**TSYS®** People-Centered Payments

Improving ATM Cash Planning: Using Economic Indicators to Increase Profitability

By Andrei Povarov

EXECUTIVE SUMMARY

One key aspect of managing a network of automated teller machines (ATMs) is cash planning. Every organization overseeing an ATM network needs to have a strategy, and those that already have one need to consider the next step in optimizing their cash planning strategies. The seemingly straightforward process of ensuring that the right amount of cash is stocked in each ATM can in fact have a large impact on a bank's profitability. "Banks currently pay 80 percent of the bill to provide cash," a Booz & Co. report states.[1] "In Europe, for example, this is worth about 84 billion [US dollars] annually." It is critical for banks to carefully forecast the cash storage needs of each ATM. Not having enough cash in an ATM would obviously cause a customer service disruption — a clear reputational and financial liability for the bank. Overloading an ATM with too much cash, on the other hand, means a bank utilizes its money inefficiently and misses out on earnings that could be reaped by putting that excess cash to other uses. Ideally, a bank's cash planning strikes the right balance between making sure there's always enough cash and not holding too much in excess.

Optimizing ATM Cash Inventory with Multiple Currencies
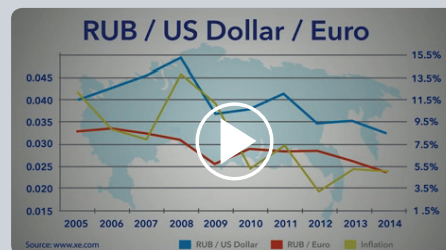
Russian ATM Data
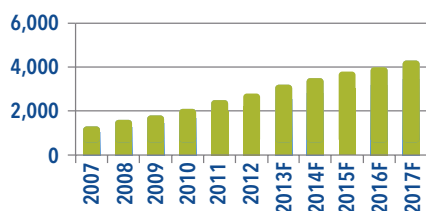
Table A:

Number of ATM Transactions (millions)

Table B:

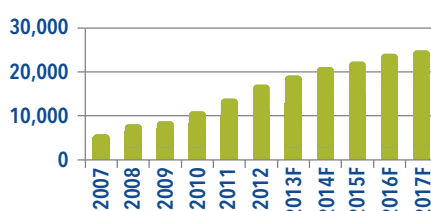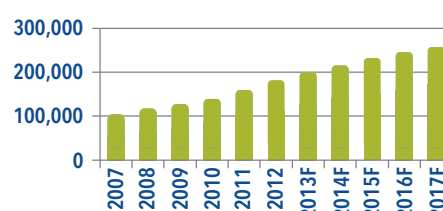**ATM Transaction Value** (RUB billions)

Table C:

Number of ATM Cards in Circulation (thousands)

Source: 2013 Euromonitor International

Russia's Payment Landscape

Like some developing countries, Russia has seen a large increase in card-based transactions in recent years. Card payments in Russia grew at a compound annual growth rate (CAGR) of 19.7 percent between 2008 and 2012,[2] compared to an 8.5-percent annual growth rate worldwide, according to the *World Payments Report*.[3] Russia's payment card circulation is expected to grow at a 7-percent CAGR between 2013 and 2017, ultimately reaching 377.6 million cards.[3] The speed by which different countries' consumers adopt cashless payments is influenced by a variety of factors, including the existing banking infrastructure, penetration of point-of-sale (POS) terminals and consumer preferences. MasterCard's *Cashless Journey Study* rated Russia's cashless "readiness" at 31 on a 1-to-100 scale, whereas the card-embracing Belgium and France scored 93 and 92, respectively. Russia's relatively low score suggests it is just beginning its cashless journey. According to the MasterCard study, only 48 percent of Russia's population has a bank account, while the rest likely conduct their financial lives outside the formal banking markets — a common characteristic in emerging economies. Russia's shadow economy — an economy in which goods and services are exchanged using cash, and taxes are not declared — is estimated to be among the world's largest. Estimates suggest it could account for anywhere from 15 percent to 30 percent of the country's GDP.[4]

