

PAYMENT CARD OPERATIONS OF BANKS IN THE REPUBLIC OF SERBIA

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Abstract –

Over the past eight years almost all banks in Serbia have started issuing cards, and they have their own systems for card acquiring. This work describes development and an overview of the current situation regarding payment card usage. Massive use of payment cards started in 2004, and it has had a very intensive development. This also refers to a rapid development and increase in the number of ATM and POS terminals. The number of ATM machines increased to 2,793 on June 31, 2010. In the same period the number of POS terminals increased to 58,787. An analysis of data referring to the last two years since the outbreak of the global economic crisis has resulted in the conclusion that the payment card business in Serbia is stagnating, and it probably has a decreasing trend as well.

Keywords: payment card, debit card, credit card, development, VISA, MasterCard, DINA, ATM, POS

INTRODUCTION

Development of payment systems based on credit cards started in 1960's. The most famous types of cards are VISA, MasterCard, Eurocard, American Express and Diners Club (the first, credit card that has been issued since 1950). Of course, besides these most famous, a lot of other cards are used as well. Besides financial institutions (banks), many other organizations (airline companies, trading companies, etc.) also issue payment cards.

With all card types (debit, credit, loyalty cards...) it is necessary to carry out a distribution of roles of entities participating in the process of credit cards usage (from the issuing to performing transactions). Figure 1 represents a schematic diagram of entities (individuals and organizations) participating in this process [1].

A bank is a member of an association that owns certain type of credit cards. In this process the bank plays the role of the credit card issuer, through the process of issuing cards to its clients (individuals and enterprises), as well as through

processes of opening and maintaining the account via which transactions will be carried out.

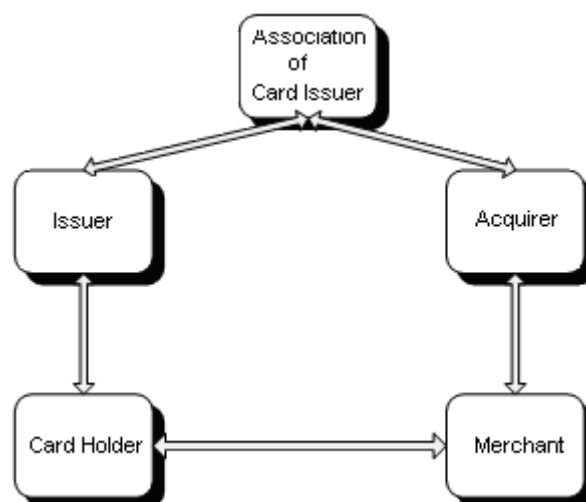


Fig 1: Diagram of entities participating in credit card issuing and usage

Another or the same bank can play the role of the card acquirer, enabling in this way its

clients to pay via cards. This role mostly lies in purchase and installation of specific hardware and software on the sites of the merchant, which are necessary for successful transaction realization. The bank sets conditions that must be fulfilled on performing payments (such as the procedure of transaction checking and the procedure for checking the payment limit).

The seller takes all the relevant data from the buyer on the site of payment. Depending on the card type, money will be either directly transferred from the buyer's account (the case of debit card) or a bill will be issued for the buyer to sign. The bill contains all the payment information and the buyer's signature serves as confirmation that the transaction is valid. The seller will deliver the saved bill copies to the organization that collects data (bank), which will perform all the needed operations for the money transfer.

Regardless of the scenario, there must be an entity whose role is to collect and process data from the card, if not an association or a national center, then at least a provider.

THE ECONOMIC INDICATORS OF THE CARD PAYMENT SYSTEM IN SERBIA

The first electronic system for the use of Visa card on ATM terminals was introduced by Beobanka at the beginning of 1997. At that time the first transaction with Visa Center in London was carried out as well. Due to the sanctions, the system was removed from the international network in the middle of the year, and it could thus operate with domestic cards only. The common name for an ATM terminal in Serbia is „bankomat“, which is the name of one of the first manufacturers of this type of devices. During 1998, several banks and saving houses introduced quasi systems (ATM with a PC computer), which simulated automatic card acceptance and transaction procession.

Development of payment systems based on payment cards experienced a real boost in Serbia in 2003. At the beginning of 2004, twelve leading banks in Serbia were issuing cards and had their own ATM and POS terminals (at the end of May 2004, about 220 ATM's and about 8,500 POS terminals [2][2]). Most of the ATM's were in Belgrade.

