the PYMNTS.com

Global Cash Index™

a CARDTRONICS collaboration

OCTOBER 2017

THE WESTERN AND EASTERN EUROPE EDITION

0.7% Estimated compound annual rate of increase in total cash use in **WU15** based on weighted average across countries between 2016 and 2021

4.7% Estimated compound annual rate of increase in total cash use in **EU14** based on weighted average across countries between 2016 and 2021

$2.3 TRILLION

Total amount of cash used for payments by the **WU15** in 2016

$1.3 TRILLION

Total amount of cash used for payments by the **EU14** in 2016

	WU15	EU14
Weighted average cash use as a percentage of GDP in 2016	15.3%	35.9%
Percentage point decline in cash share of GDP between 2011 and 2016	2.8%	3.8%
Estimated percentage point decline in cash share of GDP between 2016 and 2021	1.7%	4.0%

I. CASH USE INDEX

CASH USE INDEX:
THE WESTERN AND EASTERN EUROPE EDITION

Cash is the lingua franca of money. It accounts for the most transactions by number in several countries and is the most widely accepted payment method in the world. Customers commonly ask if retailers accept Visa or Mastercard, but rarely if they accept cash. However, as more digital payments have emerged offering increased security, cash's popularity faces a threat — or does it?

The PYMNTS.com Global Cash Index, powered by Cardtronics, attempts to answer this question by analyzing both the global **use of cash for making payments** and cash **as a payment method** that competes with cards, checks, direct debit and other methods of settling up between consumers and businesses. Unlike virtually all reported estimates of cash, our proprietary data analysis focuses on the use of cash for making payments rather than hoarding.

This edition focuses on 15 Western European countries (WU15) and 14 Eastern European countries (EU14), which represent 95.1 percent of the total GDP in the region. Western European countries include Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Fourteen of these, Switzerland being the exception, of course, belong to the European Union, and those 14 account for 89 percent of the EU's GDP.

We'll also travel a few miles and focus on 14 Eastern European/Eurasian countries. The list of EU14 countries includes Bulgaria, Croatia, the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Slovenia and Turkey. All belong to the European Union except for Russia and Turkey. Poland, Russia and Turkey account for 71 percent of the EU14 group's GDP.

$2.3 trillion: total amount of cash used for payments by the WU15 in 2016.

$1.3 trillion: total amount of cash used for payments by the EU14 in 2016.

0.7 percent: Estimated compound annual rate of increase in total cash use in WU15 based on weighted average across countries between 2016 and 2021.

4.7 percent: Estimated compound annual rate of increase in total cash use in EU14 based on weighted average across countries between 2016 and 2021.

15.3 percent: weighted average cash use as a percentage of GDP in the WU15 in 2016.

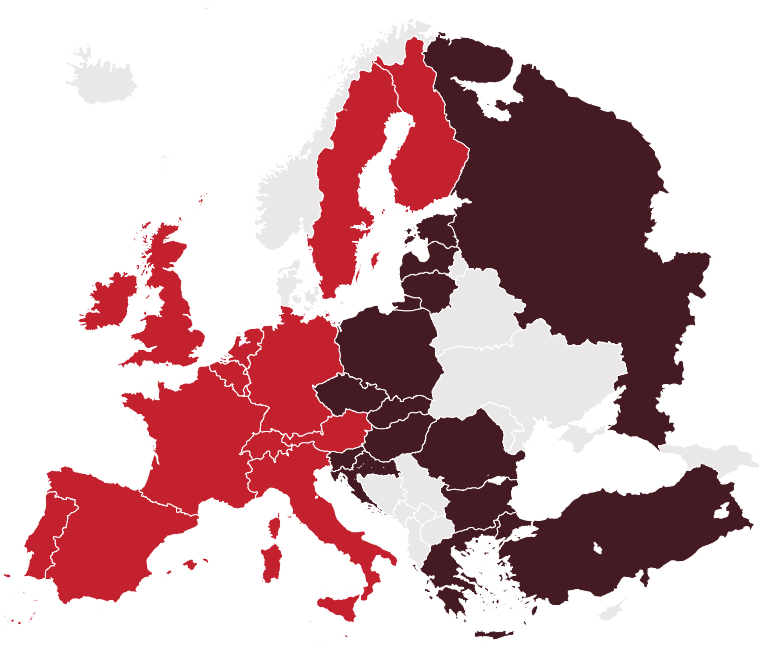
35.9 percent: weighted average cash use as a percentage of GDP in the EU14 in 2016.

2.8 percent: percentage point decline in cash share of GDP in the WU15 between 2011 and 2016.

3.8 percent: percentage point decline in cash share of GDP in the EU14 between 2011 and 2016.

1.7 percent: estimated percentage point decline in cash share of GDP in the WU15 between 2016 and 2021.

4.0 percent: estimated percentage point decline in cash share of GDP in the EU14 between 2016 and 2021.