From 2007 to 2012, the numbers and values of Russia's ATM transactions grew considerably at an annual rate of 17.1 percent and 24.2 percent, respectively, while the card circulation grew 12.2 percent.[5] From 2014 to 2017, annual growth for both transactions and cards in circulation is forecasted to remain rather steady at 7.5 to 8.5 percent. Of the 194.5 million payment cards in circulation in Russia, about 94 percent support ATM usage and account for an annual transaction value of R17.3 trillion.[5]

While card usage is growing, Russian consumers' mistrust of FIs lingers on from the recent global financial crisis, and cash continues to reign as the payment method of choice. Euromonitor estimates Russia's consumer cash-based payment transactions at R23,332 billion.[5] Russian consumers are generally reluctant to use their payment cards beyond ATM cash withdrawals, which account for approximately 90 percent of Russia's card activity.[6] The strongest factor driving this behavior is that employers pay their workers on so-called salary cards, allowing workers to withdraw their income via ATMs.[6]

According to Euromonitor, many Russian banks have expanded their ATM service offerings to cater to the many consumers that already use ATMs regularly to withdraw their income. "It is possible to make monthly credit payments through ATMs, transfer funds to other accounts within the same bank, check the status of pension funds, as well as pay for Internet services, mobile phone top-ups, cable television subscriptions and various utilities such as water and gas through most ATMs without incurring commission charges," a recent Euromonitor report says. "Other services include ticket purchases to shows and events and currency exchange, with many ATMs also offering the option of making withdrawals in dollars as well as rubles. One notable area of growth was the number of ATMs offering cash deposit functions at their ATM facilities."[6] It is critical to note that Russia's ATMs also usually dispense three types of currency: rubles, euros and U.S. dollars.[5]

This balancing act is far more complex than it may first seem. Financial institutions (FIs) currently use a variety of methods to estimate their ATM cash storage needs, but these methods fail to address disruptive forces that can strike economies unexpectedly and quickly — such as exchange-rate fluctuations and rampant inflation. Particularly in developing economies like Russia, disruptive political and economic events create new business realities and customer behaviors that make ATM cash planning especially challenging and also increase financial risk for banks. This is acutely true for networks that dispense multiple currencies, like those typically found in Russia.

This report explains the importance of accurate ATM cash planning and outlines commonly used planning methods. It then lays out recommendations for improving cash management and optimization while pointing to some economic indicators that can help banks reduce the risks associated with disruptive economic events. The report also provides three recommendations for using these often-overlooked economic indicators to manage ATM cash inventory with the objective of significantly improving a bank's profitability.

Given Russia's large reliance on ATMs, the expected high growth of ATM networks in the country, and the tendency for Russia's ATMs to be stocked with multiple currencies, the Russian market serves as an ideal case study for how banks operating in developing markets with similar characteristics can better manage their ATM cash inventories. This report explores the market conditions in Russia to illustrate how banks can increase their ATM profitability.

Introduction: Russia's Reliance on the ATM

Russia is widely recognized as one of the leaders among developing markets, as evidenced by its inclusion in the BRIC (Brazil, Russia, India, and China) countries — an acronym for four emerging economies expected to become economic powerhouses in the first part of the 21st century. Despite Russia's anticipated high economic growth, however, it's still a predominantly cash-based economy, and it relies heavily on ATMs. The country has about 153 ATMs per 100,000 adults, which

Exhibit 1

Overview of the Cash Infrastructure

	CASH PROCESSING	CASH DISTRIBUTION	MACHINES & TELLERS	
CENTRAL BANK	Bulk transport → CASH PROCESSING CENTERS — Bulk transport ←	Transport (CIT) → — Client and branch orders — Client and branch deposits — Transport (CIT) ←	ATM cash ↓ — ↑ Deposit cash	CONSUMERS ↓ RETAILERS
Share of total costs of cash operations	10%–20%	30%–40%	40%–50%	
Major cost items	– Cash processing (wages, equipment, IT, overhead, etc.) – Bulk transport	– Replenishment – Transport (CIT) – Incident management (first-level and second-level maintenance) – Interest (on stocks) – Insurance	– Location rental costs – Machines – Communication – Security – Teller wages	

Source: Booz & Company

is far higher than Brazil's 119 or France's 109.7 India and Chinas' ATM penetration levels are not even in the top 20 globally. Room for further ATM growth in Russia exists, however. The vast majority of Russia's ATM transactions — about 90 percent — are performed by workers who receive their paycheck via employer deposits into their bank accounts. Employees then retrieve that payment, often immediately, by withdrawing it in cash from an ATM. Because many Russians are concerned about the stability of the Russian ruble, many banks' ATMs dispense cash in multiple currencies, including rubles, euros and U.S. dollars.

