ASSESSING THE APPLICATION OF SECURITISATION IN LITHUANIA

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Abstract. *The aim of this article is to analyse the application possibilities of the securitisation mechanism in Lithuania. Securitisation has been used for a few decades by banks as an instrument to decrease credit risk and broaden the sources of funding. The increasing demand for asset-backed securities has prompted the development of this mechanism. Nevertheless, despite its benefits, if used irresponsibly, this mechanism can also create risks to financial stability.*

Foreign capital banks dominate in the Lithuanian banking sector, and their financing structure is highly based on parent bank loans, which is the second largest financing source after deposits. As the recent economic crises have shown, the flow of this resource is unstable and pro-cyclical. Therefore, banks ought to seek additional funding sources. The issue of securities backed by bank loans could be one of those sources. The authors of this article, with the help of regression analysis, have assessed a possible effect of additional credit flow, which could be attracted by banks using securitisation, on country's GDP. The analysis has shown that certain types of loans can significantly impact the country's GDP growth. The most significant effect on GDP would be reached, if banks would securitize new loans issued to households and use the obtained funds to issue more loans to households.

Key words. *securitisation, credit flow, bank, GDP*

Introduction

The country's economic wealth and the well-being of its population are determined by a plethora of factors, first of all by the country's economic development level. Therefore, each a country seeks sustainable and balanced economic growth. There are also multiple factors causing economic growth, one of the main being credit flow. Therefore, banks' ability to ensure a sufficient amount of well diversified financial resources can ensure an adequate and stabile credit flow to the economy. This objective requires alternative banks' financing sources, which would supplement deposits and other currently used financing sources.

One of widely used instruments to augment banks' credit flow is securitisation – the process when illiquid bank's assets are replaced with securities. During this process, the bank's assets appearing on the balance sheet, mostly loans, are pledged as securities

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issued by the bank. The funds obtained by distributing the bank's asset-backed securities can be used for the further lending, which in turn promotes economic growth.

The growth of issuance of asset-backed securities has been steady since 1995. It peaked in 2010, in the US reaching 2,75 bln. USD and in Europe 1,1 bln. USD. More than 60% of the issuance in US is made by government-sponsored entities, which basically created this type of security. In Europe, the issuance is dominated by private issuers (SIFMA, 2011). The volumes of the new issuance of asset-backed securities fell dramatically due to the financial crisis.

The Lithuanian economy has been undergoing great changes over the recent years. After a long-lasting robust economic growth period, in 2008 the country started a new and difficult economic cycle phase. Stagnant credit flows undoubtedly exacerbated the possibilities of Lithuanian businesses to endure the crisis period and made economic recovery much more difficult. Introduction of securitization to Lithuania's financial system would allow banks to accumulate more lending resources and make the economic recovery and further grow easier.

This paper is structured as follows. Firstly, the authors present a review of the literature on securitization, a typical securitization diagram, its main participants and elements. The second part of the article focuses on the main reasons for and consequences of using securitization. Further, the need of securitization in Lithuania is assessed and its benefits to the Lithuanian economy are empirically analysed.

Literature review

The start of securitization can be dated to 1970; there are numerous scientific researches performed in this area in various countries. Most of the studies analyse the securitization process, its participants and effects. There are also studies which overview the essence, process and development of securitization (Jacob et al., 2006; Gorton et al., 2011).

Scientists also focus their attention on the identification and analysis of securitization benefits for different process participants (Ergungor, 2003; An et al., 2009). The effect of securitization on consumers, investors and financial institutions is also evaluated (Van Order, 2007). Other scientists focus on the securitization benefits for capital, credit markets, risk management of a bank or other financial institution, securitization in terms of financial accounts, etc. (Dechow et al., 2006; Fabozzi et al., 2007). Individual incentives of banks as the main securitization initiators are also analysed, and the securitization influence on bank's solvency, liquidity, profitability and financial leverage are selected as research objects (Bannier et al., 2008).