I. CASH USE INDEX

TABLE 1. SUMMARY STATISTICS BY COUNTRY IN THE WU15

WESTERN EUROPE	POPULATION (MM)	GDP (BILLION DOLLARS)	CASH SHARE 2016	ESTIMATED TOTAL CASH GROWTH 2016-2021
AUSTRIA	8.7	386.7	39.1%	9.8%
BELGIUM	11.3	466.8	15.4%	17.5%
FINLAND	5.5	236.8	7.4%	-11.8%
FRANCE	66.9	2462.6	7.0%	-2.8%
GERMANY	81.8	3465.8	19.7%	-3.8%
IRELAND	4.7	293.7	7.6%	-50.3%
ITALY	60.7	1850.3	25.0%	10.6%
LUXEMBOURG	0.6	59.5	11.8%	-14.3%
MALTA	0.4	11.0	21.1%	27.9%
NETHERLANDS	17.0	771.0	7.1%	-9.4%
PORTUGAL	10.3	204.7	21.1%	10.0%
SPAIN	46.5	1232.3	23.7%	11.7%
SWEDEN	9.9	511.5	5.7%	13.8%
SWITZERLAND	8.4	659.8	4.5%	1.5%
UNITED KINGDOM	65.5	2617.9	11.3%	6.1%
TOTAL WESTERN EUROPE	**398.1**	**15230.2**	**15.3%**	**0.7%**

TABLE 2. SUMMARY STATISTICS BY COUNTRY IN THE EU14

EASTERN EUROPE	POPULATION (MM)	GDP (BILLION DOLLARS)	CASH SHARE 2016	ESTIMATED TOTAL CASH GROWTH 2016-2021
BULGARIA	7.1	52.4	49.8%	11.1%
CROATIA	4.2	50.4	71.5%	19.9%
CZECH REPUBLIC	10.6	193.0	26.4%	2.2%
ESTONIA	1.3	23.1	19.2%	9.0%
GREECE	10.8	194.2	55.0%	0.6%
HUNGARY	9.8	125.7	33.7%	-9.0%
LATVIA	2.0	39.4	27.9%	-16.7%
LITHUANIA	2.9	12.4	81.8%	2.7%
POLAND	37.9	467.6	39.1%	3.0%
ROMANIA	19.7	187.0	40.5%	2.6%
RUSSIA	144.0	1282.1	39.7%	33.1%
SLOVAKIA	5.4	89.6	44.4%	4.6%
SLOVENIA	2.1	44.0	30.5%	18.6%
TURKEY	79.4	856.7	22.4%	79.1%
TOTAL EASTERN EUROPE	**337.1**	**3617.5**	**35.9%**	**4.7%**

II. THE CASE FOR CASH

In Sweden, Björn Ulvaeus, a former member of the band Abba, has embarked on a surprising career after his rock star days: Ulvaeus is an anti-cash campaigner. He writes regularly about the detrimental effects of cash on society:

> *"I challenge anyone to come up with reasons to keep cash that outweigh the enormous benefits of getting rid of it. Imagine the worldwide suffering because of crime, from drug dealing to bicycle theft. Crime that requires cash. The Swedish krona is a small currency, used only in Sweden. This is the ideal place to start the biggest crime-preventing scheme ever. We could and should be the first cashless society in the world."* [1]

Most of Sweden seems to agree with Ulvaeus. Tourist destinations have stopped accepting cash, while approximately 900 of Sweden's 1,600 bank branches no longer keep cash on hand.[2] Even the cathedrals in Sweden have started accepting digital payments in the pursuit of money, money, money.[3]

And yet, even Sweden can't manage to completely let go of its cash. Two years ago, the country redesigned its cash, which now features splashy colors and portraits of pop culture icons like Greta Garbo, filmmaker Ingmar Bergman and Astrid Lindgren, the writer of the *Pippi Longstocking* series.[4] That's a lot of effort to invest in something with which Sweden supposedly wants to part.

Meanwhile, in the rest of Europe — particularly in Austria and Spain, where cash drives more than 25 percent of the economy — cash still remains a favorite. In developing countries, which don't necessarily have the infrastructure for mobile payments and digital platforms, cash is a solid answer: accepted by everyone, easily understood, never doomed to technology failures.

So, where is cash now? Under attack, or timeless tradition that's here to stay?

It's a tricky question to answer. Cash use is anonymous and invisible to government and financial institutions. The PYMNTS.com Global Cash Index, powered by Cardtronics, measures the use of that cash by calculating the amount of cash people withdraw from ATMs, banks and point of sale (POS) machines throughout a given year. Each quarterly issue of the Index focuses on a particular region of the world. Overall, we keep tabs on cash use in 40 different countries.

In this report, we've focused on 15 Western European (WU15) and 14 Eastern European (EU14) countries.

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[1] Pickett, Mallory. One Swede will kill cash forever — unless his foe saves it from extinction. Wired. May 8 2016. https://www.wired.com/2016/05/sweden-cashless-economy/. Accessed Sept. 2017.

[2] Skinner, Chris M. Sweden going cashless. The Finanser. Sept. 18, 2017. https://thefinanser.com/2017/04/sweden-going-cashless.html/. Accessed Sept. 2017.

[3] Liman, Love and Niklas, Magnusson. In cashless Sweden, even God now takes collection via an app. Bloomberg. May 14, 2017. https://www.bloomberg.com/news/articles/2017-05-14/in-cashless-sweden-even-god-now-takes-collection-via-an-app. Accessed Sept. 2017.