The Cost of ATM Cash Planning and Replenishment

According to an article in the *Credit Union Times*, "Numerous functions are involved in operating a network of ATMs: ATMs must be purchased and installed, transactions must be processed and balances settled, paper jams must be cleared and broken parts repaired, cash must be restocked, software must be maintained and upgraded."[11] See Exhibit 1 *Overview of the Cash Infrastructure*. Cashless transactions, such as credit card payments, generally provide greater convenience and security, swifter processing, and lower processing costs. As depicted in Exhibit 1, banks pay a premium for cash.[1] Cash-related costs represent about 35 percent to 60 percent of the overall costs of running an ATM.[13] The costs of replenishing ATMs fall into two main categories: financial and operational. Financial costs are those

associated with excess cash inventory that isn't accruing interest. Operational costs include the time associated with maintaining a network of ATMs, such as tracking and monitoring key metrics, forecasting cash demands, and planning and replenishing cash inventory. This report addresses cash-related costs.

Depending on an ATM network's size and reach (multi-city or national), cash replenishment costs vary, but can be significant. A bank with a national footprint, for example, must maintain and replenish ATMs with various currencies across vast areas, including rural ones. All too often, cash planning is not managed according to the amount that is needed, but instead by the frequency of replenishment. If using a frequency-based method, the volume or amount of cash should be incorporated into the planning process. For organizations actively managing and planning their cash inventory, it is essential to optimize those strategies. Understanding the most effective strategies for accurately gauging cash inventory needs can substantially lower associated expenses and improve profit margins.

Exhibit 2 below highlights the cost of not optimizing cash planning strategies. ATMs with frequent usage may each require an estimated minimum cash stock of approximately 20 million rubles weekly. Assuming a 7.5 percent interest rate, Exhibit 2 shows the inventory costs of a network of 100 ATMs at three different excess cash levels (10 percent, 20 percent and 40 percent).

Exhibit 2

Loss Associated With Excess ATM Cash Inventory

Minimun Weekly Cash Stock per ATM (RUB '000s)	20,000	20,000	20,000
Overstock Rate	10%	20%	40%
Annual Interest Rate	7.50%	7.50%	7.50%
Annual Loss per ATM (RUB '000s)	150	300	600
Annual Loss for Network of 100 ATMs (RUB '000s)	**15,000**	**30,000**	**60,000**
Annual Loss for Network of 100 ATMs (USD '000s)	429	857	1,714

Source: TSYS

Three ATM Innovations: Biometrics, Video Calls and Smartphone Integration

ATMs have evolved considerably since their introduction decades ago and now provide customers with a host of new technological features. While many of these ATM features have gained interest from banks and consumers alike, some are still years away from widespread adoption, and may not ever be adopted widely. These emerging features, however, are expected to increase ATM usage and make accurate ATM cash planning even more imperative.

Table D:

Number of ATMs in Russia
(thousands)

