

# Does an ATM surrogate a branch of a Bank in India?

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## **Abstract**

*According to survey conducted by Retail Banking Research, the number of ATMs world wide as on 2005 were 1,544,853, which may cross two millions by the end of 2001. This figure clearly, shows the tremendous growth of ATMs during the years. Very interesting to see Asia Pacific region found the largest regional ATM market with 32.30 per cent of the global ATM market. The ATM density in India is far lower than that of the other developing countries, however ATM installation is growing at a rapid pace in the county. Currently India has an ATM penetration of about 0.04 per 1,000 people. In India, Nationalized banks accounted for the largest share of the total installed ATMs. With regard to the installation of the off-site ATMs New Private Sector Banks had a largest share while nationalized banks occupied largest share in onsite ATMs installation. Some banks have started mobile ATMs in order to reach remote areas that may not have a large enough population. Interestingly the ratio of ATMs to total branches of the respective branches is tremendously increased after 2005.*

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## **Introduction**

The first mechanical cash dispenser was developed and built by Luther George Simjian and was installed in 1939 in New York City by the City Bank of New York, but it was removed after six months due to the lack of customer acceptance. Thereafter, the history of Automatic Teller Machines (ATMs) paused for a period of more than twenty five years. Then, De La Rue developed the first electronic ATM in 1967 by Barclays Bank at Enfield Town in North London. In 1968, the networked ATM was pioneered in Dallas and Texas. In 1987, Hong Kong and Shanghai Banking Corporation (HSBC) installed the first ATM in India. In subsequent years, Indian Bank and Citi Bank introduced ATMs at various locations.

While ATMs facilitate a variety of banking transactions for customers, their maximum usage involves depositing and with draw of money from bank accounts and balance enquiry. But in India ATMs are performing many functions like a wending machine, railway ticket counter, zipp money centres and also in the filed of microfinance. ATMs are known by various names including automated banking machine, money machine, bank machine, cash machine, hole-in-the-wall, cash point, Bancomat (in various

countries in Europe and Russia), Multibanco (after a registered trade mark, in Portugal), and 'Any Time Money' in India.

The ATM industry in India is among the fastest growing industries in Asia-pacific region. State Bank of India in a unique advancement in ATM technology has led to newer and better versions of ATM hardware and software to support differently abled people to transact over ATMs. State Bank of India introduced a novel channel for banking in a unique way by starting floating ATM on 9 February 2004 on a Jhankar Ferry boat plying between Ernakulum and Vypeen. Braille compatible ATMs are being deployed by banks. Further, talking ATMs which support voice instructions to assist illiterate or differently abled people to transact over an ATM are also opened by banks. Banks in India have started introducing Biometric Automatic Teller Machines (BATMs) as it seems to be an effective way of preventing PIN theft and is also a channel to expand a bank's reach to the rural and illiterate masses. Union Bank of India installed first biometric ATM as 'Kisan ATM' at Sivanganga branch in Tamilnadu. Dena Bank in Gujarat, Andhra Bank in twin cities of Hyderabad and Corporation Bank introduced talking biometric ATMs, which can talk to the farmers in their local language. Vortex's solar powered Gramateller Duo in collaboration with IIT Madras is now slowly changing the face of banking with its new low power, rugged and reliable, low cost ATMs with inbuilt bio-metric capabilities for semi-urban and rural areas. Voltex Company has already established four solar powered ATMs for pilot study in Cuddalore District of Tamilnadu. Currently these machines are utilized by the local administrators to pay the beneficiaries of the National Rural Employment Guarantee Schemes. These ATMs may reduce carbon-dioxide emissions by at least 18,500 Kg per year, further more they save 1,728 units of power per month. (According to V.Vijay Babu, CEO & Director, Vortex Engineering).

ATM was a novelty in Indian banking industry ten years ago, but with the entry of private sector banks, ATMs mushroomed in the urban landscape. Private sector banks deployed ATMs aggressively and saw their customer base expanding. Subsequently, even public sector banks followed the suit by installing increasing number of ATMs. In the last couple of years, there has been an immense competition among banks.

