

mr Nikola Stakić

Fakultet za poslovne studije,
Megatrend univerzitet Beograd
nstakic@megatrend.edu.rs

NEHIPOTEKARNI STRUKTURNI FINANSIJSKI INSTRUMENTI NA SAVREMENIM FINANSIJSKIM TRŽIŠTIMA

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Rezime

U radu se analiziraju novi oblici finansijskih instrumenata na savremenim finansijskim tržištima nastali upotrebom procesa sekjuritizacije. Objašnjava se koncept sekjuritizacije u kreiranju hartija od vrednosti na osnovu različitih oblika potraživanja koja su evolutivno nastala primarno iz hipotekarnih odnosa. Kako bi se snizio trošak kapitala i smanjila kreditna izloženost izdavaoca kredita, dolazi do konvertovanja potraživanja u hartije od vrednosti, različitog kreditnog rejtinga i roka dospeća. Komparativnom analizom finansijskog tržišta u Evropi i SAD-u, prikazuju se osnovni oblici potraživanja koji služe kao podržana aktiva u kreiranju strukturnih finansijskih instrumenata. Među njima, najznačajnija su potraživanja po osnovu kreditnih kartica, automobilskih i studentskih kredita.

Ključne reči: hartije od vrednosti, sekjuritizacija, finansijska tržišta

JEL: D14, G21, G24

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NON-MORTGAGE STRUCTURED FINANCIAL INSTRUMENTS IN THE CONTEMPORARY FINANCIAL MARKETS

Nikola Stakić, MSc

Graduate School of Business Studies,
Megatrend University, Belgrade
nstakic@megatrend.edu.rs

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Summary

The paper analyzes the new forms of financial instruments in the contemporary financial markets, generated in the process of securitization. The concept of securitization itself is explained, i.e. the creation of securities based on various forms of receivables which primarily evolved from mortgage transactions. In order to lower capital charges and reduce the creditor's credit exposure, receivables are converted into securities of various credit rating and maturity. The comparative analysis of the financial markets in Europe and the USA illustrates the main forms of receivables used as underlying assets in the creation of structured financial instruments. Among them, the most significant are receivables in respect of credit cards, car loans and student loans.

Key Words: securities, securitization, financial markets

JEL: D14, G21, G24

Uvod

Kao jedan od najeksplicitnijih manifesta savremenih finansijskih tržišta, sekjuritizacija je bitno izmenila dužničko-poverilačke odnose i intermedijarni aspekt kretanja finansijskih tokova. Njen revolucionarni karakter doveo je do izrazite diversifikacije investicionih mogućnosti na finansijskim tržištima, naročito ako se ima u vidu broj novih finansijskih instrumenata koji su nastali na osnovu tog procesa. Koristi od sekjuritizacije bile su višestruke, čime su se stvorili preduslovi njene opsežnije upotrebe na različitim segmentima finansijskih tržišta. Tako se od inicijalne upotrebe sekjuritizacije na hipotekarnom tržištu SAD-a došlo do situacije da se, praktično, svaki oblik potraživanja može konvertovati u finansijske instrumente koji se dalje prodaju na primarnim i sekundarnim tržištima. Iz takve konstelacije odnosa, dolazi do stvaranja strukturnih finansijskih proizvoda poznatijih po svojim raznovrsnim skraćenim nazivima, kao što su MBS, ABS, CDO, CDS i dr. Zbog brojnih sličnih skraćenica, često se ova kategorija inovativnih finansijskih instrumenata naziva „azbučnom supom“ (*alphabet soup*), čime se ilustrativno objašnjava pregršt slova koja se koriste u njihovom imenovanju.

Međutim, sama delotvornost procesa dovedena je u pitanje nakon izbivanja globalne finansijske krize 2007. godine i njenog inteziviranja u narednim godinama. Regulatorni okvir stvaranja i upotrebe strukturnih finansijskih proizvoda omogućio je izraženi prisustvo informacione asimetrije i preveliku upotrebu moralnog hazarda. To se naročito odnosi na najveće finansijske konglomerate, koji su koristili strukturne finansijske proizvode za špekulativne aktivnosti i time se izlagali povećanim kreditnim rizicima. Pored hipotekarnih založnica, koje su bile „stožer“ savremenih hipotekarnih tržišta (prvenstveno u SAD-u), javljaju se i hartije od vrednosti u raznim granama industrije i uslužnih delatnosti kao što su studentski i automobilski krediti, vazduhoplovni lizing, komunalne delatnosti, bankarske kreditne kartice itd. Njihova upotreba konstantno je beležila pozitivne stope rasta sve do početka krize, kada je atraktivnost (ne svih) značajno opala, imajući u vidu potrebu za striktnijim regulatornim okvirom

derivativnih tržišta. U tom smislu, predmet rada će biti definisanje i analiza najvažnijih strukturnih finansijskih instrumenata koji u svojoj „podlozi“ nemaju aktivu hipotekarnog tipa, kao i njihovo funkcionisanje korišćenjem procesa sekjuritizacije.

Razvoj sekjuritizacije

Proces sekjuritizacije započeo je sedamdesetih godina 20. veka sa strukturnim finansiranjem pula aktive sačinjene od hipoteka. Decenijama pre toga banke su pretežno bile portfolio kreditori - držale su kredite do njihovog dospeća ili dok ne budu otplaćeni pre roka. Takvi krediti su uglavnom bili finansirani depozitima, i ponekad dugom, koji je predstavljao direktnu obavezu banke (pre nego pravo na određeni deo imovine).

Nakon Drugog svetskog rata, depozitne institucije više nisu mogle da drže priključak sa rastućom tražnjom za stambenim kreditima. Banke, kao i druge finansijske intermedijarne institucije, osećajući potencijal tržišta, tragale su za načinima povećanja izvora finansiranja stambenih kredita. Kako bi privukli investitore, banke su na kraju razvile metod koji je izdvajao hipotekarne pulove, disperzovao kreditni rizik i strukturirao novčane tokove prvobitnih kredita. Iako je trebalo da prođe nekoliko godina kako bi se uspostavila efikasna struktura sekjuritizacije hipotekarnih kredita, izdavaoci kredita su ubrzo shvatili da je ovakav proces primenljiv takođe i na druge kreditne oblike.

Od sredine osamdesetih godina, kombinovani uticaj napredne tehnologije i sofisticiranih investitora uspostavio je sekjuritizaciju kao najbržu rastuću aktivnost na tržištima kapitala. Ekspanzija svakog oblika sekjuritizacije je bila izuzetna, ali ne samo procesa, već i kompanija koje su je koristili u svom poslovanju, kao i broja aktuelnih investitora. Finansijsko posredovanje se toliko promenilo da se samo nekoliko banaka i finansijskih kompanija bavile isključivo portfolio kreditiranjem.

Tržište hipotekarnih založnica u SAD (*mortgage-backed securities*), tj. hartija od vrednosti koje podrazumevaju različite vrste obveznica osigurane hipotekarnim kreditima, doživelo je pravi uspon zahvaljujući podršci

Introduction

As one of the most explicit manifestations of contemporary financial markets, securitization has significantly altered the debtor-creditor relationship and the intermediary aspect of financial flows. Its revolutionary character led to the prominent diversification of investment possibilities in the financial markets, especially if we take into account a number of new financial instruments generated based on this process. The benefits of securitization are multiple, which set the preconditions for its wider usage in the various segments of financial markets. Thus, from the initial usage of securitization at the US mortgage market, we are now facing the situation in which practically each form of receivables can be converted into financial instruments to be further sold in the primary and secondary markets. It was these developments that enabled the creation of structured financial products, better known by their abbreviated names, such as MBS, ABS, CDO, CDS, etc. Due to the numerous, similar abbreviations, this category of innovative financial instruments is often referred to as “alphabet soup”, which is a colorful explanation for the plethora of letters used to name them.