2007:	54.8
2008:	70.9
2009:	84.5
2010:	97.1
2011:	111.2
2012:	124.5

Source: 2013 Euromonitor International

Biometrics: Using someone's fingerprint or retinal scan to authorize ATM cash withdrawals has become a reality. Particularly in developing economies — such as India, Mexico and Africa — biometric identification could improve financial inclusion among people lacking traditional ID cards. The Reserve Bank of India, for example, is already preparing a rule that will require ATMs to have the ability to authenticate users based on biometrics. Poland recently became the first European country to install biometric ATM machines that allow customers to withdraw cash using their fingerprints and personal identification numbers. While biometrics' potential use in ATMs has been highly hyped, it is unclear how widespread it will become. A 2012 survey found that 35 percent of banks thought biometrics capabilities were among the main drivers for upgrading their ATMs. By 2013, however, that number had dropped significantly. Privacy rights advocates and consumer groups have raised concerns about banks' access to highly sensitive biological identification information such as fingerprints, and the ability for law enforcement to access such information. In a recent interview, Alexander Grizov, publisher of *PLUS*, the Russian payments industry journal, indicated that Russians' reluctance in providing private data to banks and other commercial organizations will be exacerbated in the era of biometrics.[8] Given these privacy concerns, the usage of biometrics — such as palm prints, fingerprints, facial recognition or retinal scans — needs to be evaluated on a market-by-market basis. Another challenge with biometrics adoption is the current lack of standards among institutions.
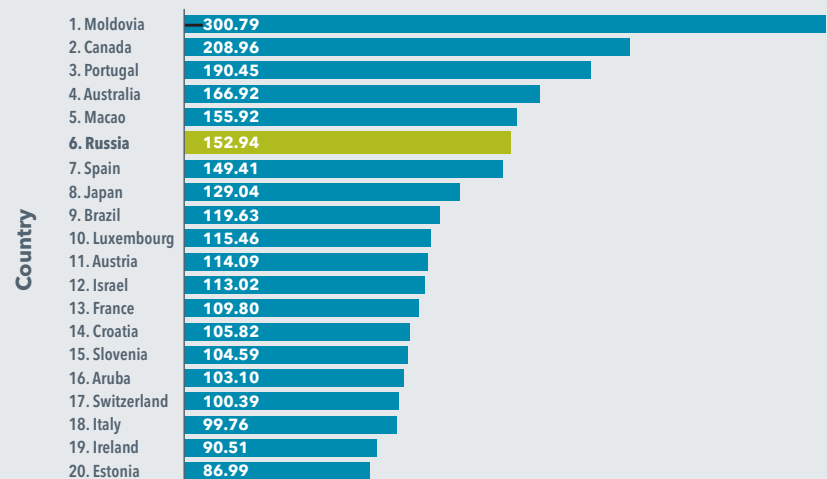
Video Conferencing With Bank Tellers:

Some banks, including Bank of America in the United States, are already trying out ATM-based video conferencing, through which customers can chat with a bank teller. Face-to-screen interactions will make possible transactions that cannot be completed on traditional ATMs, such as cashing checks down to the penny and receiving bills in a wider variety of denominations.[9] The challenge with video conferencing is that for any non-branch ATM and some branch-based ATMs, these calls are not truly private — which could deter customer usage.

Smartphone-facilitated Withdrawals:

The widespread use of smartphones by consumers worldwide has inevitably led more banks to consider how mobile phones can be integrated with ATM usage. Initially, surveys showed that banks embraced biometrics more than smartphones. But in recent years, smartphone integration has become more of a priority.[10] Banks have recognized the potential for smartphones to replace in-branch transactions — thus lowering their overhead costs — and the ability for smartphones to better integrate Internet banking and ATM usage. Moreover, the growth of mobile wallet applications has made smartphone-based ATM transactions a seemingly natural evolution. U.S. ATM manufacture Diebold is already in the process of designing ATMs that would allow preregistered bank customers to make cardless withdrawals by scanning a QR code on the ATM using their smartphone.[11]

Graph A:

ATMs per 100,000 adults, 2011

Country	Value
1. Moldovia	300.79
2. Canada	208.96
3. Portugal	190.45
4. Australia	166.92
5. Macao	155.92
6. Russia	152.94
7. Spain	149.41
8. Japan	129.04
9. Brazil	119.63
10. Luxembourg	115.46
11. Austria	114.09
12. Israel	113.02
13. France	109.80
14. Croatia	105.82
15. Slovenia	104.59
16. Aruba	103.10
17. Switzerland	100.39
18. Italy	99.76
19. Ireland	90.51
20. Estonia	86.99

Source: The World Bank

While innovation supports meeting market and customer demands, it doesn't necessarily address optimization of cash planning and, in turn, the profitability of ATMs. New innovations can indeed affect ATM usage patterns, and therefore, cash-planning strategies must be adjusted to compensate for new technologies.

Optimizing cash inventory can substantially bolster a bank's profitability, especially for those with a large or growing ATM network. Finding that "sweet spot" is much more complicated than it may appear.