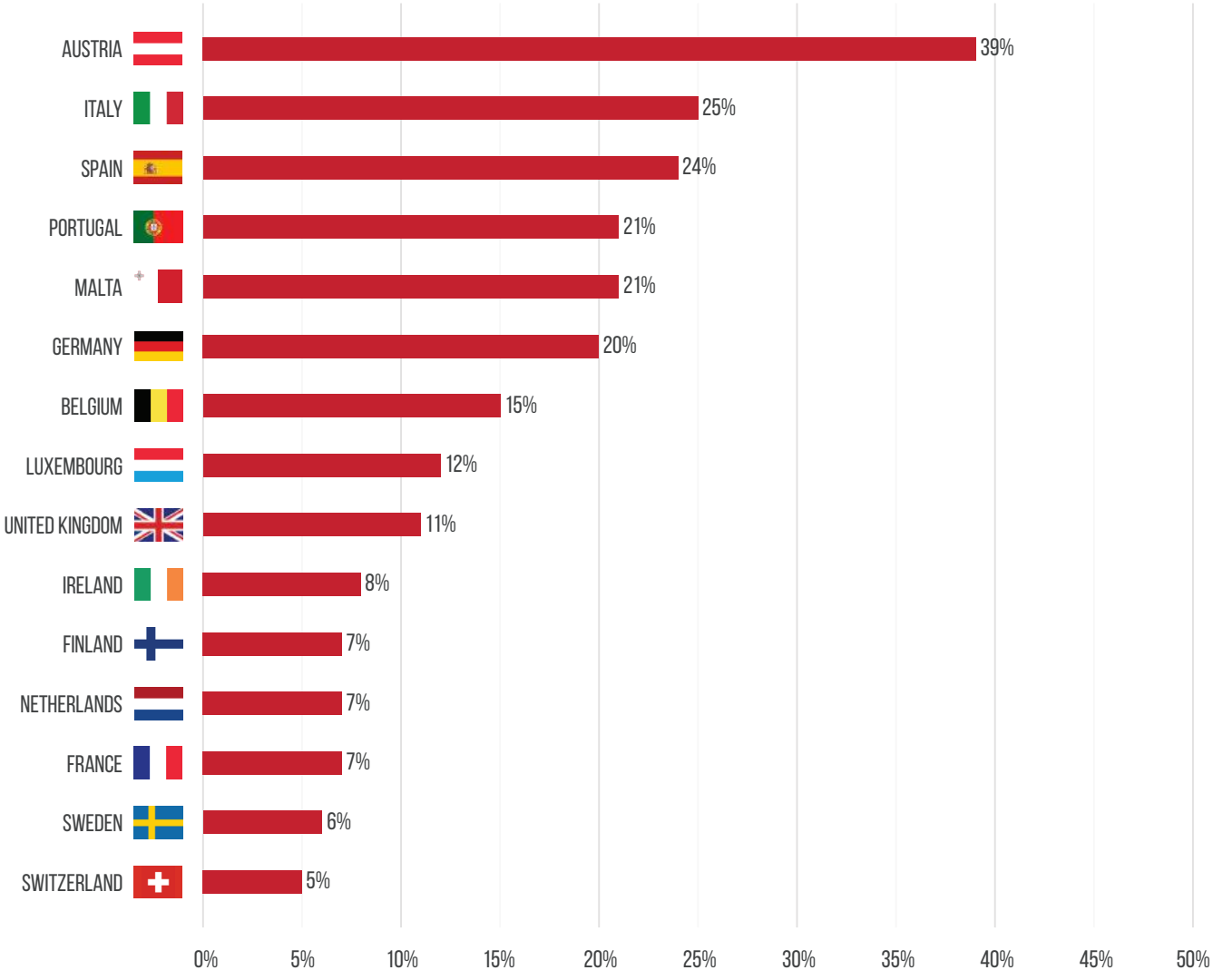
[4] Henley, Jon. Sweden leads the race to become cashless society. The Guardian. Jun. 4, 2017. https://www.theguardian.com/business/2016/jun/04/sweden-cashless-society-cards-phone-apps-leading-europe. Accessed Sept. 2017.

III. CASH SHARE OF THE WALLET

The first metric we examine to measure cash use is "cash share of the wallet." Cash share of the wallet refers to the percentage of the GDP that is cash-driven as opposed to being driven by a different payment type. Figure 1 ranks the WU15 in order of largest cash share to smallest. Austria came in far ahead of the pack at 39 percent, though the Austrian government recently changed some of its accounting methods, which may be responsible for this large lead.

Sweden, despite all its efforts to eliminate cash, is second to last — beaten out for the end of the line by Switzerland which holds a mere 5 percent cash share. Despite Ulvaeus publicly stating his love of digital payments, he needs to up his game if he wants to help Sweden go cashless first.