However, the effectiveness of this process itself was questioned after the outbreak of the global financial crisis in 2007 and its intensification in the following years. The regulatory framework concerning the creation and utilization of structured financial products enabled a more prominent presence of information asymmetry and too high reliance on moral hazard. This particularly referred to the major financial conglomerates, which deployed structured financial products for the purpose of speculative activities, thereby exposing themselves to increased credit risks. In addition to mortgage-backed bonds, which served as the cornerstone of contemporary mortgage markets (especially in the USA), securities also appeared in other various branches of industry and service-providing sector, such as student and car loans, aircraft leasing, public utilities, bank credit cards, etc. Their usage constantly recorded positive growth rates until the outbreak of the crisis, when most of them (but not all) lost much

of their attractiveness, given the need for a stricter regulatory framework regulating the derivative markets. In this context, the paper aims to define and analyze the most important structured financial instruments which have mortgage-related assets as their underlying item, focusing on their functioning by means of the securitization process.

Development of Securitization

The process of securitization first started back in the 1970s with the structured finance of a mortgage-based pool of assets. For decades before that, banks were mostly in the role of portfolio creditors - they held loans until maturity or until their premature repayment. Such loans were mostly financed by means of deposits, and sometimes debt, which represented a direct obligation of the bank (rather than a right to the certain share of assets).

After the Second World War, deposit institutions could no longer keep up with the growing demand for housing loans. Banks, as well as other financial intermediary institutions, felt the potential of the market and sought for the ways to increase the sources of finance for the housing loans. In order to attract investors, the banks ultimately developed a method which separated mortgage pools, dispersed credit risk and structured the cash flows of the original loans. Although it took several years for the efficient structure of mortgage loans securitization to be established, the creditors quickly realized that this process is also applicable on other crediting forms.

Starting from the mid-1980s, the combined impact of advanced technology and sophisticated investors made securitization the fastest growing activity in the capital markets. The expansion of each form of securitization was remarkable, not only in terms of the process itself, but also in terms of companies which used it in their business, and in terms of the number of current investors. Financial intermediation changed to such extent that only a few banks and financial companies dealt exclusively with portfolio crediting.

The US market of mortgage-backed securities, i.e. securities implying various types of bonds secured by mortgage loans,

vladinih agencija koje su garantovale ove založnice. Da bi se olakšala sekjuritizacija nehipotekarne aktive, poslovanje je uspostavilo novog učesnika - podizače kreditnog rejtinga. Na početku, oni su vršili preteranu kolateralizaciju (*overcollateralization*) pula od kojih je sačinjena aktiva, kako bi se izbegla nemogućnost izmirivanja obaveza po osnovu glavnica i kamata MBS (*mortgage-backed securities*), zbog kašnjenja u otplati ili prevremene otplate hartija od vrednosti koje sačinjavaju pul aktive.

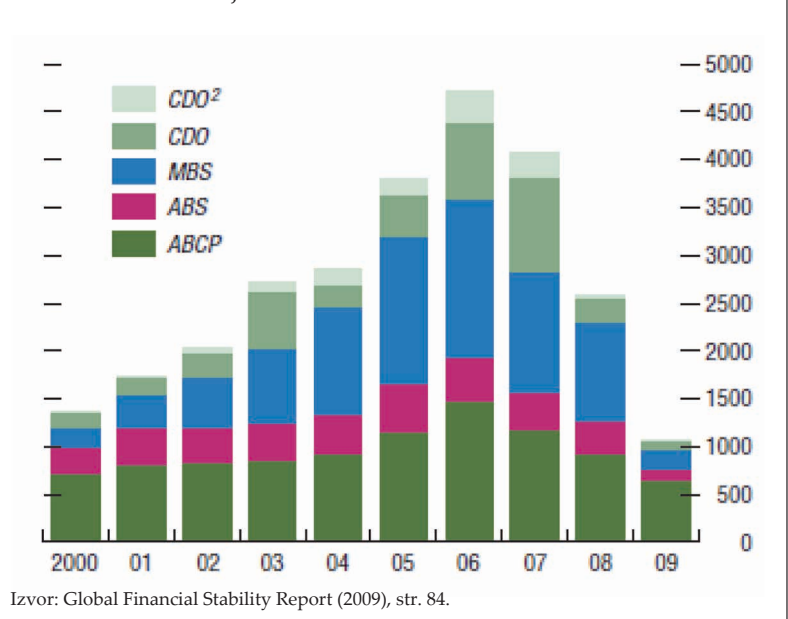
Tehnika sekjuritizacije, koja je bila razvijena na hipotekarnom tržištu, prvi put je primenjena 1985. godine i na pulove aktive koju ne sačinjavaju hipotekarni krediti - a to su automobilski krediti. Oni su bili vredna novina za strukturalno finansiranje. Njihov kreditni period je bio znatno kraći od hipotekarnih kredita, što je omogućilo kretanje novčanog toka mnogo predvidljivijim, dajući investitorima više poverenja za ovakav vid ulaganja.

Prva značajna prodaja sekjuritizovane aktive po osnovu kreditnih kartica javila se 1986. godine sa vrednošću od 50 miliona USD bankarskih potraživanja. Ova transakcija je pokazala investitorima da, ukoliko su prinosi dovoljno visoki, može se očekivati podrška prodaji uprkos većim očekivanim gubicima i administrativnim troškovima nego što je to bio slučaj kod hipotekarnih kredita. Nakon uspeha ove prve transakcije, investitori su u velikoj meri prihvatili potraživanja kreditnih kartica kao kolateral, a banke su razvile takav oblik poslovanja koji će im olakšati usklađivanje novčanih tokova.

Sledeći oblik sekjuritizacije čija se primena koristila je konvertovanje aktive potrošača bez posebne namene (*nonconsumer assets*). Većina kredita namenjena fizičkim licima je „spremna“ za sekjuritizaciju, pre svega zbog predvidivosti novčanih tokova. Danas, kvantitativne tehnike izračunavanja kreditne opterećenosti i kreditnog monitoringa široko su rasprostranjene kada je

reč o ovom obliku kredita, i većina bankarskih ponuda za fizička lica stvara potpuno homogen dužnički portfolio. Kreditiranje privrede (*commercial financing*) predstavlja sledeći izazov. Iz razloga manje homogenosti portfolija komercijalnih kredita, potencijalni investitor mora da bude upoznat sa svakim individualnim kreditom ponaosob, kao i sa činjenicom da su tehnike merenja i upravljanja portfolio rizikom manje efikasne. Bez obzira na to, investicioni bankari i vlasnici aktive su se pokazali veoma inventivnim u strukturiranju novčanih tokova i podizanju kreditnog rejtinga.

Grafikon 1: Globalna emisija najznačajnijih strukturalnih finansijskih instrumenata



Evolutivni značaj sekjuritizacije doveo je do njenog rapidnog rasta, naročito u XXI veku. Od zanemarljivog iznosa globalne emisije 1990-ih godina, finansijske institucije su 2006. godine emitovale gotovo 5.000 milijardi USD strukturalnih finansijskih instrumenata. Nakon toga, dolazi do oštrijeg pada vrednosti emitovanih hartija, naročito kolateralizovanih dužničkih obligacija - CDO (Grafikon 1).