Traditional ATM Cash Planning Methods

Cash planning is the process by which banks achieve an optimal balance of cash in ATMs across their networks, avoiding cash shortfalls while also not stocking terminals with too much excess cash. Different planning methods are commonly used to ensure ATMs hold the right amounts of cash. One such method is simple monitoring. ATMs alert banks when their cash reserves run low, meaning a bank can quickly stock them with cash on an as-needed basis. As outlined in the report, *ATM Lessons Learned from Technology*, advantages of this basic monitoring method are that it is inexpensive and doesn't require sophisticated forecasting tools.[14] Traditionally, FIs have increased profits through expanding the number of ATMs in their network. Alexander Grizov from *PLUS* states, "If this capital-intensive approach is not an option, FIs in Russia would find cash planning for their existing network an attractive alternative for boosting their net income. Furthermore, Microsoft's discontinued support of Windows XP has left FIs evaluating the need to invest in replacing these older ATMs. *PLUS* anticipates this environment will increase the popularity in cash planning during the second half of 2014."[8]

Another rather straightforward cash-planning method involves generating models that simulate historical cash demand with data input from actual cash-in and cash-out transactions. These historical demand models are overlaid with additional critical data, including high ATM demand dates such as worker paydays and holidays, as well as other seasonal influences.[13] The key advantage to this approach is its focus on analyzing select types of pertinent data.[15] While this approach is quite effective when analyzing smaller data sets, when sophisticated analysis of larger data sets is necessary, it becomes inefficient. As an ATM network increases in size, this approach becomes unwieldy with the increasing margin of error.

Another type of cash-planning method includes different mathematical models and simulations.[16] Yet many of these are theoretical and rarely used in an ATM network setting. Among the most interesting — though not so practical — are two other potential cash-planning methods: Usage simulation by artificial neural networks (ANNs)[17] and fuzzy expert systems.[13] ANNs are universal and flexible function approximators used in the fields of cognitive science and engineering, and they are becoming more common in financial applications. ANNs help solve problems when an uncertain set of variables exists. For example, consider weather forecasting. There are many known variables — from temperature to barometric pressure to cloud cover — yet it is challenging to predict with any certainty what the weather will be two days from now because so much depends on how those variables come together. ANNs capture and process historical data and use pattern recognition to improve future predictions. With more data analyzed over longer periods of time, those predictions should, at least in theory, become more accurate. While this approach may be well-developed and a solid application for many industries, it's in its infancy in terms of ATM cash management — and it requires a robust staff of statisticians.

Fuzzy expert systems are simpler. They imitate a human operator's reasoning by converting the analogical thinking behind the intuitive forecasting into formal steps of logic. When someone refills an ATM based solely on his or her years of experience and knowledge, this is considered "informal logic" because it is not based on a specific algorithm, but rather on someone's personal expertise. A fuzzy expert system tries to compile that human expertise and turn it into a set of rules that a computer can use to provide ATM cash-planning predictions. The disadvantage of this approach is the need for an experienced expert to provide knowledge to the system's developers. There are additional difficulties in adequately incorporating the expert's knowledge into the system's rules.[12]

Finally, banks may also use ATM cash-planning methods based on production and operations management[18] processes — which treat cash as inventory — or they may use cash-planning software systems that can be integrated into the bank's ATM management system.

Traditional Methods Lose Efficiency When Impacted by Macroeconomic Forces

But the myriad traditional cash-planning methods banks use are not enough to profitably meet today's many macroeconomic risks. The global nature of today's financial markets means that shockwaves in one market can quickly spill into another. An ATM network with multiple currencies is particularly susceptible to such scenarios. For example, currency exchange rate fluctuations can cross national borders quickly, creating an instant need for ATMs to be stocked with more cash in a specific currency in order to accommodate the changing exchange rates. Furthermore, exchange-rate volatility — as was recently experienced between the ruble, the U.S. dollar and the euro — can lead to changes in consumer behaviors. At one point, many Russian consumers decided to hedge against currency-rate declines by holding cash in multiple currencies. This created unwieldy fluctuations in Russians' demand for foreign currencies from ATMs.

The primary disadvantage of most traditional methods of cash planning is that the forecasting model parameters are held constant and do not represent true market conditions, which are ever-changing and dynamic based on fluctuating key economic indicators such as consumer prices, exchange rates, interest rates and inflation rates.