With the sheer convenience and ease of use, ATMs have today secured a comfortable place in the customers' mindscape. World Wide, ATMs have been the killer solutions for the banking sector that has revolutionised the way transactions is carried out. Similarly, in India too in the last couple of years ATMs have changed the face of banking services. No wonder that banks are looking at bringing in advanced technologies. As they go forward, multinational ATMs will hold the key in the immediate future. Hence it is an attempt to study the growth of Global ATM market, ATMs position in India, and to recommend some suggestions to perk up the banking services (to the people).

The use of plastic money is increasing day by day for payment of shopping bills, electricity bills, school fees, phone bills, insurance premium, traveling bills and even petrol bills. The convenience and safety that credit cards carry with their use has been instrumental in increasing both credit card volumes and usage. This growth is not only in positive use of the same but as well as the negative use of the same. The people are experiencing some of the frauds in ATM usages. Some of the common frauds are once an inserted card is struck a fraudster pretending as a genuine cardholder will suggest that the intended victim re-enter his or her security code. When the cardholder ultimately leaves in

despair, the fraudster retrieves the card and enters the code that he has watched clandestinely. Use of fake cards using data collected from tiny cameras and devices called "skimmers" that capture and record bank account information use of "duplicate ATMs" by the fraudsters that uses software which records the passwords typed on those machines. Duplicate cards are manufactured and money is withdrawn with the use of stolen passwords. Sometimes such frauds are an inside job with the collusion of the employees of the company issuing those cards. Some of these can be prevented by introducing microchip technology in cards, enhanced security, continuous monitoring through CC cameras, insurance cover to the card holder etc can be implemented. The problem of ATM fraud is not only in India, it is a global problem. IT Act, 2000 should be amended with regarded to the protection of ATM holders in case of any occurrence of frauds.

### Objectives of the study

1. To study the growth of ATMs in the Global Market.
2. To study the position of ATMs in India.
3. To study the correlation between No. of ATMs opened and the Branches of Indian Commercial Banks.

### Methodology

The data has been collected from secondary sources comprising of RBI Bulletin, IBA Bulletin, RBI websites, and Annual reports of RBI, from the period from 2004-05 to 2008-09. The collected data has been classified and analysed in a systematic manner. For analysis, statistical tools like Graphs, Percentages, Annual growth rate, and Correlation Coefficient are used to find out the objectives of the study. For the present study, Commercial Banks are grouped under Nationalised Banks, State Bank Group, Private Sector Banks, and Foreign Banks. The study period is taken from the years 2004-05 to 2008-09.

Hypothesis:

- H<sub>0</sub>: There is no correlation between the No. of branches and ATMs opened by the Commercial Banks in India.
- H<sub>1</sub>: There is no correlation between the No. of branches and ATMs opened by the Commercial Banks in India.

### Global ATM market

Table-1  
GROWTH OF ATMs IN THE GLOBAL MARKET

YEARS	2005	2006	2007	2008	2009	2010	2011
ATMS	1544853	1641490	1727865	1801670	1869375	1929660	1985805
*Increased percent	-	6.26	5.26	4.27	3.76	3.22	2.91

Source: Global ATM Market and Forecasts to 2011(Retail Banking Research).

\* Indicates over previous year.

According to the survey conducted by The Retail Banking Research (RBR) on "Global ATM market and forecast to 2011", the global ATM installed base will expand by over 440,152 units by 2011. As per its report there were 1,544,853 ATMs operating world

wide at the end of December 2005 and it may suppose to reach 1,985,805 by the end of 2011. The number of ATMs world wide has passed 1.5 millions by the end of 2005 and is forecasting to reach Two Millions by the end of 2011. The emerging markets of Central and Eastern Europe, Middle East, Africa and continued growth in Asia Pacific will drive this growth. No doubt that all over the world, this explosive growth of ATMs may be driven by customer demand for greater convenience.

Table-2 indicates that of 1,985,805 global ATMs operating world wide by the end of 2011, Asia-Pacific region found the largest regional ATM market with 32.3 per cent of the global market. It is also expected that Russia, Brazil and India are expected to add heavily to their installed ATM bases over the coming year. Despite a predicated increase of more than 27,000 new installations, India is still expected to have the lowest density of ATMs to population of all the countries surveyed by the end of 2011 as per the Global Market and Forecasts reports by the Retail Banking Research.