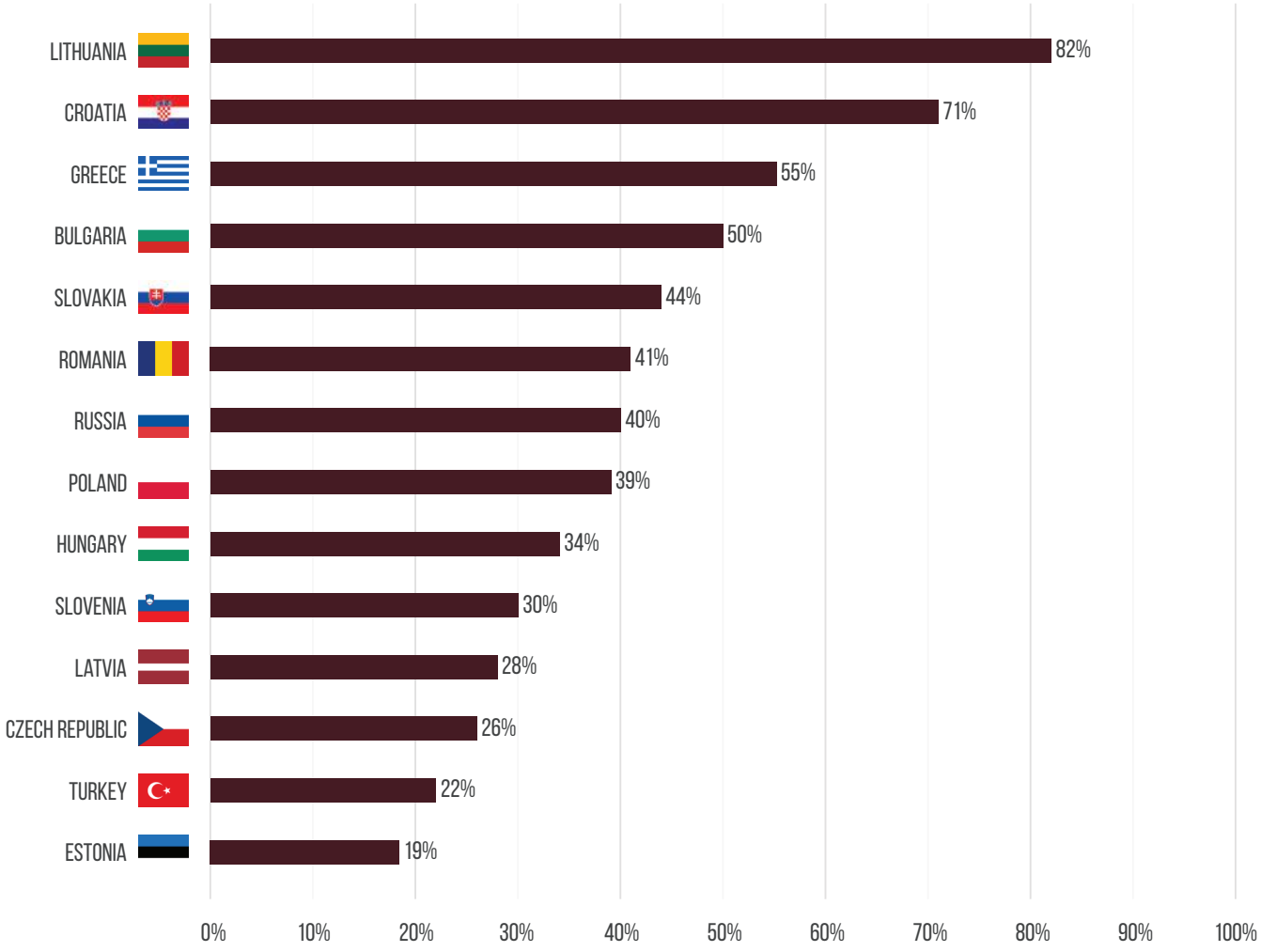
FIGURE 1. CASH SHARE FOR COUNTRIES IN WU15



III. CASH SHARE OF THE WALLET

Cash is much more popular in the EU14. The median was 39.4 percent: Lithuania came in at 82 percent, while Estonia was at 19 percent, which puts it solidly in the middle of the WU15.

FIGURE 2. CASH SHARE FOR COUNTRIES IN EU14



III. CASH SHARE OF THE WALLET

During the past 15 years, cash share has dropped an average of 2.8 percentage points for the WU15, as shown in Table 3.

TABLE 3. CASH SHARE PER COUNTRY IN THE WU15

WESTERN EUROPE	2001	2006	2011	2016
AUSTRIA	28.7%	49.9%	46.1%	39.1%
BELGIUM	15.6%	12.4%	15.4%	15.4%
FINLAND	23.5%	14.0%	10.0%	7.4%
FRANCE	12.0%	9.3%	8.6%	7.0%
GERMANY	—	—	24.5%	19.7%
IRELAND	24.6%	18.6%	15.8%	7.6%
ITALY	27.0%	19.0%	23.2%	25.0%
LUXEMBOURG	12.7%	8.2%	6.6%	11.8%
MALTA	—	—	19.2%	21.1%
NETHERLANDS	—	12.5%	9.4%	7.1%
PORTUGAL	21.9%	22.4%	22.4%	21.1%
SPAIN	—	35.5%	32.0%	23.7%
SWEDEN	20.6%	13.6%	6.5%	5.7%
SWITZERLAND	—	6.2%	5.1%	4.5%
UNITED KINGDOM	16.3%	15.0%	13.7%	11.3%
WEIGHTED AVERAGE CASH SHARE			**18.2%**	**15.3%**
VARIATION 2011-2016				**-2.8%**

While the EU14 has a much larger cash share than the WU15, its cash share has been plummeting at a much faster rate than that of the WU15. The WU15 tends to have more developed countries with more payment options, so change appears to be more incremental. In the EU14, however, which is composed of less developed nations, introducing a single new payment mechanism has the potential for greater disruption.