Improving the Profitability of ATMs

In an effort to increase the profitability of ATMs, some FIs have introduced initiatives with new incremental revenue streams. In the United States, for example, ATM transaction receipts sometimes include advertisements. Many banks let cardholders pay utility, phone and Internet service bills through ATMs. While some of these initiatives are critical for maintaining customer satisfaction and loyalty, they do not address the need to better manage operational costs.

According to Booz & Co., optimization of internal bank operations can significantly reduce the cost of managing cash: "Through more sophisticated cash planning, intelligent monitoring of ATM incidents, and rationalization of the ATM footprint, banks can cut their total cost of managing cash by as much as 10 to 15 percent." While some FIs in Russia truly understand the benefits of cash planning, as Alexander Grizov states, "Paradoxically, others are reluctant to implement it, as efficiencies could drive staff reductions — up to 20 percent. Increased performance should be viewed as a positive change. However, trimmed headcount could be mistakenly viewed by industry regulators as an indicator of poor organizational performance, and lead to onerous audits and inspections."[8] To truly bolster ATM revenues and offset the increasing cost of cash, banks in developing markets with market characteristics similar to Russia's should focus more attention on managing their multi-currency cash inventories more effectively. This approach means looking at the macroeconomic environment not as static, but as dynamic. Different economic indicators need to be continuously evaluated.

Recommendations for Utilizing Economic Indicators for ATM Cash Planning

Today's global economy calls for more sophisticated ATM cash planning than what the traditional planning methods allow for — at least on their own. Incorporating economic indicators facilitates better forecasting of an ATM's cash needs and reduces the risk of cash shortages or hefty surpluses.

The economic indicators most useful in ATM cash management include exchange-rate fluctuations, interest rates and inflation. Exchange-rate fluctuations affect the value of currency, which immediately impacts the value of an ATM's cash inventory. Two types of economic indicators — what TSYS refers to as "slow-impact factors" and "fast-impact factors" — can be used to help banks improve their ATM cash planning. Using economic

indicators is especially important in Russia and other markets in which ATMs typically offer multiple currencies. For example, if interest rates rise, the value of account holders' cash deposits increases, leading to an increase in cash deposits into the ATM. That means the ATM would likely not need to be stocked with as much cash as it is normally stocked with when interest rates are lower. If an exchange rate changes drastically — say, with the euro increasing in value compared to the ruble — a bank would likely want to load its ATMs with proportionally more euros to satisfy anticipated demand.

FIs that use economic indicators along with historical data and analytics predictive of consumer behaviors in their ATM cash forecasting will be able to better identify emerging trends that enable more accurate planning. Integrating economic indicators into these projections helps FIs better spot historical patterns that can ensure optimal cash levels in ATMs.

Here are three recommendations for optimizing ATM cash planning:

Recommendation #1:
Incorporate Slow-Impact Indicators
Slow-impact economic indicators generally include interest rates and inflation, as these two factors tend to creep up over time — not change overnight, though in rare circumstances they may. Both of these slow factors should be incorporated in ATM cash planning because they affect the cost of cash. Interest rates are tied directly to the cost of holding money in an ATM, because an ATM's cash sits idle and does not earn interest. For example, if €10,000 of excess cash inventory is stocked in an ATM when interest rates are 4 percent, this equates to €400 annually. Therefore, as interest rates climb one or two points, the cost of carrying cash in an ATM essentially increases by €100 to €200 per €10,000 each year. According to economic theory, consumers' demand for cash is inversely related to interest rates; as rates go up, cash demand decreases.