Asia-Pacific counted for 641,475 installations constituting of 32.3 per cent of the global share. North America is in the Second Position with 468,000 machines which has decreased its share of 29.2 per cent in 2005 to 23.57 per cent by 2011, while the West Europe region grabbed the third position with 384,655 ATMs. The share of West Europe is decreased from 21.3 per cent in 2005 to 19.37 by 2011. Both the regions put together accounted for over 42% of the world total, which was more than 50 per cent as on 2005. Latin America has maintained its share in the world market by more than 11 per cent in the global total. Central & Eastern Europe and Middle East and Africa increased their share over the years from 4.9 per cent, 2.5 per cent in 2005 to 8.78 per cent, 4.34 per cent by 2011 respectively.

Table-2  
REGION WISE ATMs ACROSS THE GLOBE

REGION	ATMS 2005	SHARE (%)	ATMS 2011	SHARE %
Asia -Pacific	476006	30.8%	641475	32.30%
North America	451097	29.2%	468000	23.57%
Western Europe	329150	21.3%	384655	19.37%
Latin America	173880	11.3%	231075	11.64%
Central and eastern Europe	75504	4.9%	174350	8.78%
Middle east and Africa	39216	2.5%	86250	4.34%

Source: Global ATM Market and Forecasts to 2011(Retail Banking Research).

The ATM density in India is far lower than that of the other developing countries, however ATM installation is growing at a rapid pace in the country. Currently India has an ATM penetration of about 0.04 per 1,000 people. ATMs in rural India can really help villagers to taken out money at appropriate time. Since 2005 we can see an explosive growth. At the end of March 2005 around 17642 ATM machines were installed in India and rose to 21147, 27088, 34788 and 43651 at the end of 2005-06, 2006-07, 2007-08 and 2008-09, by registering a growth of 19.87 per cent, 28.09 per cent, 28.43 per cent and 22.89 per cent during the above years.

The percentage of growth of number of ATMs in Nationalised banks increased by 50.15 per cent, 38 per cent, 35.06 per cent and 12.60 per cent during the years 2005-06, 2006-07, 2007-08 and 2008-09 respectively in where as in the State Bank group, that growth is

4.27 per cent, 18.33 per cent, 30.93 per cent and 34.46 per cent, in Old Private Sector banks it is increased by 24.66 per cent, 3.88 per cent, 30.68 per cent and 27.33 per cent. While in New Private Sector banks and Foreign banks the number of ATMs increased by 8.91 per cent, 34.03 per cent, 20.56 per cent, 28.05 per cent, and 10.41 per cent, 9.09 per cent, 7.71 per cent, 1.93% during the said period.

Table-3  
NUMBER OF ATMs INSTALLED BY COMMERCIAL BANKS IN INDIA

Banks	2004-05	2005-06	2006-07	2007-08	2008-09
Nationalised Banks	4772	7165	9888	13355	15038
State Bank Group	5220	5443	6441	8433	11339
Old Private Sector Banks	1241	1547	1607	2100	2674
New Private Sector Banks	5612	6112	8192	9867	12646
Foreign Banks	797	880	960	1034	1054
Total	17642	21147	27088	34789	42751

Source: RBI, Various reports on Trend and Progress of Banking in India

Table-4  
BANK GROUPWISE SPREAD OF ATMs AS ON MARCH 2009

Bank Group	No. of Branches	No. of ATMs	ATMs as % of Branches
Nationalised Banks	39376	15038	38.2
State Bank Group	16062	11339	70.6
Old Private Sector Banks	4673	2674	57.2
New Private Sector Bank	4204	12646	300.8
Foreign Banks	293	1054	359.7

Source: RBI, Report on Trend and Progress of Banking in India 2009

Table-4 demonstrates the bank group wise spread of ATMs as on March 2009. It is very clear that Nationalised banks with 15,038 ATMs accounted for the largest share of the installed ATMs in Indian banking followed by new Private Sector Banks with 12646 ATMs, State Bank Group with 11339 ATMs, Old Private Sector Banks with 2674 ATMs, and Foreign banks with 1054 ATMs. The total number of ATMs installed by foreign banks and new Private Sector Banks were more than three times of their branches, while the ATMs to branch ratio was much lower in Nationalised banks (38.2 per cent), Old Private Sector Banks (57.2 per cent) and followed by State Bank Group (70.6 per cent). It is pre assumed to test whether banks are using ATMs for substituting their branches, as most of the customers are used to visit branches simply either to withdraw money or to enquire their account balances from their branches.