Hartije od vrednosti podržane aktivom (*asset-backed securities, ABS*)

ABS (*asset-backed securities*) su hartije od vrednosti koje su pretežno kolateralizovane novčanim tokovima različitih oblika finansijske

really boomed thanks to the support of the government agencies issuing guarantees for these bonds. In order to facilitate securitization of non-mortgage assets, businesses introduced a new element - credit rating enhancements. At first, they conducted overcollateralization of the pool of underlying assets, so as to avoid the inability of settlement of liabilities in respect of the MBS principal and interest, due to belated repayments or early repayments of securities comprising the asset pool.

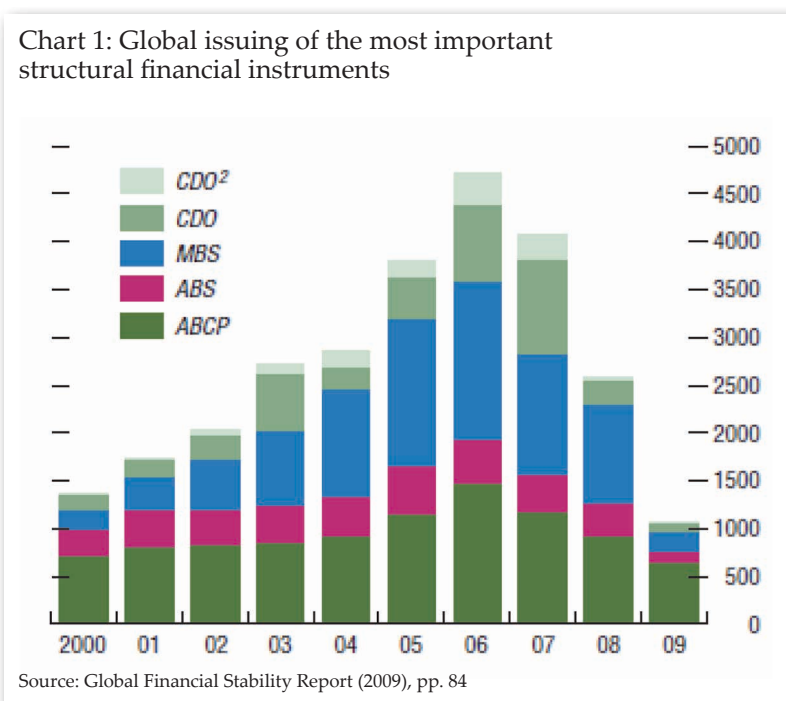
It was in 1985 that the securitization technique, originally developed in the mortgage market, was first implemented on a non-mortgage asset pool - car loans. They were a valuable innovation for structured finance. Their maturity was considerably shorter than in case of mortgage loans, which made the cash flows much more predictable, thus instilling more confidence in investors to choose this form of investment.

The first significant sale of securitized assets in respect of credit cards occurred in 1986, in the amount of USD 50 million of bank receivables. This transaction showed the investors that, provided that the revenues are sufficiently high, they can expect the sale to be supported, despite higher expected losses and administrative costs compared to mortgage loans. After the success of this first transaction, investors largely accepted receivables in respect of credit cards as collateral, and banks developed the appropriate form of business to ease the harmonization of cash flows for them.

The next form of securitization used was the conversion of non-consumer assets. Most of the loans targeted at retail clients are "ready" for securitization, mostly due to the predictability of cash flows. Today, quantitative techniques for calculating credit indebtedness and for credit monitoring are widespread when it comes to this form of loan, and most bank offers for retail clients generates a fully homogenous

debt portfolio. Commercial financing poses the next challenge. Due to the less homogenous commercial loans portfolio, potential investors have to be familiar with each individual loan, and with the fact that the techniques for portfolio risk measurement and management are less efficient. Regardless of that, investment bankers and assets owners demonstrated an enviable level of inventiveness in structuring cash flows and enhancing credit rating.

Chart 1: Global issuing of the most important structural financial instruments



The evolutionary significance of securitization led to its rapid growth, particularly in the 21st century. Starting from the negligible amount of global issue back in the 1990s, in 2006 financial institutions issued almost USD 5000 billion in structured financial instruments. This was followed by a sharp decline in the value of issued securities, especially collateralized debt obligations - CDOs (Chart 1).

Asset-Backed Securities (ABS)

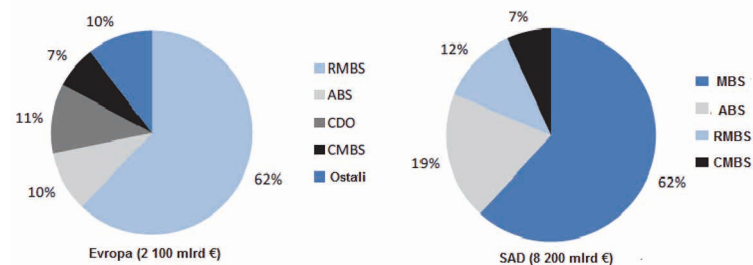
Asset-backed securities are securities mostly collateralized by cash flows of various forms of financial assets. One may say that there are two groups of assets used as collateral, i.e. underlying assets - retail financial assets and corporate financial assets. The first group, for instance, includes car loans, recreational vehicle loans, boat and vessel loans, student

aktive. Može se reći da postoje dve grupe aktive koja služi kao kolateral, tj. podržana aktiva - finansijska aktiva stanovništva i finansijska aktiva privrede. U prvobitne spadaju, recimo, automobilske krediti, krediti za rekreativna vozila, krediti za ploveće objekte, studentski krediti i potraživanja po osnovu kreditnih kartica. U drugu grupu, između ostalih, spadaju lizing kompjuterske opreme, krediti za proizvodne pogone, krediti za mala i srednja preduzeća, krediti za poljoprivredne mašine itd (Martellini, Priaulet, Priaulet, 2003, str. 607).

Oblici aktive koja je sekjuritizovana se generalno mogu klasifikovati i na tradicionalnu i netradicionalnu aktivu. Učesnici na tržištu pridaju različito značenje pojmu netradicionalne aktive. Neki je objašnjavaju stanovištem da je to svaki oblik aktive različit od osnovnih oblika koji se već duži vremenski period sekjuritizuju. U prvim godinama tržišta ABS, pod tradicionalnom aktivom su se smatrali hipotekarni krediti, krediti za proizvodne mašine, potraživanja po osnovu kreditnih kartica i automobilske krediti. Grupa čija se aktiva smatrala tradicionalnom postepeno se menjala, kako je sekjuritizacija postajala sve popularniji proces iznalaženja novih izvora finansiranja. Drugi vide netradicionalnu ili nastajuću aktivu na još suženiji način: to je svaki oblik aktive koji je sekjuritizovan po prvi put ili koji je sekjuritizovan svega nekoliko puta (tako postoji interesantan primer sekjuritizacije budućih autorskih honorara poznatih muzičkih zvezda kao što su Dejvid Bouvi, Džejs Braun ili Rod Stjuart). Postoji još jedna klasifikacija ABS, koja je bazirana na tome da li je podržana aktiva povezana sa hipotekama ili ne uključuje hipoteke. U prilog tome, postoje značajna razlika između hipotekarnih založnica i ostalih oblika sekjuritizovanih hartija. To je naročito naglašeno u karakteristikama finansijskih tržišta SAD-a i evropskih zemalja s obzirom da u SAD dominiraju hipotekarni oblici strukturnih finansijskih instrumenata sa vanbilansnom sekjuritizacijom dok je u kontinentalnoj Evropi proces sekjuritizacije nešto „konzervativniji“

i pretpostavlja široku upotrebu „pokrivenih“ hipotekarnih obveznica gde podržana aktiva ostaje u bilansu originatora zajedno sa pripadajućim obavezama. Razlike se ogledaju i u samom obimu emisije i upotrebe strukturnih instrumenata, koja je daleko izraženija na finansijskom tržištu SAD-a (Slika 1). Prema podacima Evropske asocijacije finansijskih tržišta, ukupna emisija sekjuritizovanih hartija u Evropi u prva tri kvartala 2012. iznosi 186 milijardi EUR od čega je 20% tržišta ABS hartija. S druge strane, u SAD-u je u istom intervalu emitovano 1.121 milijarda EUR hartija od vrednosti, od čega je samo 10% tržište ABS-a a preostalih 90% u najvećoj meri se odnosi na hipotekarne založnice državnih agencija (AFME, 2012, str. 6).