Exhibit 3

Effects on Cash Demand as Leading Economic Indicators Increase
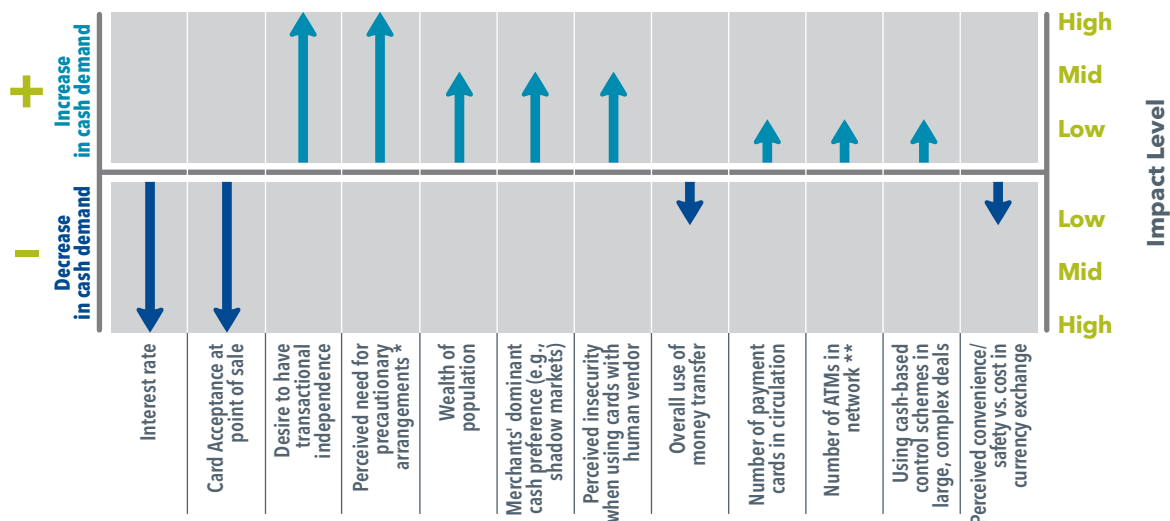
* Ie, mistrust of keeping money outside of the home
** Number of ATMs is considered in isolation, not as a result of another trend that forces ATM network extension

Source: TSYS

The opposite is true with inflation. As the cost of goods rises, demand for cash also rises because consumers need to withdraw more cash in order to buy the same quantity of goods. Inflation rates in Russia are consistently high: from 2004 to 2014, inflation grew an annualized average rate of 10.1 percent. By comparison, U.S. inflation rates for the same period never exceeded 4 percent.[19]

FIs should look at slow-impact indicators when forecasting cash needs specifically during mid- to long-term planning. Exhibit 3 depicts the changes that are likely to increase or decrease cash demand from ATMs.

Recommendation #2:
Incorporate Fast-Impact Indicators
Fast-impact economic indicators are those that take effect quickly. In terms of ATM cash planning, the most useful economic indicator is exchange-rate fluctuation. In countries like Kyrgyzstan, the majority of transactions conducted at ATMs are cash withdrawals of local currency. In that situation, exchange-rate fluctuations will not affect the cash planning for daily operations, because ATMs only dispense a single currency. However, banks that stock ATMs with multiple currencies must pay close attention to exchange-rate fluctuations. Aizkraukles banka Bank in Latvia recently installed its first multi-currency ATM. The terminal provides a convenience to bank customers while also providing currency exchange to travelers, according to Aivars Rauska, deputy head of the customer service division of AB. "The advantages of the three-currency ATM will prove particularly useful for customers who are frequent travelers as well as customers from abroad," Rauska says. "This multi-currency ATM cash withdrawal service enables customers to withdraw money in lats and two other widely used currencies and therefore serves as a substitute for currency exchange operations."[20]

In Russia, as in other emerging markets, currency exchange operations are particularly important for ATM cash planning, because citizens often stay abreast of currency fluctuations to inform their banking behavior and decide which currencies to hold in their bank accounts.

In today's globalizing economy, fluctuations are constant and fast moving. Incorporating currency fluctuations into a cash-forecasting model should lead to more favorable operations by securing better costs of foreign currency and limiting the risks associated with it.

Recommendation #3: *Use Software that Incorporates Slow and Fast Indicators*
Fast- and slow-impact economic indicators are interdependent, underscoring the need for software that integrates both types of indicators into its planning models. This could help banks make better predictions and respond better to macroeconomic events in their ATM cash planning. This type of software is not widely available currently, but some companies are in the early stages of developing it. Depending on the cash-planning methods currently used by a bank, inputting, monitoring, and analyzing economic indicators and producing recommendations need not be cumbersome. In a system driven by empirical rules, adding

intelligence modules that capture exchange-rate dynamics — such as excessive fluctuations above the given stability patterns — can be relatively straightforward. At the same time, experience suggests that fine-tuning the rules might be more challenging and time-consuming, and it might be some time before this type of system could produce accurate and practical cash-planning recommendations.