Table-5  
NUMBER OF ATMs & BRANCHES OF INDIAN COMMERCIAL BANKS

	2005		2006		2007		2008		2009	
	Branches	ATM	Branches	ATM	Branches	ATM	Branches	ATM	Branches	ATM
Nationalised Bank	33627	4772	34012	7165	35636	9888	37775	13555	39376	15038
State Bank Group	13661	5220	13831	5443	14030	6441	15105	8433	16062	11339
Old Private Sector Banks	4511	1241	4566	1547	4606	1607	4450	2100	4673	2674
New Private Sector Banks	1685	5612	1950	6112	2497	8192	3525	9867	4204	12646
Foreign Banks	242	797	259	880	273	960	277	1034	293	1054
Total	53726	17642	54618	21147	57042	27088	61132	34789	64608	42751

Source: RBI, Report on trend and Progress of Banking in India 2005 to 2009

Chart-1

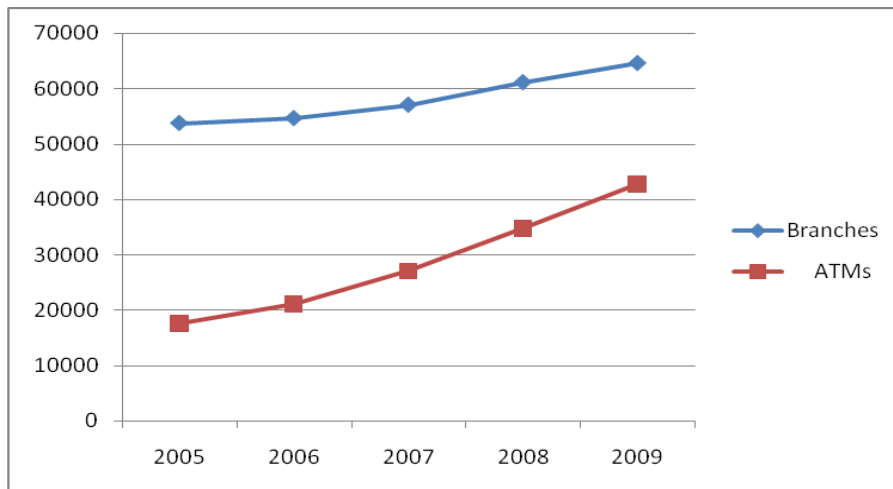


Table-5 depicts Number of branches and Number of ATMs opened by Indian Commercial Banks from 2005 to 2009. To test the hypothesis i.e., whether there is any correlation between Number of branches and Number of ATMs opened by Indian Commercial Banks, Correlation Co-efficient test is applied and found the value of 0.998. Hence it is concluded that ATMs are not the substitutes for their branches which is justified with a positive correlation between the ATMs installation and opening of their branches by the Indian Commercial Banks, which can be clearly seen in chart-1. Indian Commercial Banks are using both branches and ATMs to increase the reach of their services to the door steps of the customers.

### Onsite and offsite ATMs

There are basically two types of ATM installations namely on-site ATMs and off-site ATMs. On-site ATMs are installed inside the premises of the bank or adjacent to the bank branch. While off-site ATMs (a site away from the branch) are installed at various locations such as airports, railway stations, petrol pumps, shopping centres, malls, restaurants, colleges, commercial areas or at places where the bank does not have a service branch near by.

Of all the ATMs installed in the country, by the end of March 2009, New Private Sector Banks had the largest share in Off-site ATMs (7480), while Nationalised Banks (9861) had it in on-site ATMs (Table-6). Off-site ATMs as percentage to total ATMs were the highest in case of Foreign banks (74.4 per cent), followed by New Private sector banks (59.2 per cent), SBI group (37.0 per cent), Nationalized banks (34.4 per cent) and Old Private Sector banks (31.6 per cent) at the end of March 2009. In order to expand the number of off-site ATMs, State Bank of India had entered into an agreement with Ministry of Railways for installation of ATMs at Railway stations across the country. Some of the banks like State Bank of India, State Bank of Patiala, Citi Bank, Bank of India, ICICI Bank and Jammu and Kashmir Bank have deployed mobile ATMs, in order to reach remote areas that may not have a large enough population for the bank to invest in an ATM centre. The mobile ATMs can help a bank to reach out banking customers that do not comprise its regular customers.