TABLE 4. CASH SHARE PER COUNTRY IN THE EU14

EASTERN EUROPE	2001	2006	2011	2016
BULGARIA	20.4%	55.0%	55.1%	48.7%
CROATIA	—	—	—	71.5%
CZECH REPUBLIC	—	—	32.7%	26.4%
ESTONIA	56.3%	33.9%	22.3%	19.2%
GREECE	87.7%	73.3%	66.3%	55.0%
HUNGARY	61.8%	63.9%	49.5%	33.7%
LATVIA	87.9%	66.2%	41.3%	27.9%
LITHUANIA	—	128.2%	105.1%	81.8%
POLAND	50.4%	59.0%	50.6%	39.1%
ROMANIA	50.1%	48.3%	58.2%	40.5%
RUSSIA	—	27.0%	35.1%	39.7%
SLOVAKIA	—	43.6%	55.2%	44.4%
SLOVENIA	32.3%	31.8%	33.8%	30.5%
TURKEY	—	16.5%	20.6%	22.4%
WEIGHTED AVERAGE CASH SHARE			**39.7%**	**35.9%**
VARIATION 2011-2016				**-3.8%**

Note: To make the weighted average cash shares comparable among time periods, we estimated them for the same set of countries. The weighted average was not calculated for 2001 and 2006 as there was no data for those periods for Germany, Spain, Luxembourg and Malta. For 2011, Luxembourg was the only country without data, and the series for 2015 is complete for all countries. To compare the weighted average between 2011 and 2016, we excluded Luxembourg from 2016.

IV. TOTAL CASH USE

A decline in cash share doesn't mean people have given up on cash completely, though. The second metric we track is "cash use", which refers to how much cash people are spending. Since populations are growing, economies are expanding and people are spending more and more each year. That means cash use is actually growing, albeit slowly.

Tables 5 and 6 break out countries in the WU15 and EU14 alphabetically, showing how their cash use has changed from 2006 to 2016 and what it's predicted to be by 2021.

TABLE 5. HISTORICAL AND FORECAST TOTAL USE OF CASH, BY COUNTRY IN THE WU15

WESTERN EUROPE	2006	2011		2016		2021	
	CASH USE (BILLION DOLLARS)	CASH USE (BILLION DOLLARS)	COMPOUND ANNUAL GROWTH RATE 2006-2011	CASH USE (BILLION DOLLARS)	COMPOUND ANNUAL GROWTH RATE 2011-2016	CASH USE (BILLION DOLLARS)	COMPOUND ANNUAL GROWTH RATE 2016-2021
AUSTRIA	147.2	157.3	1.3%	151.2	-0.8%	166.1	1.9%
BELGIUM	44.8	64.5	7.6%	71.9	2.2%	84.4	3.3%
FINLAND	26.7	21.7	-4.1%	17.5	-4.2%	15.4	-2.5%
FRANCE	191.6	196.0	0.5%	171.6	-2.6%	166.8	-0.6%
GERMANY	—	733.0	—	682.8	-1.4%	657.0	-0.8%
IRELAND	38.1	30.3	-4.5%	22.5	-5.8%	11.2	-13.0%
ITALY	325.2	419.4	5.2%	461.7	1.9%	510.5	2.0%
LUXEMBOURG	3.0	3.1	0.7%	7.0	17.5%	6.0	-3.0%
MALTA	—	1.5	—	2.3	9.7%	2.9	5.0%
NETHERLANDS	79.8	66.8	-3.5%	54.7	-3.9%	49.6	-2.0%
PORTUGAL	41.1	43.6	1.2%	43.2	-0.2%	47.5	1.9%
SPAIN	396.0	379.3	-0.9%	292.5	-5.1%	326.6	2.2%
SWEDEN	49.1	27.6	-10.9%	28.9	0.9%	32.9	2.6%
SWITZERLAND	33.7	31.9	-1.1%	29.9	-1.3%	30.3	0.3%
UNITED KINGDOM	295.3	301.4	0.4%	294.6	-0.5%	312.5	1.2%
TOTAL		2477.3		2332.4	-1.20%	2419.9	0.74%

IV. TOTAL CASH USE

TABLE 6. HISTORICAL AND FORECAST TOTAL USE OF CASH, BY COUNTRY IN THE EU15

EASTERN EUROPE	2006	2011		2016		2021	
	CASH USE (BILLION DOLLARS)	CASH USE (BILLION DOLLARS)	COMPOUND ANNUAL GROWTH RATE 2006-2011	CASH USE (BILLION DOLLARS)	COMPOUND ANNUAL GROWTH RATE 2011-2016	CASH USE (BILLION DOLLARS)	COMPOUND ANNUAL GROWTH RATE 2016-2021
BULGARIA	16.6	25.2	8.7%	25.5	0.2%	28.3	2.1%
CROATIA	—	—	—	36.0	—	43.2	3.7%
CZECH REPUBLIC	—	53.9	—	50.9	-1.1%	52.0	0.4%
ESTONIA	5.1	4.1	-4.1%	4.4	1.6%	4.8	1.7%
GREECE	176.7	151.9	-3.0%	106.9	-6.8%	107.5	0.1%
HUNGARY	54.8	49.6	-2.0%	42.3	-3.1%	38.5	-1.9%
LATVIA	17.8	13.2	-5.8%	11.0	-3.6%	9.2	-3.6%
LITHUANIA	9.9	10.5	1.3%	10.1	-0.8%	10.4	0.5%
POLAND	159.4	201.0	4.7%	182.9	-1.9%	188.3	0.6%
ROMANIA	41.3	81.0	14.4%	75.8	-1.3%	77.8	0.5%
RUSSIA	116.5	313.2	21.9%	509.2	10.2%	677.9	5.9%
SLOVAKIA	27.2	43.2	9.7%	39.8	-1.6%	41.6	0.9%
SLOVENIA	11.1	13.8	4.4%	13.4	-0.6%	15.9	3.5%
TURKEY	43.1	95.2	17.2%	191.7	15.0%	343.2	12.4%
TOTAL		1055.7		1300.0	4.25%	1638.8	4.74%