Slika 1: Struktura i obim sekjuritizacije u Evropi i SAD-u u 2010. godini.



Izvor: Blommenstein, Keskinler and Lucas (2011), str. 6.

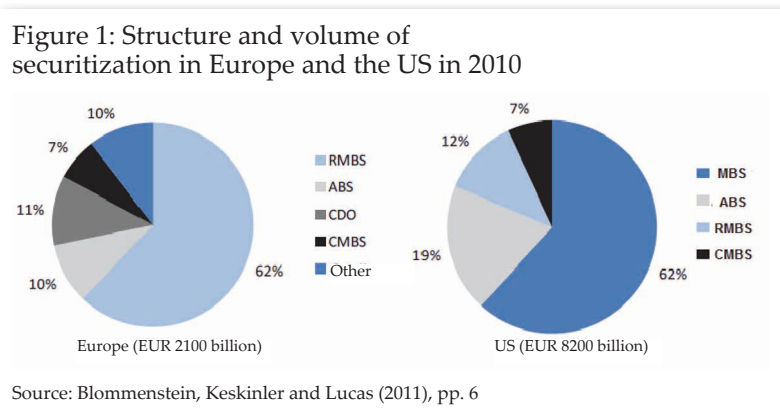
Hartije od vrednosti podržane potraživanjima po osnovu kreditnih kartica (*credit card asset-backed securities, CCABS*)

Jedan od najvažnijih sektora ABS-a u proteklih 20 godina upotrebe sekjuritizacije predstavljaju potraživanja po osnovu kreditnih kartica. Od prve emisije ovih oblika hartija od vrednosti 1986. godine pa sve do današnjih dana, CCABS tržišta su osnovni mehanizam finansiranja neosiguranih bankarskih kredita. Potraživanja po osnovu kreditnih kartica predstavljaju neosigurane revolving dužničke obligacije, iza kojih stoji ugovorni odnos između korisnika i izdavaoca kreditne kartice, koji se odnosi na uslove i načine otplate. Potraživanja čine glavnica i deo koji se odnosi na troškove upotrebe kartice (kao što su kamatna stopa, godišnja provizija po osnovu članarine, i drugih provizija povezanih sa njenom upotrebom).

loans and receivables in respect of credit cards. Among other things, the second group includes computer equipment leasing, manufacturing facility loans, SMEs loans, agricultural machine loans, etc. (Martellini, Priaulet, Priaulet, 2003, p. 607).

The forms of securitized assets can generally be classified into traditional and non-traditional assets. Market participants apply different meanings to the notion of non-traditional assets. Some explain it by saying that those are all forms of assets other than the main ones which have been securitized for a long period of time. In the first years of the ABS market, traditional assets implied mortgage loans, manufacturing machine loans, receivables in respect of credit cards and car loans. The group of assets considered traditional gradually changed, as securitization was becoming an increasingly popular process of finding new sources of finance. Others define non-traditional or emerging assets in an even narrower way: those are all forms of assets securitized for the first time or for only several times (thus the interesting example of securitization of future royalties of the famous music stars, such as David Bowie, James Brown or Rod Stewart). There is another classification of ABS, based on whether the underlying assets are related to mortgages or not. To this end, there is an important difference between mortgage-backed bonds and other forms of securitized securities. This is particularly prominent in the characteristics of the US and European financial markets, given that the US is dominated by mortgage-based forms of structured financial instruments with off-balance sheet securitization, whereas in the continental Europe the securitization process is somewhat more “conservative” and implies the widespread usage of “covered” mortgage-backed bonds, with underlying assets remaining in the originator’s balance sheet, together with the accompanying liabilities. The differences can also be seen in the issuing volume itself, and the usage of structured instruments,

which is far more present in the US financial market (Figure 1). According to the data of the Association for Financial Markets in Europe, total issue of securitized securities in Europe in the first three quarters of 2012 amounted to EUR 186 billion, 20% of which was accounted for by asset-backed securities. On the other hand, in the same interval the securities issued in the US amounted to EUR 1121 billion, only 10% of which was accounted for by the ABS market, and the remaining 90% mostly referred to mortgage-backed bonds of the state agencies (AFME, 2012, p. 6).



Credit Card Asset-Backed Securities (CCABS)

One of the most important ABS segments in the past 20 years of securitization has been the receivables in respect of credit cards. Since the first issue of this form of securities back in 1986 until the present day, CCABS markets have served as the main mechanism for the financing of uninsured bank loans. Receivables in respect of credit cards represent uninsured revolving debt obligations, with the underlying contractual relationship between the user and the credit card issuer, defining the terms and conditions, and the manner of repayment. The receivables consist of the principal and the part related to the costs of credit card usage (such as interest rate, annual membership fee, and other relevant fees).

As opposed to the most forms of collateral at the ABS market, loans in respect of credit cards do not have a fixed repayment amount. Mortgages, car loans and student loans typically have a maturity specified in advance (e.g. 5, 10 or 30 years), based on which the monthly

Za razliku od većine oblika kolektarala na tržištu ABS hartija, krediti po osnovu platnih kartica nemaju fiksni iznos otplate. Hipoteke, automobilske i studentske krediti obično imaju unapred određen termin (npr. 5, 10 ili 30 godina) na osnovu kojeg se izračunava visina mesečnog anuiteta. S druge strane, sve dok se pridržavaju kreditnog limita i minimalne mesečne uplate, korisnici mogu sami birati željeni iznos uplate i time uticati na iznos kamate.

U procesu sekjuritizacije dolazi do transfera potraživanja sa originatora na kompaniju za posebne namene (*Special Purpose Vehicle - SPV*), sa namerom izbegavanja mogućnosti bankrotstva ili insolventnosti prodavca potraživanja. SPV je obično organizovan u formi trasta, pravne ustanove karakteristične za anglosaksonsko pravo. Vlasništvo SPV-a po osnovu kreditnih kartica sastoji se iz portfolija potraživanja kreditnih kartica i potencijalne koristi od kasnijeg podizanja rejtinga, kako bi se pokrili eventualni gubici. Hartije od vrednosti sa ovakvim kolateralom su neamortizovane hartije. Za vreme određenog perioda, poznatog kao revolving period, trust zadržava plaćanja po osnovu kreditnih kartica koje sačinjavaju pul aktive i reinvestira ih u dodatna potraživanja kako bi zadržao veličinu pula. Revolving period je u rasponu od 18 meseci do 10 godina. Za vreme njegovog trajanja, novčani odliv prema investitorima u sekjuritizovane hartije je zasnovan na prilivu od troškova i provizija kreditnih kartica. Nakon revolving perioda, glavnica se više ne investira, već se isplaćuje investitorima.