Table-6  
ONSITE AND OFF SITE ATMS

Name of the Bank	2005		2006		2007		2008		2009	
	On site ATMs	Off Site ATMs	On site ATMs	Off Site ATMs	On site ATMs	Off Site ATMs	On site ATMs	Off Site ATMs	On site ATMs	Off Site ATMs
Nationalised Banks	3205	1567	4812	2353	6634	3254	8320	5035	9861	5177
State Bank Group	1548	3672	1775	3668	3655	2786	4552	3851	7146	4193
Old Private Sector Banks	800	441	1054	493	1104	503	1436	664	1830	844
New Private Sector Banks	1883	3729	2255	3857	3154	5038	3879	5988	5166	7480
Foreign Banks	218	579	232	648	249	711	269	765	270	784

Source: RBI, Report on Trend and Progress of Banking in India 2005 to 2009.

Table-7

Bank wise onsite and off site ATMs and their percent to their branches at the end of 2009

S.No	Name of the Bank	Onsite ATMs	Off Site ATMs	Total ATMs	Per cent of Off site to Total ATMs	Percent ATMs of Branches
1	Allahabad Bank	121	90	211	42.7	9.5
2	Andhra Bank	248	477	725	65.8	50.9
3	Bank of Baroda	691	488	1179	41.4	40.4
4	Bank of India	300	200	500	40.0	17.0
5	Bank of Maharashtra	258	87	345	25.2	24.5
6	Canara Bank	1,218	788	2006	39.3	73.2
7	Central Bank of India	302	98	400	24.5	11.3
8	Corporation Bank	522	510	1032	49.4	99.7
9	Dena Bank	289	102	391	26.1	35.8
10	Indian Bank	547	208	755	27.5	46.8
11	Indian Overseas Bank	445	131	576	22.7	29.9
12	Oriental Bank of Commerce	576	269	845	31.8	59.4
13	Punjab and Sind Bank	43	-	43	-	5.0
14	Punjab National Bank	1,541	609	2150	28.3	49.7
15	Syndicate Bank	911	179	1090	16.4	48.5
16	UCO Bank	304	110	414	26.6	20.1
17	Union Bank of India	1,099	691	1790	38.6	69.6
18	United Bank of India	156	66	222	29.7	15.4
19	Vijaya Bank	290	74	364	20.3	33.1
20	IDBI Bank Ltd	372	528	900	58.7	176.5

S.No	Name of the Bank	Onsite ATMs	Off Site ATMs	Total ATMs	Per cent of Off site to Total ATMs	Percent ATMs of Branches
21	State Bank of India	5,229	3319	8548	38.8	74.5
22	State Bank of Bikaner and Jaipur	294	201	495	40.6	57.8
23	State Bank of Hyderabad	452	158	610	25.9	59.7
24	State Bank of Indore	204	146	350	41.7	74.6
25	State Bank of Mysore	294	87	381	22.8	57.4
26	State Bank of Patiala	372	123	495	24.8	58.4
27	State Bank of Travancore	301	159	460	34.6	63.0
28	Bank of Rajasthan Ltd	84	27	111	24.3	24.2
29	Catholic Syrian Bank Ltd	87	51	138	37.0	38.3
30	City Union Bank Ltd	117	5	122	4.1	58.4
31	Dhanalakshmi Bank Ltd	59	13	72	18.1	39.8
32	Federal Bank Ltd	345	271	616	44.0	100.8
33	ING Vysya Bank	172	179	351	51.0	79.1
34	Jammu and Kashmir Bank Ltd.	182	68	250	27.2	50.9
35	Karnataka Bank Ltd.	133	37	170	21.8	37.7
36	Karur Vysya Bank Ltd	263	61	324	18.8	104.5
37	Lakshmi Vilas Bank Ltd	88	16	104	15.4	42.1
38	Ratnakar Bank Ltd	9	-	9	-	10.7
39	SBI Commercial and International Bank Ltd	2	-	2	-	100.0
40	South Indian Bank Ltd	212	68	280	24.3	53.9
41	Tamilnadu Mercantile Bank Ltd	77	48	125	38.4	58.4
42	Axis Bank Ltd.	1,004	2591	3595	72.1	457.4
43	Development Credit Bank Ltd	73	43	116	37.1	143.1
44	HDFC Bank Ltd	1,749	1546	3295	46.9	234.0
45	ICICI Bank Ltd	1,863	2850	4713	60.5	334.5
46	IndusInd Bank Ltd.	174	182	356	51.1	195.6
47	Kotak Mahindra Ltd.	212	175	387	45.2	175.9
48	Yes Bank Ltd.	91	93	184	50.5	155.9
59	ABN-AMRO Bank	34	88	122	72.1	406.7
50	Barclays Bank PLC	6	5	11	45.5	220.0
51	Citibank	54	415	469	88.5	1143.9
52	Deutsche Bank AG	12	20	32	62.5	246.2
53	HSBC Ltd.	71	107	178	60.1	378.7
54	Standard Chartered Bank	92	149	241	61.8	267.8