From 2011 to 2016, total cash spending in Western Europe increased at a 1.2 percent CAGR. Meanwhile in Eastern European, it increased at a 4.25% CAGR. Between 2016 and 2021, we forecast CAGR of cash usage to increase by 0.7 percent in WU15 and by 4.7 percent in EU14.

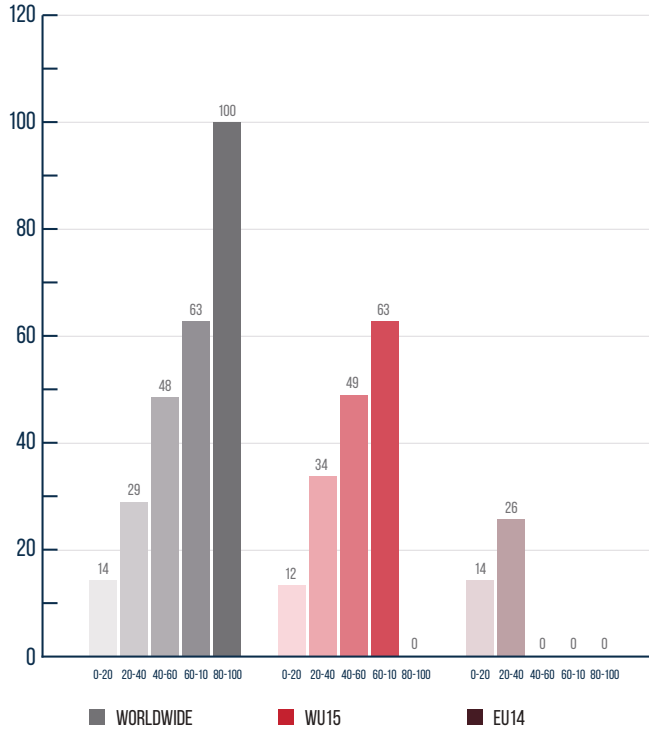
DEEP STATISTICAL DIVE: MEASURING AVAILABILITY

We created two indexes to measure cash availability in the WU15 and EU14. The first index measures ATM availability, the second bank branch availability on a scale of 0 to 100, with 100 as the maximum. To analyze the indexes, we separated our results into quintiles: 0 to 20 percent, 20 to 40 percent, 40 to 60 percent, 60 to 80 percent and 80 to 100 percent. More information on our methods can be found in our Methodology section at the end of this report.

ATM AVAILABILITY INDEX

Although cash is used more widely in Eastern Europe than in Western Europe, Western Europe surprisingly boasts more ATMs. The EU14 performs quite poorly on our ATM Availability Index: No country in the EU14 received a score higher than 40. We suspect this is because the EU14 is composed mostly of developing countries where the ATM financial system's infrastructure is not as fully fleshed out as it is in the WU15.