Since 2004, major changes have occurred in the banking sector. Almost all banks in Serbia

have been privatized, and many foreign banks have appeared in the Serbian market. In the middle of 2006, there were 34 banks and 986 ATM terminals in Serbia [4]. Almost a third of all ATM's (310) were in Belgrade, while there were 47 in Novi Sad and 46 in Nis.

In the middle of 2007, the situation in Serbia was the following: 36 banks, 2,250 subsidiaries, 1,665 ATM's, and 52,341 POS terminals. In the middle of 2008, the situation in Serbia was the following: 36 banks, 2,250 subsidiaries, 1,665 ATM's, and 52,341 POS terminals. In the middle of 2009, 34 banks operated in Serbia with 2,391 subsidiaries, 2,679 ATM terminals and 60,608 POS terminals. In the middle of 2010¹ there were 2,793 ATM's, 58,787 POS terminals and 35 banks operating in Serbia.

A rough analysis of these data can lead to a conclusion that over the past two years the increase in the number of ATM's has slowed down (in the first quarter of 2010 there were 62, and in the second quarter only 8 new ATM terminals), and that due to the effects of the global economic crisis even the number of points of sale has reduced (from 60,857 in the first quarter of 2009 to 58,787 POS terminals at the end of the second quarter of 2010).

On average, there were 17,393 transactions on one ATM in 2005, in 2006 there were 21,867 transactions, 19,473 in 2007, 18,164 in 2008, and 17,103 transactions in 2009. In the first half of 2010 there were 8,548 transactions on one ATM on average (we should thus expect about 17,300 transactions at the annual level). The average transaction value and the turnover on ATM's has also changed over the past 5 years. An overview by quarters from 2008 to the middle of 2010 is given in Table 1 [4].

If we take into consideration the dinar exchange rate against the euro, the conclusion will still be that the payment card business has experienced a mild decline over the past 2 years. In the period from 2005 to the middle of 2008, the dinar was relatively stable (it ranged from 77 to 82 dinars for a euro). In the middle of 2009, the exchange rate was about 95 dinars for a euro and in the middle of 2010 about 103 dinars for a euro.

¹ All the data for 2010 refer to the first two quarters, and they served as a basis for some forecasts given for the entire 2010.

Year	Quarter	Turnover on ATM's in million dinars	Average number of transactions per ATM	Average transaction value in dinars
2008	I	45.318	4.512	4.622
	II	53.026	4.728	4.805
	III	52.498	4.381	4.894
	IV	56.362	4.543	4.974
2009	I	53.452	3.989	5.077
	II	60.675	4.363	5.192
	III	62.360	4.356	5.338
	IV	66.409	4.543	5.549
2010	I	62.859	4.074	5.540
	II	71.445	4.474	5.718

Table 1. Transactions on ATM's

For a more detailed analysis we also need to take into consideration the inflation, which in this period in Serbia was lower than 10%. The citizens' purchase power also decreased in the said period. In the middle of 2007, the average salary was 347 euro's, while in the middle of 2010 it amounted to about 320 euro's and was the lowest in Europe.

The Gross Domestic Product also decreased from 38 billion euro's in 2007 to 33 billion in 2009. The number of citizens decreased as well, by more than 100,000.

The number of active cards² more than doubled from 2005 (1,141,234) to 2008 (2,731,300), but in 2009 it remained almost unchanged and amounted to 2,728,032 active cards. In 2010, there was a slight increase in the number of active cards (2,823,317). This can be an indicator that the payment card business in Serbia is in stagnation.

Another interesting thing is that over the past five years (2006-2010) the share of active cards in the total number of delivered cards has amounted to about 47% (it varies from 46% to 48%). This shows that habits of card users practically haven't changed. It is also another indicator of stagnation in the card business.

Depending on the card type, there are also large differences in the number of transactions and turnover in the period 2005-2010. Turnover of debit cards compared to credit ones is much higher (10 to 15 times). Turnover of business

cards records a growing trend in the entire period, and in 2010 it is about 2.5 times lower than the one of credit cards (in 2006 it was almost 6 times lower).

The average number of transactions per ATM is about 4,000 per quarter for debit cards. Credit cards show a downward trend, and the average number decreased from 650 in 2006 to 330 per quarter in 2010.

The average number of debit card transactions shows a mild growing trend from 4,400 in 2007 to 5,684 in 2010. In the same period, the average amount of credit card transactions remained almost unchanged in dinars (in 2007 it was 3,962 dinars, and in 2010 it was 4,139 dinars). Business cards recorded an increase of the average amount per transaction, from 8,600 dinars in 2007 to 10,571 dinars in 2010.