Since securitization affects not only separate process participants, but also a country's economy as a whole, scientists analyse the influence of securitization on financial stability (Shin, 2009). Others deliberate on the decreasing virtue of banking supervision due to securitization and the ways to solve this problem (Estrella, 2002; Gambacorta et al., 2007).
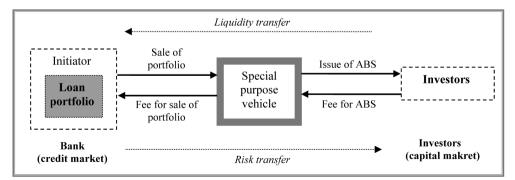
One of the causes of the recent economic crisis was a wide and risky use of securitization. Therefore, in the context of the current financial crisis scientists focus not only on the positive characteristics of this mechanism, but also on its threats (Nwogugu, 2005; Keys et al., 2008). Some researchers analyse whether securitization, despite the crisis, can still be useful for the economy and how to make it safer (Fender et al., 2009).

Despite the fact that the securitization process is being extensively studied by scientists in various countries, securitization from the economic perspective and its possibilities in Lithuania have not yet been analysed.

The model of securitization

Securitization is banks' or other financial institution's asset transfer to financial markets. During this process, illiquid assets or claims are transformed into securities (bonds), which can be sold or traded in capital markets (SME Securitisation, 2007). All types of assets can be securitised, if they have predictable cash flows, for instance: mortgage loans, companies' loans, credit card receivables, car loans, student loans, phone bills, parking tickets, insurance payments, lease payments, etc. (Milton et al., 2006). Asset transfer and its transformation into liquid securities have two main motives: risk transfer and additional source of funding, since illiquid assets – loans and other cash flows – are transformed into sources of funding, which can be used immediately.

Securitization starts when a bank or other subject (also called originator) accumulates a portfolio of certain assets, which can be securitized. If it is a loan portfolio, it will be composed of several hundreds or thousands of loans. An important condition is that the portfolio must be homogeneous: similar loan maturities, interest rates, types of interest rates (fixed or floating), etc. Then the asset portfolio is sold to a special purpose entity created solely to perform securitization transaction, it is usually only a formally created legal entity, which has no headquarters, organizational structure or employees (Lipson, 2012). Special purpose entity issues asset-backed securities (ABS) – the final

FIG. 1. **Typical securitization diagram**
Source: composed by the authors, based on SME Securitisation, 2007

securitization product – in order to pay the originator for the portfolio (Fig. 1) (Jobst, 2008; SME Securitisation, 2007).

An asset received from the originator, which backs securities issued by a special purpose entity, is usually a loan portfolio. The reliability of asset-backed securities depends solely on the portfolio, which is pledged to secure them, and is unrelated to the originator's creditworthiness and risk. Interests of investors purchasing these securities are ensured solely by assets (loans) in the portfolio, since a special purpose entity does not have additional assets or financial liabilities. Investors do not become the owners of a pledged portfolio, and the servicing of the loan (periodic premium collection, consultations, changing contracts, etc.) is performed by the originator. Nevertheless, investors undertake all risks related to the portfolio – risks, that loans or part of them will not be repaid. In this way, the originator, most often a bank, transfers the credit risk of its loans to investors (capital market) in exchange for liquidity (SME Securitisation, 2007), since investors' payment for asset-backed securities is transferred to the originator as a payment for a sold loan portfolio. In case of the originator's bankruptcy, investors do not become creditors of the originator, since the assets backing their securities are legally transferred to a separate special purpose entity insulated from the originator's bankruptcy (Carey et al., 2007). Furthermore, loan portfolio used for securitization has usually a higher quality and a lower risk than the originator. Therefore, asset-backed securities receive a higher credit rating than the originator, which means that through securitization the originator can borrow cheaper in capital markets than directly (Ergungor, 2003).

Often, asset-backed securities created in the process of securitization are different; therefore, tranching is performed. Different segments of asset-backed securities have different risks and return rates. Therefore, they are sold to different investors. Usually, at least three different tranches of asset-backed securities are created during securitization, which are senior tranche, mezzanine tranche, and first-loss tranche (Cousseran et al., 2005). Nevertheless, in practice, 15 tranches can be created during a single securitization process (one for each credit-rating category). Tranches are structured in the way that senior tranche would obtain a highest credit rating, whereas the first-loss tranche is often not even rated.

Reasons for and consequences of securitization

The rise and development of securitization has virtually changed the banking traditions in the world. Securitization provided banks with the ability to sell loans or at least their credit risk to the capital markets. Therefore, asset-backed securities have quickly spread in the entire world. Nevertheless, securitization influences financial stability, and the irresponsibly can cause a financial crisis.