FIGURE 3. ATM AVAILABILITY INDEX



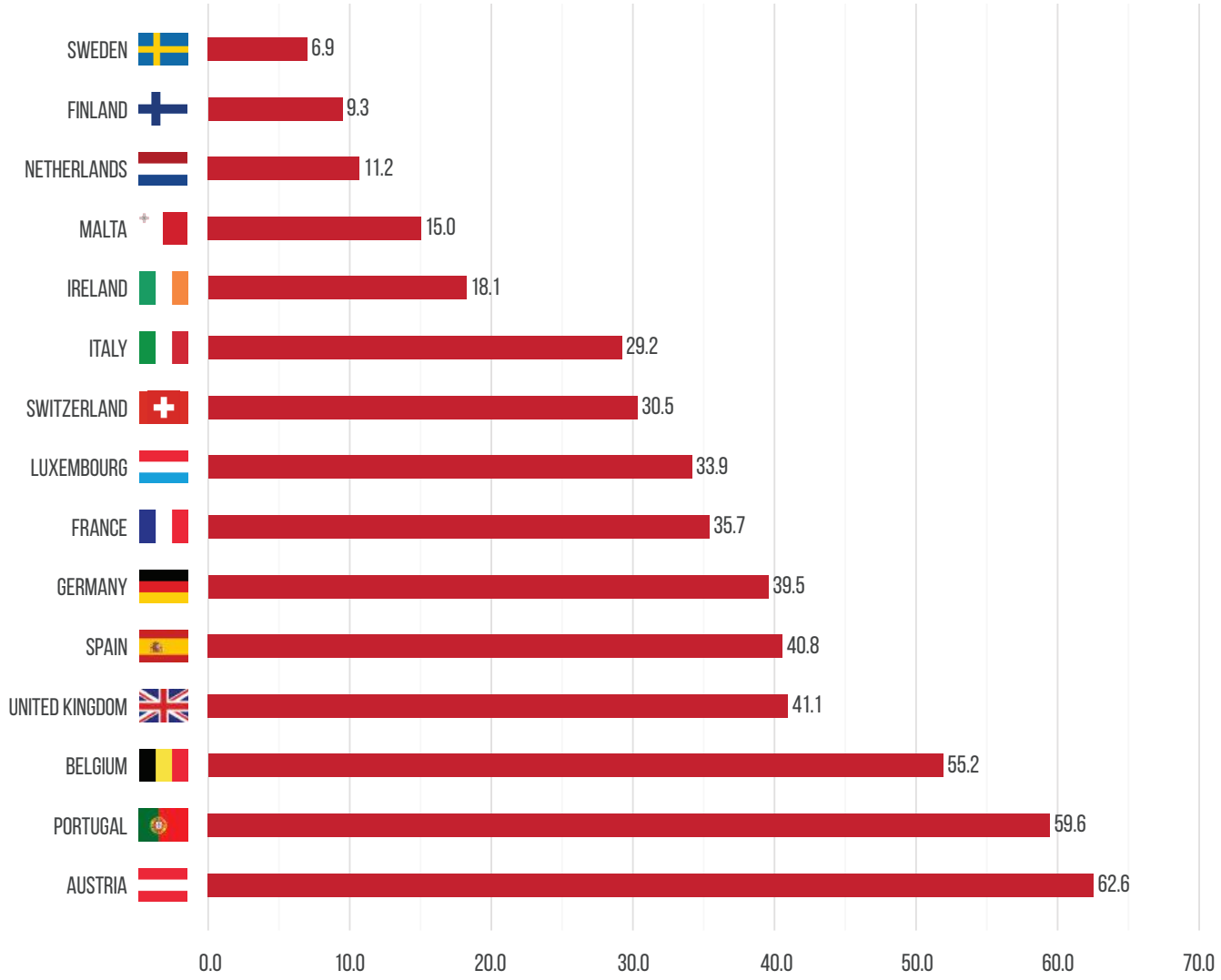
By comparison, while the WU15 performed much better than the EU14 — despite its aversion to cash — it didn't make top scores, either. Instead, scores ranged in the 60 to 80 range, but considering the WU15 is trying to wean itself off of cash, this may not be a bad thing.

In the WU15, Austria had the best ATM Availability score at 62.6 points or 156 ATMs per 100,000 people, while Sweden had the worst: 6.9 points with 32 ATM terminals per 100,000 people. This makes sense, given Austria had the highest cash share of the WU15, while Sweden wants to stop wasting its emotions on cash altogether. The average score was 32.6 points with a median of 33.9 points.

In the case of the EU14, Russia had the highest score at 32.7 points or 90 ATM terminals per 100,000 people. Lithuania did the worst with 11.4 points or 42 ATMs per 100,000. The average was 19.8 with a median score of 18.6.