Mesečna rata (*monthly payment rate - MPR*) je vrlo bitan pokazatelj kod potraživanja kreditnih kartica. Ona odražava mesečna plaćanja svih vrsta troškova kao procenat ukupnog duga iz prethodnog meseca (uzmimo za primer da su se od ukupnih potraživanja koja iznose u januaru 500 miliona USD realizovala plaćanja u februaru u iznosu od 50 miliona USD, stoga će mesečna rata iznositi 10%). Postoje dva razloga zašto je *MPR* bitna. Prvo, ako *MPR* padne na izuzetno

nizak nivo, postoji povećani rizik plaćanja glavnice po osnovu emitovanih hartija. Drugo, ako je *MPR* vrlo nizak, postoji mogućnost da ne bude dovoljno novčanog toka za plaćanje glavnice po osnovu potraživanja kreditnih kartica. Ovo je jedan od događaja koji može da dovede do ubrzane amortizacije glavnice duga (Fabozzi, 2008, str. 377).

Ubrzana amortizacija obično dozvoljava brži povraćaj glavnice u okolnostima kada je prosečan tromesečni neto novčani tok ostvaren tokom sekjuritizacije na nuli ili kada je negativan. Kada se primeni ubrzana amortizacija, tranše kreditnih kartica se povlače sekvencijalno (prvo za hartije AAA ranga, zatim za AA rang itd.). Plaćanja proistekla od korisnika kreditnih kartica, umesto korišćenja za kupovinu dodatnih potraživanja, koriste se za isplatu glavnica investitorima. Vreme koje je potrebno da bi se otplatila glavnica u najvećoj meri zavisi od visine mesečne rate. Na primer, pretpostavimo da je AAA tranša 90% vrednosti celokupne emisije, a mesečna rata 10%, to bi značilo da je potrebno devet meseci kako bi se otplatila AAA tranša. Ukoliko bi rata porasla na 18%, ona bi otplatila tranšu za pet meseci. Postoji određena formula koja pokazuje uslove koji, ukoliko se ide ispod njih, dovode do primene ubrzane amortizacije. Pored formule, postoji i osnovna rata, kao minimalni nivo plaćanja koji SPV mora da izmiruje ukoliko želi da izbegne ubranu amortizaciju.

Tržište CCABS je konstantno raslo, naročito u SAD-u, sve do 2007. godine, kada je i zabeležilo najvišu vrednost od 324 milijardi USD, da bi posle 2009. doživelo stromglav pad. Na evropskim finansijskim tržištima je od pojave finansijske krize takođe došlo do pada, ali ne tako drastičnog kao u SAD-u. Međutim, obim emisije u Evropi je daleko manji što potvrđuje i podatak da je u istorijskom maksimumu iz 2006. godine od 40 milijardi USD, veličina tržišta bila za više od sedam puta manja u odnosu na SAD (Tabela 1).

annuity is calculated. On the other hand, as long as they are respecting the credit limit and minimal monthly payment, the users can choose for themselves the desired installment amount, thereby impacting the amount of interest.

In the securitization process, receivables are being transferred from the originator to a Special Purpose Vehicle - SPV, with the intention of avoiding potential bankruptcy or insolvency of the receivables' seller. An SPV is usually organized in the form of a trust, i.e. a legal institution characteristic for the Anglo-Saxon law. The assets of the SPV in respect of credit cards consist of a portfolio of credit card receivables and potential benefits from the subsequent rating enhancements, with a view to covering potential losses. Securities with such collateral are non-amortized securities. During a certain period, known as the revolving period, the trust withholds the payments in respect of credit cards within the pool of assets and reinvests them into additional receivables in order to preserve the size of the pool. The revolving period ranges from 18 months to 10 years. During this period, cash outflow towards investors into securitized securities is based on the inflow of costs and credit card fees. After the revolving period, the principal is no longer invested, but paid out to the investors.

The monthly payment rate - MPR is a rather important indicator when it comes to credit card receivables. It reflects the monthly payments of all types of costs, as a percentage of the total debt from the previous month (for example, if total receivables in January amounted to USD 500 million, and in February only the payments in the amount of USD 50 million were realized, the monthly rate would be 10%). The MPR is important for two reasons. First, if the MPR drops to an extremely low level, there is an increased risk for the payment of principal in respect of the issued securities. Secondly, if the MPR is really low, there is a possibility

for an insufficient cash flow for the purpose of repaying the principal in respect of credit card receivables. This is one of the events that can lead to accelerated amortization of the debt's principal (Fabozzi, 2008, p. 377).

Accelerated amortization typically allows for a quicker return of the principal in the circumstances where an average three-month net cash flow, achieved during securitization, equals zero or is negative. When the accelerated amortization is implemented, credit card tranches are withdrawn sequentially (first for the securities with the AAA rating, then for those with the AA rating, etc.). The payments by credit card users, instead of for the purchase of additional receivables, are used to disburse principals to the investors. The time needed to pay out the principal mostly depends on the amount of the monthly rate. For instance, if we assume that the AAA tranche accounts for 90% of the total value of the concerned issue, and the monthly rate is 10%, this would mean that it would take nine months to repay the AAA tranche. If the rate would increase to 18%, the tranche would be repaid in five months. There is a certain formula defining the threshold conditions, below which accelerated amortization occurs. In addition to this formula, there is the basic rate, as the minimal level of payment that the SPV needs to settle if it wants to avoid accelerated amortization.

The CCABS market was on a constant increase, especially in the USA, up until 2007, when it reached its peak value of USD 324 billion, only to head for a disastrous fall in 2009. Since the outbreak of the financial crisis, the European financial markets have also declined, but not that drastically as in the US. However, the volume of issue in Europe is far lower, as confirmed by the fact that, even during the historical maximum reached in 2006, in the amount of USD 40 billion, the market size was seven times less compared to the US (Table 1).

Tabela 1: Emisija CCABS hartija od 2000. do 2012. g. (u mlrd USD)

Godina	Evropa	SAD
2000	9,4	238.1
2001	9,9	266.3
2002	13,9	293.3
2003	19,8	303.5
2004	27	297.5
2005	39	287.5
2006	39,8	291.8
2007	33	324.7
2008	39,8	315.7
2009	34,2	300.4
2010	27,9	216.9
2011	23,7	164.1
2012	28,1	127.9

Izvor: SIFMA statistics, www.sifma.org/research/statistics.aspx

Hartije od vrednosti podržane automobilskim kreditima (*auto loan asset-backed securities, ALABS*)

Ovu grupu sekjuritizovanih hartija mogu da izdaju sledeći emitenti:

- finansijske filijale automobilskih proizvođača (domaće ili strane),
- komercijalne banke i
- samostalne finansijske kompanije i institucije specijalizovane za automobilske kredite.

Kada je reč o kreditiranju, dužnici mogu da se klasifikuju na prvorazredne, standardne i drugorazredne. Svaki originator ima na raspolaganju da sam definiše kriterijume na osnovu kojih će napraviti ovakvu podelu. Po pravilu, prvorazredni dužnici su oni koji imaju jaku kreditnu prošlost okarakterisanu urednim izmirivanjem svih svojih dužničkih obaveza. Standardni dužnici obično imaju mali broj problema sa kašnjenjem u otplatama svojih kreditnih obaveza, dok su drugorazredni dužnici u konstantnom problemu sa izmirivanjem svojih obaveza i u neretkim situacijama proglašavaju bankrotstvo.