If we observe those amounts in euro's, from 2007 to 2010 debit cards had almost the same average transaction value of about 55 euro's. The average credit card transaction value decreased from 49 to 40 euro's in 2010. Business cards had the value of about 100 euro's per transaction in the entire period.

Table 2 gives an overview of the number of transactions and turnover at points of sale in Serbia (POS terminals) for the cards issued in Serbia [4].

Year	Quarter	Turnover on ATM's in million dinars	Average number of transactions per POS	Average transaction value in dinars
2008	I	23.732	194	2.102
	II	26.792	221	2.118
	III	26.148	220	2.096
	IV	27.757	227	2.113
2009	I	25.347	209	1.990
	II	25.948	230	2.004
	III	27.459	235	1.989
	IV	29.746	244	2.063
2010	I	27.434	236	1.965
	II	30.048	253	2.021

Table 2. The number of transactions and turnover of cards at points of sale in Serbia [4]

A rough analysis of these values shows that the average has a very mild increasing trend, i.e. that the citizens' habits haven't changed significantly in this period. The value of transactions in dinars even slightly decreased. If we take into

² An active card is the one that performed at least one transaction in the report period. Since the second quarter of 2007, cards used only for raising cash at the issuing bank premises are not considered active cards.

consideration the exchange rate against euro and the inflation, it is obvious that significant reduction of the transaction average value per POS terminal has occurred.

Table 3 gives an overview of the number of transactions, turnover and average transaction value (by quarters) recorded outside the Republic of Serbia with cards issued in Serbia [4]. The total value includes data referring to ATM's, Points of Sale (POS terminals) and bank windows. By the way, from 2005 to 2007 the number of transactions increased from 691,072 to 1,427,313 transactions. The average transaction value in euro's in this period decreased from 106 to 95 euro's. The turnover increased from 73.2 million euro's to 135.9 million euros.

Year	Quarter	Number of transactions	Turnover in million euros	Average transaction value in euros
2008	I	336.350	36,9	101
	II	462.490	44,8	97
	III	581.758	53,8	92
	IV	431.313	42,6	99
2009	I	403.119	36,0	89
	II	457.384	39,3	86
	III	584.897	47,5	81
	IV	433.936	36,9	85
2010	I	494.677	41,2	83
	II	551.978	46,3	84

Table 3. Number of transactions and turnover outside the Republic of Serbia with cards issued in Serbia

If we analyze the values in regards to the place – ATM's, POS or bank windows, we reach the following conclusion. Turnover at bank windows amounted to 0.3 to 0.4 million euros per quarter. Turnover on POS terminals is almost three times higher than on ATM's. So, citizens of Serbia mostly use cards abroad for buying goods and services, while cards are used for raising cash to a much lower extent.

Cancellation of visas for the European Union countries hasn't significantly influenced an increase of consumption and activities of cards outside Serbia.

Table 4 gives an overview of the number of transactions, turnover and average transaction value (by quarters) recorded in the Republic of Serbia with cards issued outside Serbia.

Year	Quarter	Number of transactions	Turnover in million dinars	Average transaction value in dinars
2008	I	753.868	5.704	7.566
	II	1.019.545	7.585	7.440
	III	1.380.683	9.888	7.162
	IV	1.081.667	7.866	7.272
2009	I	941.013	6.655	7.072
	II	1.197.872	8.944	7.467
	III	1.560.659	11.716	7.507
	IV	1.150.129	8.865	7.708
2010	I	1.031.535	7.721	7.485
	II	1.471.627	10.491	7.129

Table 4. Number of transactions and turnover in Serbia with cards issued outside the Republic of Serbia [4]

Turnover of foreign cards is constantly growing and it is especially a result of the increase in the number of tourists, and is highest in summer months, which is expected.

Tables 5 and 6 [4] give an overview of the number of transactions and turnover on ATM and POS terminals comparatively, and turnover of foreign cards. The number of transactions on ATM and POS terminals is almost the same or, more precisely, it is 10-15% higher on POS terminals. It ranges from 10 to 16 million transactions per quarter. This figures show that at an annual level there are 95 million to 115 million transactions in Serbia (expected value in 2010). That is a relatively low number of transactions compared to other countries in Europe. In France, during Christmas holidays, there are even up to 3 billion transactions a day. Turnover on ATM terminals is more than twice higher than the one on POS terminals. More than 90% of the turnover is realized by cards issued in Serbia.

