The purpose of the study is: to conduct a systematic study of investments in Mortgage-Backed Securities and Asset-Backed Securities in the period 2010-2020. by analyzing the evolution in the international regulatory standards that regulate this process.

The corresponding main research tasks are also correctly written (pp. 8-9):

(1) Characteristics for the possibility of concepts such as "low-risk or risk-free financial assets" - as Mortgage-Backed Securities / Asset-Backed Securities are considered, highlighting their features and their role in the global financial crisis after 2008.

(2) Study of the possibilities in the medium and long term for balanced development and impact of modern international regulatory standards on the dynamically developing mortgage market, real estate prices and investments in Mortgage-Backed Securities / Asset-Backed Securities - during the global financial and economic crisis from 2009 onwards.

(3) Carrying out a forecasting and identification analysis of the risks and benefits for credit institutions following the adoption of the new European legal framework for Asset-Backed Securities, which aims to create for banks in Europe "an alternative and stable financing instrument for dynamic market developments" of mortgage loans with cost reduction options for both lenders and customers'.

(4) Preparation of recommendations and conclusions on possible effects and risks for institutional investors in global investments in "risk-free assets" packages, with "good returns" for

which the "new" Mortgage-Backed Securities / Asset-Backed Securities are presented. This process will require effective supervision by credit institutions of credit institutions in an effort to transfer credit risk through mass sales of bonds issued - to ensure the long-term financial stability of capital markets and the economy.

I find both the goal and the main tasks to be properly formulated and providing sufficient opportunities for conclusions and recommendations.

The research demands in the dissertation in their theoretical and empirical part are limited by the author to retrospective-diagnostic and prognostic-identification analysis of the process related to changes in the European legal framework that will change the attitudes of investing in Mortgage-Backed Securities / Asset-Backed Securities caused by global financial crisis in the United States from 2008-2009, as the focus of the study is on the formulation of specific conclusions, results and recommendations on the effectiveness of new regulations on global investment in issued Mortgage-Backed Securities / Asset-Backed Securities and prospects for the European and Bulgarian mortgage market. Outside the scope of the dissertation remain issues related to purely technological processes related to the construction sector, the organization of activities and risk management in their investment activities, as well as specific problems in lending to construction companies in the housing sector.

The dissertation uses traditional research methods such as: historical method, comparative method, inductive and deductive method, method of analysis and synthesis, statistical method, method of observation, and other methods.

The study used public data from the BNB, NSI, other publicly available data, as well as analyzes and research of leading economists in the field of this specific issue.

My general opinion about the dissertation of PhD student Kirov is that the author has clearly and precisely defined his views and ideas and within the dissertation has managed to argue and defend his views. A distinction is made between the achievements of scientific thought so far and the author's contribution to the researched issues.

The presented dissertation has a volume of 174 pages, of which 161 pages of main text, structured in three interrelated and upgrading chapters. I believe that the volume of the research is sufficient for the doctoral student to develop and defend his vision on the researched issues.

In support of the presentation in the dissertation are formed 9 tables, 12 figures and 12 formulas, which have a sufficiently high degree of information and are directly related to the thesis and views of the doctoral student.

The dissertation is written in understandable language with correct use of specialized scientific terminology on the issue. There are no significant deviations from the theses in the exposition, repetitions of views and passages, as well as the presence of logical contradictions and proportionality of the parts. The calculations in the dissertation are based on established mathematical and statistical approaches and models, which are correctly and appropriately applied to the analyzed data.

I believe that the author has adhered to the rules of scientific ethics in the creation of scientific research, correctly quoting the literature used according to the style adopted by the ARA Academy of Economics.

Regarding the volume and content of the author's abstract, I believe that it is in sufficient volume and correctly, fully and accurately reflects in summary the content and achievements in the author's dissertation research.