Bank motives for using securitization. Various reasons might be distinguished why originators – usually banks – decide to securitize their cash flows. One of the main motives

is access to cheaper and greater financial resources. A bank receives funds by selling illiquid loan portfolios, which are almost equal to their value and can be used for further lending. Such financing is often cheaper as compared with other financial resources. For instance, by issuing simple debt securities, banks spend more by paying higher interest rates, since the credit rating of these securities would correspond to the bank's rating, whereas most of asset-backed securities would have a higher credit rating.

In terms of financial accounts, a securitized loan portfolio is removed from the bank's balance sheet. This decreases the bank's financial leverage due to a lower debt–equity ratio. The effect of the lower financial leverage is attained by financing debts or other financial liabilities with funds obtained by issuing asset-backed securities. Mostly long-term and expensive liabilities are financed in this manner. A better debt–equity ratio allows a bank to borrow more. Furthermore, due to securitization, the net income of the bank increases, while assets decrease. These changes in financial accounts allow banks to improve their return on assets (ROA) and return on equity (ROE) (Pais, 2005). Banks using securitization generally have a slightly better ROA (Jiangli et al., 2008). Researches show that banks tend to engage in securitization at the end of the quarter; this means that securitization is consciously used to improve financial accounts (Dechow et al., 2006).

An other important motive for banks to use securitization is securitized loans' related risk transfer: the risk of the loan portfolio is transferred to investors. This helps banks the free up part of the capital needed to meet capital adequacy rules. This advantage of securitization is especially important to the banks which have a high geographic and sector concentration of loans (Ergungor, 2003). Nevertheless, the final securitization effect on the bank's capital needs is difficult to evaluate, since, even though a bank decreases risks and frees up capital through securitization, it can decide to take on greater additional risks; therefore, the final securitization effect on the bank's capital needs is hard to forecast (Dionne et al., 2003). The global capital adequacy rules in the recent years have been reviewed and corrected in order to prevent banks from manipulating capital adequacy rules to decrease capital requirements and at the same time to allow banks to decrease, or at least marginally decrease, their risks (Basel III, 2011).

Besides the discussed reasons for securitization, the bank's individual situation also affects this decision. The probability that the bank will start securitizing its loans increases the more the bank gets, although small banks also use securitization. For small banks, securitization can provide access to capital markets: through merging loan portfolios of several smaller banks, a portfolio size needed for effective securitization transaction can be reached (Jiangli et al., 2008).

Securitization benefits for investors. Financial instruments – asset-backed securities – are created in the process of securitization. The popularity of asset-backed securities in capital markets was caused by their high demand among different groups of investors,

which encouraged the use of securitization. Asset-backed securities provided possibilities for investors to invest in a broader range of assets and thus to diversify their investments (Jobst, 2005). Furthermore, securitization using tranching creates securities with a different risk level asset-backed securities, which attract a broader range of investors. Also, investors can decrease issuer-related risks, since the risk of asset-backed securities depends on the quality of the asset backing the security and not on its originator.

Another source of demand growth for asset-backed securities is their use as a collateral. The development of financial markets encouraged the trend that in some transactions collaterals are needed in order to decrease the risk of the transaction, the risk that the counterparty will default. High-quality and liquid assets are usually demanded as a collateral in financial transactions, for instance, money or financial instruments with highest ratings. For the above-mentioned reasons, securities of economically stabile countries (USA, Germany, etc.) are often used as collaterals. However, if there is a lack of suitable counties' securities in the market to satisfy the demand, financial market participants generally prefer asset-backed securities. Additional possibilities to use asset-backed securities have also increased the demand for these financial instruments and encouraged securitization (Gorton et al., 2011).

Securitization effect on financial stability. Without securitization, the credit risk remains on the bank's balance sheet, and during the downturns of the economic cycle it significantly increases and further encourages the economic downturn. With the help of securitization, banks can transfer risks to a much wider range of investors, decrease their balance sheet sensitivity and increase their liquidity. Consequently, credit risk transfer to capital markets makes banks more resilient to credit shocks (Wagner et al., 2006). Besides, credit risk through capital markets is transferred to a broader range of investors, thus decreasing the systemic effect of this risk by widely dispersing it (Gang, 2012). Therefore, the properly used securitization can contribute to the stability of separate banks and of the entire financial system. This point of view was widely spread before the 2007 financial crisis.