Table 7 gives data referring to turnover and number of transactions in the DINA CARD system. DINA CARD is a local card and, at the same time, the only card that has a clearing center and is accepted by POS terminals of all banks. Comparing these values with the data from Tables 5 and 6, we can conclude that the international cards (VISA, MASTERCARD, ...) record a majority of turnover and transactions. Domestic cards (DINA CARD, YUBA) record less than 30% of turnover and less than 40% of transactions.

Year	Quarter	Number of transactions	Turnover in million dinars	
			Total	Foreign cards
2008	I	10.161.074	48.388	3.069
	II	11.508.140	57.069	4.043
	III	11.380.402	58.301	5.803
	IV	11.868.030	60.791	4.430
2009	I	10.973.792	57.192	3.739
	II	12.233.080	65.615	4.941
	III	12.415.783	68.546	7.186
	IV	12.500.525	71.429	5.020
2010	I	11.809.813	67.197	4.339
	II	13.066.831	77.055	5.611

Table 5. Number of transactions and turnover realized by cards on ATM terminals [4]

Year	Quarter	Number of transactions	Turnover in million dinars	
			Total	Foreign cards
2008	I	11.677.841	26.120	2.389
	II	13.185.606	30.079	3.287
	III	13.195.058	29.927	3.780
	IV	13.673.766	30.921	3.163
2009	I	13.226.398	28.075	2.726
	II	14.582.956	31.705	3.757
	III	14.620.017	31.715	4.256
	IV	15.028.431	33.337	3.591
2010	I	14.522.969	30.595	3.161
	II	15.757.820	34.617	4.569

Table 6. Number of transactions and turnover realized by cards on POS terminals [4]

Year	Quarter	Turnover DINA CARD (in million dinars)	Number of transactions DINA CARD (in thousands)
2009	I	18.756	6.636
	II	21.108	7.357
	III	21.991	7.318
	IV	22.937	7.421
2010	I	21.241	7.041

Table 7. Turnover and number of transactions in the DINA CARD system [4]

THE CONDITION OF THE CARD BUSINESS IN SERBIA

The main characteristic of card operations in Serbia is a lack of a common center for processing

of transactions. Every bank has either its own system for acceptance and processing of transactions or the processing is (which is the most common case) carried out by providers abroad. Some banks even have several providers for various types of cards and various POS terminals. Except for DINA CARD, which is accepted by POS terminals of all banks, other cards are most often accepted only by terminals of those banks. It results in the fact that one merchant has several POS terminals and several contracts with several banks. All these facts make card operations expensive and complex.

Settlement of payment made by domestic cards is performed via providers and completed via banks in Serbia. Clearing transactions with VISA and MASTERCARD cards are completed via appropriate centers in London and Brussels. The clearing center for DINA card is located in the National Bank of Serbia, and all transactions are performed through it. The switching and clearing&settlement center for DINA card is the National Bank of Serbia. This shows that there is knowledge, as well as needs and possibilities for realization of a similar solution when it comes to other card types, i.e. VISA and MASTERCARD. Hungary, Turkey and Slovenia also have national centers for card transaction processing, but even less developed countries in our neighborhood, such as Bulgaria and Bosnia & Herzegovina have them as well.

CONCLUSION

This work analyzes current situation of card usage in Republic Serbia. The main characteristic of electronic payment system development in Serbia over the past five years is the extensive usage of various card types.

Economic indicators undoubtedly show that since the beginning of 2009 card business has been in stagnation. The growth of the ATM terminal network is very slow. The number of points of sale (POS terminals) has decreased by more than 2,000, i.e. by 3.5%.

Average number of transactions per ATM and average transaction value in dinars is the same in last three years. In this period, average number of transactions per POS increase but average transaction value in dinars decrease. Regarding in euro's, average transaction value decrease during period 2008-2010.

Analysis of data referring to the last two

years since the outbreak of the global economic crisis has resulted in the conclusion that the payment card business in Serbia is stagnating, and it probably has a decreasing trend as well.

The main characteristic of this business is a lack of a national clearing center. Every card-acquiring bank has its own provider. Some banks even have several providers (for various card types, for ATM and POS terminals). Most providers are abroad. All of this points at huge costs of processing and communications.

The increased rates of interchange fees over the past years, together with an increase of the number of transactions performed by payment cards, have led to an extremely high growth of interchange fees, and thus a growth of expenses incurred by merchants for that purpose as well. These expenses are ultimately transferred to end consumers, who pay much higher prices for products.

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