Source: RBI, Report on Trend and Progress of Banking in India 2005 to 2009.

Table-7 depicts the bank wise ATMs installed by the Public Private and Foreign banks at the end of March 2009. Out of 52 banks reported with ATM installation, State Bank of India installed 8548 ATMs in India, where as Private Sector Banks, ICICI, Axis Bank and HDFC banks installed 4713, 3595 and 3295 ATMs respectively. The percent ATMs of branches in SBI, ICICI, AXIS and HDFC are 74.5, 334.5, 457.4 and 234 respectively in the above banks, which clearly reveals that the Private Banks are enormously increasing their ATMs than the Public Sector Banks does.

### Findings and suggestions

Introduction of ATMs have changed the face of banking services. Banks have recently introduced biometric Automatic teller Machines to overcome some of the



difficulties like theft of PIN and to expand bank reach to the rural and illiterate masses. Voltex Company has already established four solar powered ATMs for a pilot study in Cuddalore District of Tamil Nadu. Currently these machines are utilized by the local administrators to pay the beneficiaries of the National Rural Employment Guarantee Schemes.

These ATMs may reduce carbon-dioxide emissions by at least 18,500 Kg per year, further more they save 1,728 units of power per month. According to survey conducted by Retail Banking Research, the number of ATMs world wide as on 2005 were 1,544,853, which may cross two millions by the end of 2001. This figure clearly, shows the tremendous growth of ATMs during the years. Very interesting to see Asia Pacific region found the largest regional ATM market with 32.30 per cent of the global ATM market. The ATM density in India is far lower than that of the other developing countries, however ATM installation is growing at a rapid pace in the county. Currently India has an ATM penetration of about 0.04 per 1,000 people.

In India, Nationalized banks accounted for the largest share of the total installed ATMs. With regard to the installation of the off-site ATMs New Private Sector Banks had a largest share while nationalized banks occupied largest share in onsite ATMs installation. Some banks have started mobile ATMs in order to reach remote areas that may not have a large enough population. Interestingly the ratio of ATMs to total branches of the respective branches is tremendously increased after 2005. It is also found that there is a positive correlation between number of ATMs and total number of branches opened by the Indian Commercial Banks.

Hence it is inferred that ATMs are no substitute for opening a branch. As majority of the customers are often visit their branches simply to enquire about their account balances or to withdraw money. No doubt ATMs are more effectively providing both of these services. But these do not surrogate for opening a new branch to reach the unbanked areas. Indian ATMs are performing many functions like a vending machine, railway ticket counter, zipp money centres and also in the filed of microfinance.

Therefore it can be suggested to increase some other services to be offered by the ATMs and make it as substitute for a branch so as to reach the unbanked areas to provide the banking services in a large scale. Though the number of ATMs is increasing drastically still, we stumble on long queues in front of many ATM counters. Of course there is a limited scope of opening branches jointly by the banks due to a mixture of constraints, but at least they can jointly open many more ATMs to reach the unbanked areas to dwindle their cost of installation and to augment their services to the community.

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