The next level of sophistication with software intelligence can be achieved by leveraging the interdependence of fast- and slow-impact indicators. On one hand, economic forces with fast impact can influence and drive gradual changes in slow-moving economic indicators. On the other hand, slow-moving indicators can restrict the way fast-impact indicators affect customer behavior and ATM cash flow.

Quick economic changes expressed by fast-impact indicators occurring either with high frequency or strong impact would directly accelerate the economic parameters expressed by slow-impact indicators. For example, the long-term stability in the value of the Russian ruble helps encourage consumers to conduct high-value transactions in rubles. People understand, compare, and negotiate high-value transaction prices in rubles, whereas 10 years ago most high-value transactions in Russia were in U.S. dollars, due to the ruble's price instability. Should current events suddenly devalue the ruble by more than 30 percent, the market may change people's preference yet again toward high-value transactions negotiated in U.S. dollars. Clearly, this strongly impacts ATM cash planning.

By the same token, a fast devaluation of the ruble can also lead to slow indicators restricting fast ones. In early 2014, many Russians rushed to ATMs to withdraw euros or U.S. dollars to hedge against further possible rapid ruble devaluation. However, due to its perception as a high-value transaction currency, people still used rubles to make large purchases, such as buying a flat or a car. The level of influence of the fast indicator (the ruble's exchange rate) on ATM currency planning was thus impacted by the slow indicator (consumer perception). In such a scenario, overstocking euros or U.S. dollars in ATMs would result in a misbalance, and negatively impact the bank's reputation.

Conclusion: The Bottom Line of ATM Cash Management
Banks currently use a wide variety of methods to estimate their ATM cash storage needs, but many are overlooking key economic indicators, such as large exchange-rate fluctuations, that commonly affect developing economies. These factors can hinder a bank's profitability because they create the risk that ATMs will either run out of cash at key moments or create a vast oversupply of cash that reduces a bank's cash efficiency. New tools are being developed that can help banks improve their ATM cash forecasting by factoring in indicators that address the realities of developing countries. Banks that proactively work to better manage their cash will be best-positioned to ensure they are maximizing efficiencies, and will ultimately improve their profitability — potentially to the tune of millions of dollars annually.

What will the next few years hold for emerging markets and, in particular, Russia and The Commonwealth of Independent States? There will be ample opportunity for these markets to more fully realize their vast potential. Russia will likely, however, not be immune from further macroeconomic and geopolitical tensions like those recently witnessed, resulting in dramatic shifts in both slow- and fast-impact indicators. We expect that FIs that move first to incorporate economic indicators in their ATM cash planning will be positioned to enjoy a sustainable competitive advantage over the coming years by mitigating their exposure to external shocks, optimizing their cash inventories and ensuring that their customers are well served.

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ABOUT THE AUTHOR

Andrei Povarov *Deputy Director General of TSYS in Moscow*

Andrei is responsible for both the integration of all of TSYS' operations in the region, as well as managing business expansion in Russia and CIS. With more than 20 years in the global payments industry, Andrei has extensive experience covering a wide spectrum of technical and managerial roles, including product development and delivery, innovation council and partners' management, strategy and business expansion, regional operations, and general management. He holds a Ph.D in Computer Science and an Executive MBA from Antwerp Management School. Andrei played a lead role in creating and further developing TSYS ATM Controller, deploying it as a commercial product within different markets, including CIS, Africa, Asia and the Middle East. Prior to his career at TSYS, Andrei worked on various computer networking projects, led scientific research and lectured at Moscow State University.

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TSYS' headquarters are located in Columbus, Ga., U.S.A., with local offices spread across the Americas, EMEA and Asia-Pacific. TSYS is a member of The Civic 50 and was named one of the 2013 World's Most Ethical Companies by Ethisphere magazine. TSYS routinely posts all important information on its website. For more, please visit us at www.tsys.com.

CONTRIBUTORS

This report was prepared by TSYS. Contributors to the this paper under the guidance of Andrei Povarov include Strategic Marketing Director, Morgan Beard; and Independent Writer, Carolyn Kopf.

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