Novčani priliv hartija podržane automobilskim kreditima sastoji se od redovnih mesečnih plaćanja (kamata i glavnica) i

prevremenih plaćanja. Kod ovih hartija, prevremena plaćanja rezultiraju zbog:

- prodaje i dalje trgovine, koje zahtevaju punu isplatu kredita,
- promene vlasništva automobila,
- gubitka ili oštećenja vozila,
- otplate kredita radi ušteda troškova kamate i
- refinansiranja duga sa povoljnijom kamatnom stopom

I dok je refinansiranje kod hipotekarnih kredita osnovni razlog za prevremenu otplatu kredita, kod automobilskih kredita ima znatno manji značaj. Šta više, kamatne stope na automobilske kredite su često ispod tržišnih kamatnih stopa kao sredstvo prodajne promocije proizvođača. Prevremena plaćanja mere se brzinom apsolutnih otplata (*absolute prepayment speed*) kao procenat mesečnih prevremenih otplata u odnosu na vrednost celokupne podržane aktive.

Na početku izdavanja ovih hartija, tipična struktura trasta (kompanije za posebne namene - SPV) je bila prenosnog karaktera (*grantor trust*) sa emisijom prenosnih (*pass-through*) sertifikata. Glavni nedostatak ove forme trasta u kreiranju efikasne strukture je u nemogućnosti vremenskog usklađivanja tranši sekjuritizovanih hartija. Drugim rečima, dok emitent može da kreira subordinirane kamate i u skladu s tim da emituje više tranši hartija, svaku sa različitim nivoom prioriteta, ovakav trast ne može da izvrši emisiju višestrukih tranši sa istim nivoom prioriteta. Takođe, upotreba kamatnih derivata sa *grantor trust*-om je zabranjena. Ovakav nedostatak je doprineo povećanoj upotrebi *pay-through* strukture od strane emitenata. *Pay-through* struktura se ne razlikuje mnogo od *pass-through* strukture, posebno ne u gotovinskim tokovima (prilivima). Glavna razlika je u tome što banka ne prodaje kredit (aktivu) koja se nalazi u njenim knjigama; već "pakuje" gotovinske tokove (prilive) u SPV. Najčešće korišćeni oblik *pay-through* strukture je „vlasnički“ trast (*owner trust*). Šta više, zbog fleksibilnosti koja je omogućena emitentima prilikom upravljanja svojim novčanim tokovima iz podržane aktive koristeći *pay-through* strukturu, lakše se sagledavaju performanse hartija. To pozitivno deluje na smanjenje kreditnog rizika, a samim tim i na smanjenje troškova podizanja kreditnog rejtinga.

Table 1: CCABS issue from 2000 to 2012 (in USD billion)

Year	Europe	US
2000	9,4	238.1
2001	9,9	266.3
2002	13,9	293.3
2003	19,8	303.5
2004	27	297.5
2005	39	287.5
2006	39,8	291.8
2007	33	324.7
2008	39,8	315.7
2009	34,2	300.4
2010	27,9	216.9
2011	23,7	164.1
2012	28,1	127.9

Source: SIFMA statistics, www.sifma.org/research/statistics.aspx

Auto Loan Asset-Backed Securities (ALABS)

This group of securitized securities can be issued by the following issuers:

- financial branches of car manufacturers (domestic and foreign);
- commercial banks; and
- independent financial companies and institutions specialized for car loans.

In the world of lending, borrowers can be classified into first-rate, standard and second-rate. Each originator has the right to define for himself the criteria based on which he would conduct this classification. As a rule, first-rate borrowers are those with strong credit history, characterized by regular settlement of all their debt liabilities. Standard borrowers usually have a few problems with defaulting in the repayment of their credit liabilities, whereas second-rate debtors are constantly experiencing difficulties settling their liabilities, and frequently they have to declare bankruptcy.

Cash inflow of auto loan asset-backed securities consists of regular monthly payments (interest and principal) and premature payments. In case of these securities, premature

payments come as a result of the following:

- sale and further trading, which require full repayment of the loan;
- change of the car's ownership;
- loss of or damage to the car;
- repayment of the loan for the purpose of cutting the interest costs; and
- refinancing of the loan with a more favourable interest rate.

And while refinancing is the main reason for premature loan repayment when it comes to mortgage loans, it is of much lower significance in case of car loans. Moreover, interest rates on car loans are often below market interest rates, as a means of the manufacturer's sale promotion. Premature repayments are measured by means of the absolute prepayment speed, as a percentage of monthly prepayments in relation to the total value of underlying assets.

When these securities started to be issued, the typical structure of the trust (Special Purpose Vehicle - SPV) was the one of a grantor trust, issuing pass-through certificates. The main drawback of this form of trust when it comes to the establishment of an efficient structure lies in its inability to effect maturity mapping of tranches of the securitized securities. In other words, while an issuer can create subordinated interests and, in line with that, issue several tranches of securities, each with a different level of priority, this kind of trust cannot issue multiple tranches with the same level of priority. Also, it is forbidden to use interest derivatives with a grantor trust. This shortcoming contributed to the increased usage of a pay-through structure by the issuers. The pay-through structure does not differ significantly from the pass-through structure, especially not in cash flows (inflows). The main difference is that the bank does not sell loans (assets) held in its books; instead, it "packs" cash flows (inflows) into the SPV. The most frequently used form of the pay-through structure is the owner trust. Furthermore, due to the flexibility enabled to the issuers in the process of managing their asset-backed cash flows by means of the pay-through structure, it is easier to monitor the performance of securities. This has a positive impact on credit risk reduction, and, in turn, on the reduction of credit enhancement costs.

There are two most frequently used structures in the pay-through structure of auto loan

Postoje dve najčešće strukture koja se koriste u *pay-through* strukturi sekjuritizovanih hartija na automobilske kredite. U obe strukture javljaju se višestruke starije tranše i subordinirana tranša. U prvoj strukturi, starije tranše naplaćuju glavnica sve dok se svaka starija tranša ne isplati u potpunosti. Tek posle toga isplaćuje se preostala glavnica subordiniranoj tranši. U drugoj strukturi, prioritet ima najstarija tranša, dok se ostale starije tranše i subordinirana tranša isplaćuju istovremeno. Ovakva struktura je omogućena samo ukoliko se očekivane performanse hartija pokažu dosegnutim. U suprotnom, rapodela glavnica će se vršiti isto kao u prvoj strukturi.

U Evropi je tržište Auto ABS hartija značajno zastupljeno, imajući u vidu konstantan rast godišnjih emisija. Naime, u 2012. godini, ovaj sektor ABS tržišta je bio drugi po veličini sa 13.5 milijardi EUR emitovanih hartija. Očekuje se da u 2013. bude emitovano oko 13 milijardi EUR hartija, uprkos sporom rastu prodaje automobila širom kontinenta (Ernst, Trojovski, 2013, str. 10). Ukoliko se analiziraju samo godišnje emisije od 2009. godine, sektor Auto ABS hartija je najznačajniji u SAD-u, sa visokim stopama rasta. U 2012. godini, vrednost emisije iznosila je preko 90 milijardi USD. Kumulativno gledano to je drugi sektor ABS hartija, iza „home equity“ kredita, sa ukupnom vrednošću od 142 milijardi USD (SIFMA statistics, 2013).