Nevertheless, systemic risk can also increase because of securitization, since the banks' motivation changes: in loan provision, they become more tolerant to risk while using securitization (Allen et al., 2006) and tend to search for profit possibilities through investing into riskier assets. Studies also show that the quality of securitized loans is lower than the quality of other loans of the same bank (Demyanyk et al., 2011). Therefore, securitization itself cannot strengthen financial stability if due to a robust credit development the credit granting standards worsen, even though securitization provides credit expansion possibilities without adding additional capital to the system (Shin, 2009).

Banks became more dependent on capital markets and its shocks by issuing asset-backed securities. The capital market is not always rational and can become quite illiquid

in a very short time due to panic among investors (Carbo-Valverde et al., 2012). This means that nowadays capital markets have a much greater effect on real economy, since capital market shocks have severe effects on banks which are among the main financiers of real economy development.

Securitization and financial crisis. Before the financial crisis, the US citizens whose income, its stability, needed documents, the property they were planning to purchase and other requirements did not meet safe prudential requirements, were able to get at a higher risk the so-called subprime mortgage loans. The Issued loans later were sold to large and reliable US banks who in turn resold them to investment banks. The latter securitized subprime loans, credit rating agencies incorrectly assessed the risk and gave the highest ratings to mortgage-backed securities. Due to the high credit ratings, these securities were willingly bought by other banks, pension, investment funds and private investors. However, the Federal Reserve increased interest rates in 2006–2007, and the US households with subprime loans started to default. Thus, payments for securities backed by subprime mortgage loans were disrupted; the value and liquidity of these securities sharply fell. Later, the US mortgage prices reacted respectively. Due to higher interest rates, refinancing and further lending declined. Largest world banks and other financial institutions had large volumes of subprime mortgage-backed securities purchased using borrowed funds, which was one of the major reasons for the financial crisis (Galiniene et al., 2011). Consequently, despite the many advantages of securitization, it has been criticized for the securitization of poor quality US mortgage loans, which largely contributed to the rise of 2007 financial crisis.

Assessment of the need for securitization in Lithuania

Securitization has been used only once in Lithuania – in 2004, when a bank issued mortgage-backed covered bonds. Securitization was structured based on a special legislative act – the Law on Mortgage Bonds and Mortgage Lending of the Republic of Lithuania. This law regulates only the issue of covered bonds, also called mortgage bonds. Securitization of other types and structures of assets has not been used in Lithuania.

When analysing the possibilities for the development of securitization in Lithuania, it is necessary to review the Lithuanian economic situation and to assess the need for securitization in the market. Lithuania's economic growth upon gaining independence has been rather unstable. During the first years of independence, when Lithuanian economy started its reform towards the market economy, the GDP growth was firmly negative. The economic conditions were further worsened by the 1995–1996 banking crisis, which required taxpayers' money to rescue the failing banks. Simultaneously the economy suffered from hyperinflation, which paralyzed the economy and foreign trade. The economic momentum was also lost in 1997–1998 due to the Russian and Asian crises. Nevertheless, this also served as a push for the Lithuanian industry to reorient

production and trade from the CIS to the EU countries, which laid the foundations for the future membership in and economic integration into the EU. Economic growth since 2000 lasted until 2008 and on average amounted to 7.5% per year. The financial crisis, which started in 2007, reached Lithuania only after one year from its start in the world. Lithuania's economy suffered most during 2009 when its GDP fell by almost 15% – the greatest decline since 1993. However, the GDP numbers quickly bounced back to positive and in 2010–2011 amounted to 1.4% and 5.9%, respectively.

In general, up until 2002, the funds attracted through bank deposits were sufficient to finance the Lithuanian economic development. Nevertheless, Lithuania's private credit level, was compared with that of other countries, was significantly lower, which means that the economic growth potential was not fully exploited. The lending volumes started to expand in 2002. Even though the volume of deposits also grew, it was not sufficient to finance the credit demand. Therefore, banks had to look for alternative financing sources; the main of them eventually became parent bank loans.