### **III. Scientific and scientific-applied contributions of the dissertation.**

The dissertation submitted for review is a completed scientific paper on the topic "Investing in Mortgage-Backed Securities". Within the framework of the conducted research, the author reaches a conclusion and upgrades, divided into 4 contributions, indicated in the attached abstract.

Among the author's achievements we can highlight:

- Based on a critical and detailed analysis of the existing literature and applicable regulations, the author defends the thesis that "structural securitization" is an inadequate tool to minimize risk, which in turn in the context of new European regulations in mortgage lending and issuance of Asset-Backed Securities, requires improving the skills and responsibility of bank management, as a prerequisite for achieving greater transparency and sustainability of the financial system in the growing interest of countries with underdeveloped investment policies to issue and invest in Mortgage-Backed Securities / Asset-Backed Securities.
- The findings that, as a result of the European Central Bank's post-2019 policy of keeping interest rates low, there has been a significant increase in EU mortgage lending in the face of real negative interest rates on deposits and rising double-digit property prices, creates real preconditions for "bursting another property price bubble", which in turn could cause a financial and economic crisis throughout the European Union, whose economy is already significantly shaken by the pandemic. The unfavorable trend is exacerbated by the significant competition between credit institutions, reflected in aggressive mortgage lending, which in the event of a collapse in property prices will have a negative impact on the prices of Mortgage-Backed Securities / Asset-Backed Securities.
- The findings that in the context of greatly reduced investor interest in Mortgage-Backed Securities / Asset-Backed Securities after the 2008-9 crisis, the new European legislative initiatives in the field of 2020-21 focus on transparency and the disclosure of more and more detailed information on Asset-Backed Securities as a new low-risk asset in view of the "double guarantee" provided to investors. In this aspect, the role and importance of the tools used by the BNB and the FSC to ensure the stability of the investment sector related to mortgage lending by achieving the necessary balance between a stable banking sector, active mortgage lending, stable real estate prices and optimal investment in Mortgage-Backed Securities / Asset-Backed Securities for sustainable development of the financial market.

Personally, I do not know whether the ideas and results proposed by the author have found an echo and recognition in the specialized scientific literature.

#### **IV. Critical notes, questions and recommendations on the dissertation.**

There is never a study in science that can be said to be finalized and has no potential for future development and improvement. The same applies to the dissertation of doctoral student Kirov. In some places in the exposition the predominance of the descriptive over the analytical character is allowed.

The remarks made are essentially technical and generally do not underestimate the importance of the dissertation, nor do they call into question its indisputable qualities and contributions.

I would ask the PhD student to take a stand on the following issues in the course of the defense:

1. What are the main challenges facing the Bulgarian institutions in the context of the implementation of the new European regulation of Asset-Backed Securities on the Bulgarian investment market.
2. How do you assess the impact of the pandemic and the changes in the real estate market in Europe and in our country on the Asset-Backed Securities market and their investment attractiveness?

#### **V. Summary conclusion and opinion.**

**My general opinion is:** the author has developed a dissertation that has a clearly formulated problem, goal and tasks, suggesting research; The dissertation is a proof that Borislav Kirov knows the scientific literature and scientific achievements in this scientific field, highlighted significant problems, systematized the researched issues, correctly interpreted the results of the scientific research, shaped them and presented them understandably and logically. The dissertation contains scientific or applied scientific results, which represent an original contribution to science and shows that the candidate has in-depth theoretical knowledge in the relevant specialty and abilities for independent research.

This is a reason to give my support through a **positive assessment** of the dissertation of Borislav Kirov, and **to recommend to the members of the scientific jury** on the procedure of public defense of the dissertation on "Investments in Mortgage-Backed Securities" **to award PhD student Borislav Krasimirov Kirov educational and scientific degree "Doctor" in professional field 3.8. 02/05/05 Economics, Scientific Specialty "Finance, Money Circulation, Credit and Insurance" (Finance).**

Date: 10.01.2022

Reviewer: .....

(Prof. B. Bojinov, DSc)