Hartije od vrednosti podržane studentskim kreditima (*student loan asset-backed securities, SLABS*)

Studentski krediti su nastali kako bi pokrili troškove studiranja, kao i razne obuke za širok spektar specijalizovanih škola. Sekjuritizacija studentskih kredita je najzastupljenija u SAD, gde se odvija kroz Vladin program za kreditiranje porodičnog obrazovanja (*Federal Family Education Loan Program - FFELP*). Karakteristika ovih kredita je da se oni daju studentima preko privatnih kreditora. Odluka privatnih kreditora da prošire svoje poslovanje i na studente nije zasnovana na njihovoj sposobnosti da vraćaju kredite. Ukoliko se desi problem sa otplatom kredita i ukoliko se oni nesmetano vraćaju, Vlada garantuje 97% glavnice i narasle kamate. Krediti koji

nisu deo Vladinog garantovanog programa nazivaju se alternativni ili privatni krediti. Ova vrsta kredita su praktično potrošački krediti i odluka kreditora da poveća alternativni kredit zavisi prvenstveno od sposobnosti da se oni otplaćuju. Alternativni krediti se sekjuritizuju u sve većim količinama, s obzirom na rast troškova obrazovanja. Hartije od vrednosti podržane studentskim kreditima su generalno oslobođene od poreza i zbog toga se njima trguje na municipalnim tržištima (Fabozzi, 2008, str. 378).

Pri davanju ovakvih kredita vodi se računa o nekoliko elemenata koji utiču na sposobnosti dužnika da otplaćuje svoje kreditne obaveze - odloženi period, period počeka i period vraćanja kredita. Generalno, studentski krediti funkcionišu na sledeći način: za vreme samog studiranja, student ne vrši nikakva plaćanja po osnovu kredita. Kada se završi studiranje, studentu se obično produžava period počeka (*grejs period*) na šest meseci, za čije vreme takođe ne moraju da se vrše ikakva plaćanja. Tek posle šest meseci, nastupa period njegove otplate.

Prevremena plaćanja sekjuritizovanih hartija studentskih kredita najčešće su posledica prevremenog vraćanja ili konsolidacije kredita. Iako za investitora, u situacijama neizvršenja obaveza, ne postoji rizik od gubitka glavnice, on je i dalje izložen riziku pada kamatnih stopa, a samim tim i nižim alternativnim stopama prinosa. Ukoliko je određena hartija kupljena sa odgovarajućom premijom, postoji mogućnost gubitka te premije. Konsolidacija kredita se javlja u situacijama kada student tokom svog školovanja ima nekoliko studentskih kredita koje kasnije sjedinjava u jedan kredit. Prihodi od konsolidacije se prenose na kreditora i povratno do vlasnika hartija. Konsolidacija omogućava studentima niže kamatne stope i duže periode otplate. Ona je bila veoma popularna u periodu 2001-2005 godine, dovodeći do stopa prevremenih plaćanja koja su bile znatno više od predviđenih.

Struktura studentskih kredita se vrlo često menjala od 2000. godine. Razlog je jednostavan. Podržana aktiva ovih hartija, a to su studentski krediti, indeksirana je prema stopi tromesečnih zapisa Državnog trezora (*Treasury bills - T bills*), dok je najveći procenat hartija emitovan na bazi studentskih kredita fluktuirajućeg

asset-backed securities (ALABS). Both these structures feature multiple senior tranches and a subordinated tranche. In the first structure, senior tranches are paid back from the principal, until each of the senior tranches gets fully disbursed. It is only after that that the remaining amount of principal is paid out to the subordinated tranche. In the second structure, the top senior tranche has the priority, whereas the other senior tranches and the subordinated tranche are disbursed simultaneously. This kind of structure is possible only if the expected performances of securities are met. Otherwise, the principal is disbursed in the same way as in the first structure.

The ALABS market is rather developed in Europe, bearing in mind the steady growth of annual issues. Namely, in 2012, this sector of the ASB market was the second-largest, with EUR 13.5 billion of issued securities. In 2013 it is expected to be issued about EUR 13 billion of securities, despite the slow growth of car sales across the continent (Ernst, Trojovski, 2013, p. 10). If we analyze only the annual issues in 2009, the ALABS sector was the most important one in the USA, having recorded high growth rates. In 2012, the issue was worth over USD 90 billion. Cumulatively,

this is the second-largest ABS sector, right behind home equity loans, with the total value amounting to USD 142 billion (SIFMA statistics, 2013).

Student Loan Asset-Backed Securities (SLABS)

Student loans were first created to cover the costs of studying, and the various forms of training provided by a wide array of specialized schools. Student loan securitization is most present in the USA, where it is conducted through the Federal Family Education Loan Program - FFELP. The characteristic of these loans is that they are granted to students via private creditors. The decision of private creditors to expand their business to include students was not based on the latter's ability

to repay loans. If a problem occurs with the loan repayment and if they are repaid without hindrances, the Government guarantees for 97% of the principal and the accrued interest. The loans outside the Government's guaranteed program are called alternative or private loans.

These loans are practically consumer loans and the creditor's decision to increase an alternative loan primarily depends on the borrower's ability to repay it. Alternative loans are increasingly securitized, given the growth of education costs. Student loan asset-backed securities (SLABS) are generally tax-exempt, which is why they are traded at the municipal markets (Fabozzi, 2008, p. 378).

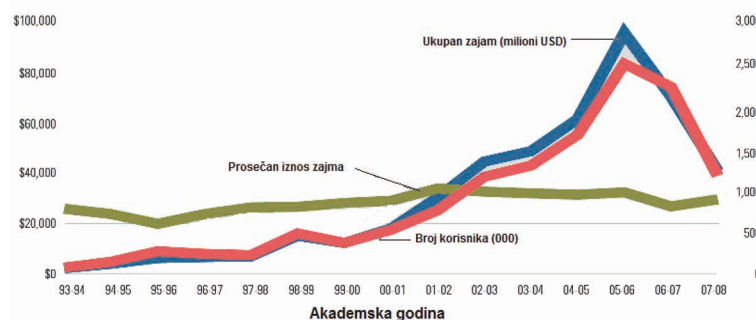
When granting such loans, there are several elements to be taken into account, impacting the borrower's ability to repay his credit liabilities - postponement period, grace period and repayment period. In



karaktera sa baznom kamatnom stopom LIBOR (London Interbank Offered Rate). To stvara prirodnu neusklađenost između podržane aktive i sekjuritizovanih hartija. Izdavaoci hartija na nekoliko načina rešavaju problem neusklađenosti. Jedni izdaju hartije sa fluktuirajućim kamatama na osnovu trezorskih zapisa koje eliminišu neusklađenost, drugi emituju hedžirane ili nehedžirane hartije na osnovu LIBOR, dok ostali kombinuju ove dve metode. Sve učestalija pojava u poslednje vreme je da određeni emitenti izdaju hartije sa obe bazne stope u jednoj transakciji, dajući investitorima mogućnost izbora i šire upotrebe kamatnih svopova, u skladu sa njihovim preferencijama.

Prosečna veličina studentskog kredita kreće se u rasponu od 20 hiljada do 35 hiljada USD. Taj broj je bio prilično ujednačen, za razliku od ukupnih odobrenih sredstava i broja korisnika, koji pokazuju konstantan trend rasta, od 1993. godine do pojava prvih naznaka finansijske tj. ekonomske krize (Grafikon 2). Vrednost SLABS tržišta poslednjih pet godina je prilično konstantna i varira između 230 i 240 milijardi USD sa napomenom da je emisija u 2012. godini bila 26 milijardi USD, duplo veća u odnosu na 2011., što govori o oporavku ovog dela tržišta. Poređenja radi, emisija je bila najveća u 2006. godini, sa 67 milijardi USD vrednih hartija (SIFMA statistics, 2013).