As shown in Fig. 2, the ratio between loans and residents' deposits in Lithuania's financial system sometimes was well above 100% until 2002, which means that banks did not loan all of the funds collected from residents' deposits.
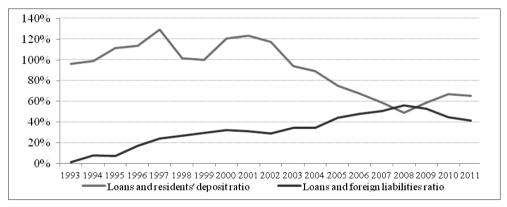

FIG. 2. **Comparison of loans issued by credit institutions and residents' deposits, foreign liabilities in 1993–2011**

Source: composed by the authors based on the data from Bank of Lithuania.

After 2002, the situation started to change radically, and the loan–deposit ratio fell by almost half during the analysed period and at the end of the period settled at about 60%. Conclusively, until 2002, the amount of residents' deposits in the banking system was too great as compared with loans; for this reason it was not fully utilized; in other words, the reallocation of funds through the banking system was not effective. During the economic cycle, the upswing of the share of deposits as compared with loans radically decreased; at that moment, the optimal loan–deposit ratio was about 70%. Meanwhile, the loan–foreign liabilities ratio shown in Fig. 2 constantly grew and virtually from zero in 1993 it peaked to 56% in 2008, but by the end of 2011 it fell to 41%.

Thus, residents' deposits and parent banks' loans are the main and virtually the only financing sources used in Lithuanian banks, whereas in other countries such as the United Kingdom, the Netherlands, the US banks also heavily rely on funding through capital markets. Deposits are a reliable and stable funding source, but it is necessary to make the other financing sources as stable, safe and reliable as possible. One of the main ways to reach this aim is a sufficient diversification of the alternative (other than deposits) financial sources. Therefore, Lithuanian banks should search for ways to diversify their financing sources. This in general would mean the sources that could replace the credit flows provided by parent banks. Diversification could be achieved through financial sources attracted to capital markets. Asset-backed securities could be a good alternative for banks operating in Lithuania, since they are often a safer investment than traditional debt securities. Banks have already accumulated certain loan portfolios, which could be used to issue these securities rather than to keep illiquid assets on the banks' balance sheets. Joining credit and capital markets would also contribute to the efficiency of the entire financial system.

Empirical assessment of securitization benefits for Lithuania's economy

An appropriate way to quantitatively assess the effect of securitization on country's economy would be to start with the evaluation of the interdependency and its strength between economic growth and credit resources. Therefore, authors performed a statistical analysis, which shows the influence of credit flows on Lithuania's economy. The statistical analysis was performed using the data of real Lithuania's economic indicators for 1993–2011.

The quarterly GDP and different loan (for households, business, and government) indicators adjusted to inflation were used for the analysis. Balance sheet (accumulated loan portfolio at the end of the period) and change (in loan portfolio over a quarter) data were used to analyse statistical dependencies. The data used for the analysis were collected from the database of the Lithuanian Department of Statistics and monetary financial institutions' statistics published by the Bank of Lithuania. The authors used the AUTOREG procedure of SAS software for the analysis.

The regression analysis was performed using the forward, backward and stepwise methods in order to decrease the number of variables but to keep the forecast accurate. After the procedure, only three variables were recognized as significant (tested for significance of 0.05): *Blnc_business* (business loans balance), *Chng_government* (change in government loans) and *Chng_household* (change in household loans). The other variables were recognized as insignificant when forecasting the GDP.

Nevertheless, it should be noted that the GDP can be affected not only by the loan balance and change the indicators of a current quarter, but also the indicators of certain previous periods. Therefore, in order to assess the effect of time on the GDP, time variable

t was introduced. Also, since the residual errors were autocorrelated (Durbin-Watson test value 1.243), they are described using the autoregressive model. A third-order autoregressive model (dependency on three previous quarters) was used in the analysis. However, the results showed that only the first order was significant; knowing the values of the first quarter variables, previous data became insignificant. Since, seasonality is clearly visible in the GDP time-series, three dummy variables were introduced: dummy 1 = 1 first quarter, dummy 2 = 1 second quarter and dummy 3 = 1 third quarter. All dummies for the other quarters were equal to zero. Consequently, the best autoregressive equation to forecast the GDP value with the time variable is:

$$GDP_t = 11654 + 152.78 \times t + 0.147 \times Blnc\_business_t + 2.1667 \times Chng\_household_t +$$
$$+ 0.7996 \times Chng\_government_t - 2419 \times dummy1 - 680.22 \times dummy2 + 154.42 \times$$
$$\times dummy3 + v_t, \tag{1}$$

where the autocorrelation tolerance limits (v_t) are

$$v_t = -0.4408 \times v_{t-1} + \varepsilon_t. \tag{2}$$

The overall statistical reliability of this autoregressive equation is 0.9820; in other words, this equation explains 98.2% of the GDP square changes, which is a very high reliability level.

As shown by the performed statistical analysis, Lithuania's GDP change can be well forecast by the business loan portfolio and the sum of the new household and government loan issues. These results undoubtedly confirm a possible positive effect of securitization on the Lithuanian economy. Furthermore, the best securitization results in Lithuania can
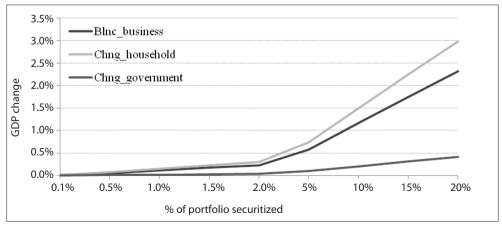

FIG. 3. **Change in GDP due to securitization of different types of loans**

Source: compiled by the authors based on regression module results.

be obtained by securitizing household loans and using the obtained funds for granting more household loans, since newly provided loans influence the GDP. A possible effect of securitization on Lithuania's GDP is presented in Fig. 3.

Securitized loans in Fig. 3 are perceived as a horizontal increase of a respective variable (*Blnc_business, Chng_household* or *Chng_government*). The authors make an assumption that all 100% of securitized loans will come back to banks as credit flows and will be immediately loaned. Thus, we can see that, for example, if a commercial bank operating in Lithuania would securitize 1% of household loans provided in one quarter and would provide new household loans from the funds obtained from the asset-backed securities, the GDP of Lithuania could increase by 0.15%; if 5% of these loans would be securitized, the GDP would increase by 0.75%. The government loan changes and business loan balances can be interpreted in the same way.

Once loan securitization exceeds 5%, increase in the GDP becomes rather significant and exceeds 0.7%, whereas the securitization of 20% of new household loans, according to the regression results, would increase the GDP by 3%. However, we should note that in reality such result would be unlikely, since banks would not necessarily loan all new resources; besides, credit flows would depend on their demand: if the loan demand at that time would be lower, the new resources obtained through securitization would not be used. Besides, it is unlikely, that the volume of securitized loans in Lithuania could significantly increase in the nearest future.

Conclusively, statistical analysis has shown that certain new loans could have a significant positive effect on Lithuania's economic growth. The use of securitization by Lithuania's credit institutions as an instrument to generate additional credit flows would have a positive effect on the economic growth.

Conclusions

The use of securitization in the recent decades has spread all over the world. The main motives of banks to use securitization is the possibility to access additional and (or) cheaper credit resources; the benefit to originator balance, since the bank's financial leverage decreases; lower capital requirements. Securitization also provides access to capital markets to small banks.

A properly used securitization can help sustain financial stability in individual banks and the overall financial system. Nevertheless, systemic risk can also increase because of securitization, since the motivation of banks as loan providers changes: they become more tolerant to risk and tend to look for riskier investments.

In order to decrease the dependence on currently used financing sources, securitization could be used in the countries where the majority of banks are financed by foreign capital, as is the case in Lithuania. Such banks could use securitization as an alternative to parent bank loans, which highly depend on the financial situation of patent banks.

There is an undoubted connection between the GDP and credit flows. Credit flows increase the potential GDP growth and facilitate economic recovery after recession. Nevertheless, responsible borrowing must be ensured, otherwise it can lead to a credit boom.

The empirical analysis and Lithuania's statistical data have confirmed the importance of credit flows for the country's economy. Therefore, we conclude that the development of securitization in Lithuania could be seen as a macroeconomic instrument, which can contribute to the economic recovery and further growth.

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