Grafikon 2. Ukupna konsolidacija studentskih kredita (u milionima USD), broj korisnika konsolidovanih kredita (u hiljadama) i prosečan konsolidovan iznos u periodu od 1993 do 2008



Izvor: Izvor: www.trends.collegeboard.org

Treba imati na umu da, kada ABS struktura sadrži neusklađenost, i emitenti prihvataju određeni rizik, pored investitora. Studentski krediti (kao i ostali u okviru ABS strukture) imaju neto novčani priliv, što predstavlja razliku između priliva kamate na osnovu podržane aktive i kamata na osnovu emitovanih hartija. U ABS strukturi koja je sačinjena od hipoteka, novčani priliv je mnogo veći nego što je to slučaj sa sektorom studentskih kredita, i koristi se za apsorbovanje mesečnih gubitaka. Zbog činjenice da su gubici garantovanih studentskih kredita relativno niski, veliki iznos priliva se vraća emitentima. Iz tog razloga, najveća briga za investitore je odnos dve referentne stope (*Treasury bills/ LIBOR*). Kada emitent inkorporira svop u transakciju, on ne samo da smanjuje rizik za investitora, nego smanjuje rizik i za sebe, štiteći nivo novčanih priliva.

Zaključak

Uzimajući u obzir konkretne prednosti sekjuritizacije, može se zaključiti da su strukturni finansijski instrumenti značajno uticali na proširenje strukture i obima poslovanja na savremenim finansijskim tržištima. Međutim, ne treba zaboraviti regulatorni okvir koji je uspostavio i kontrolisao derivativna tržišta u meri u kojoj je liberalni koncept

deregulacije bio dominantan. To je, između ostalog, uticalo na pojavu i eskalaciju finansijske krize, naročito sa strukturnim finansijskim instrumentima na hipotekarnim tržištima širom sveta. Ukoliko se sagledaju karakteristike finansijskih tržišta Evrope i SAD-a, vidi se značajna razlika u prirodi instrumenata koji se stvaraju upotrebom sekjuritizacije. Bez obzira na te razlike, postoje optimistične naznake u dalji razvoj tržišta ABS hartija, nakon velikog udara krize i njenih reperkusija na globalni finansijski sistem u periodu od 2008. do 2010. godine. U tom smislu, vrlo važnu ulogu imaju i najznačajnije centralne banke sveta, koje uz pomoć svojih programa likvidnosti, između ostalog, daju podršku konsolidaciji i daljem razvoju nehipotekarnih strukturnih finansijskih instrumenata.

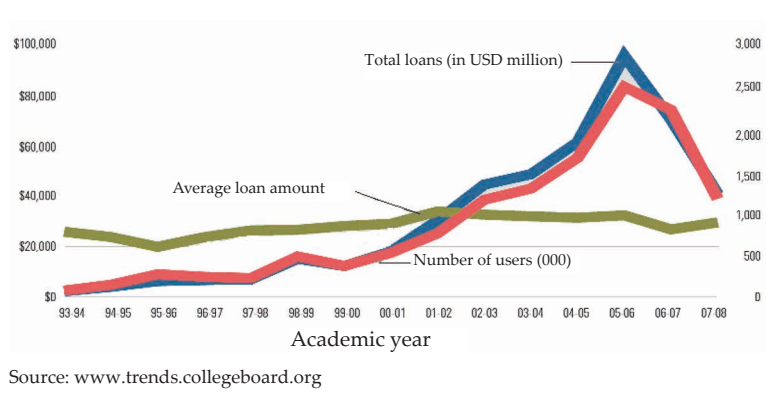
general, student loans function in the following way: during the studies, the student has no repayments in respect of the loan. After he graduates, the student usually has a six-month grace period, during which he also has no repayment obligations. Only after these six months does the repayment period actually begin.

Prepayments of student loan asset-backed securities are most often the result of premature repayment or loan consolidation. Although the investor, in case of a default, does not face the risk of losing the principal, he is still exposed to the interest rate risk, and thus to the risk of lower alternative rates of return. If certain securities were purchased with the relevant premiums, there is a possibility of losing those premiums. Loan consolidation occurs when a student throughout his studies takes several student loans, which are subsequently to be consolidated into one loan. Consolidation returns are transferred to the creditor, and ultimately to the securities holder. Consolidation enables students to have lower interest rates and longer repayment periods. It used to be rather popular in the period 2001-2005, which resulted in prepayment rates being considerably higher than predicted.

The structure of student loans has changed frequently since 2000. The reason behind this is simple. The underlying assets of these securities, i.e. student loans, are indexed to the three-month rate of Treasury bills (T-bills), whereas the highest percentage of SLABS are of fluctuating nature with the basic LIBOR interest rate. This generates a natural mismatch between the underlying assets and the securitized securities. Securities issuers solve the mismatch problem in several ways. Some of them issue securities with fluctuating interest rates based on T-bills, thereby eliminating the mismatch, others issue hedged or non-hedged securities based on LIBOR, whereas the rest of them combine the previous two methods. Lately, it has happened more and more frequently that

certain issuers issue securities with both basic rates in one transaction, thereby providing the investors with a freedom of choice and the potential for wider usage of interest swaps, in line with their own preferences.

Chart 2: Total consolidation of student loans (in USD million), the number of users of consolidated loans (in thousand), and the average consolidated amount in the period from 1993 to 2008



One should bear in mind that, when the ABS structure is mismatched, the issuers themselves undertake certain risks, in addition to investors. Student loans (like the other loans within the ABS structure) have a net cash inflow, which is the difference between the inflow of interest in respect of the underlying assets, and interest in respect of issued securities. In the mortgage-based ABS structure, cash inflow is much higher than in the segment of student loans, and is used to absorb monthly losses. Due to the fact that losses in respect of guaranteed student loans are relatively low, a high amount of inflow is returned to the issuers. Therefore, the biggest concern for investors is the ratio between two benchmark rates (Treasury bills/LIBOR). When an issuer incorporates a swap into his transaction, not only does he reduce the risk for the investor, but he also reduces the risk for himself, protecting the level of cash inflows.

The average size of a student loan ranges from USD 20 thousand to USD 35 thousand. This amount has been rather steady, as opposed to the total granted funds and the number of users, which have shown a constant trend of growth, since 1993 until the first signs of the financial, i.e. economic crisis (Chart 2). The SLABS market has, more or less, maintained its value in the past five years, oscillating between USD 230 billion and USD 240 billion. It is worth noting, however, that

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in 2012 the issue amounted to USD 26 billion, twice the size of issue in 2011, which testifies to the recovery of this market segment. For the sake of comparison, the issue reached its peak back in 2006, with USD 67 billion worth of issued securities (SIFMA statistics, 2013).

Conclusion

Taking into account the concrete advantages of securitization, it may be concluded that structured financial instruments considerably impacted the expansion of the structure and volume of business in the contemporary financial markets. However, one should not forget the regulatory framework which established and controlled derivative markets to the extent in which the liberal concept of deregulation was dominant. This, among other things, influenced

the occurrence and escalation of the financial crisis, especially when it comes to structured financial instruments in the mortgage markets worldwide. If we compare the characteristics of the European and US financial markets, we observe the considerable difference in the nature of instruments generated by means of securitization. Regardless of these differences, there have been some optimistic indications when it comes to the further development of the ABS market, in the aftermath of the big shock brought by the crisis and the repercussions it had on the global financial system in the period 2008-2010. In this sense, a very important role is to be played by the most significant central banks in the world, which, by means of their liquidity programs, among other things, provide support to the consolidation and further development of non-mortgage structured financial instruments.