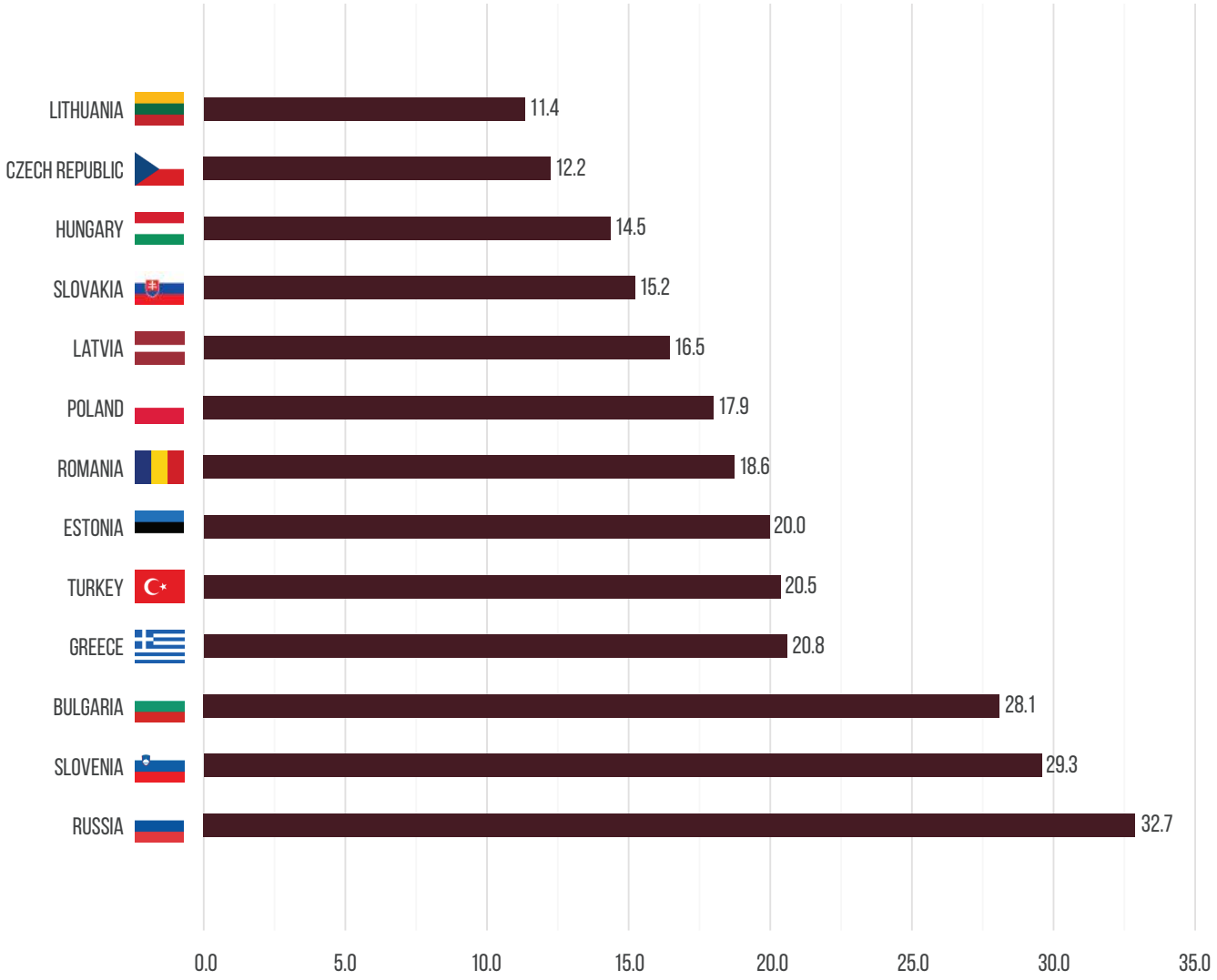
V. DEEP STATISTICAL DIVE

FIGURE 4. ATM AVAILABILITY INDEX FOR THE WU15 COUNTRIES



V. DEEP STATISTICAL DIVE

FIGURE 5. ATM AVAILABILITY INDEX FOR THE EU14 COUNTRIES



Note: Due to lack of data, ATM Availability Indexes could not be constructed for all EU14 countries.

V. DEEP STATISTICAL DIVE

As can be seen below, Table 7 shows the ATM Availability Index and all its components.

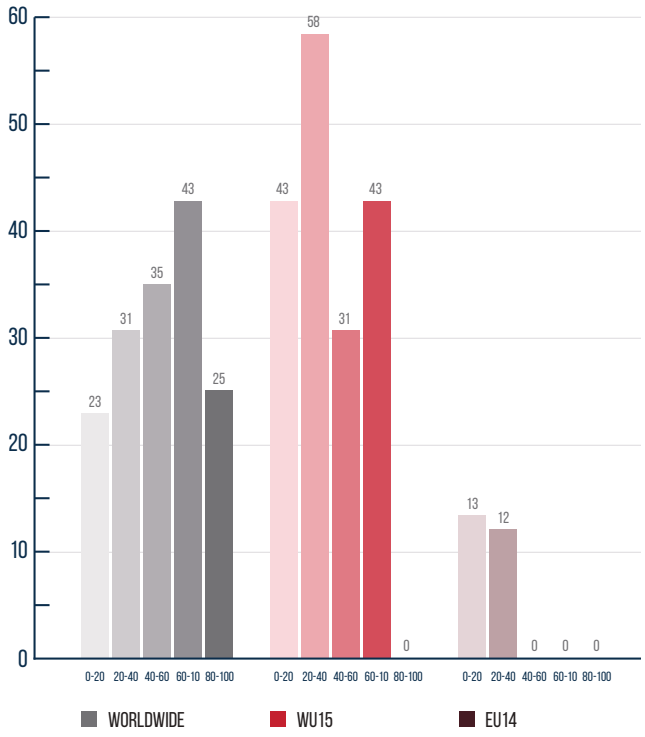
TABLE 7. ATM AVAILABILITY INDEX

VARIABLES	WORLDWIDE					WU15					EU14				
	0-20	20-40	40-60	60-10	80-100	0-20	20-40	40-60	60-10	80-100	0-20	20-40	40-60	60-10	80-100
Avg Index	14	29	48	63	100	12	34	49	63	—	14	26	14	—	—
Population	91	170	47	9	51	7	43	33	9	—	10	49	91	—	—
GDP per cap (avg)	23	31	35	43	25	43	58	31	43	—	13	12	23	—	—
ATM share	16%	18%	12%	14%	4%	10%	9%	15%	14%	—	16%	22%	16%	—	—
OTC share	13%	8%	4%	21%	0%	1%	8%	5%	21%	—	19%	12%	13%	—	—
Cash share	29%	26%	16%	35%	4%	10%	16%	19%	35%	—	35%	34%	29%	—	—
ATM per 100,000	47	82	124	156	240	43	92	126	156	—	52	75	47	—	—
Bank Branches per 100,000	18	36	44	47	15	19	44	51	47	—	23	29	18	—	—

There's a correlation between the worldwide ATM Availability Index score and GDP per capita, except the highest quintile. We're considering the highest quintile an outlier, however, as only two countries fall into it. Neither the WU15 nor the EU14 have the same correlation between GDP per capita and ATM index score.

For the WU15, the highest GDP per capita corresponds with ATM Index scores in the 20 to 40 quintile and includes countries like Switzerland, France and Germany. Spain and Portugal, countries with lower GDPs, have ATM Index scores in the 40 to 60 quintile bracket. Meanwhile, the EU14 has a much more even spread of ATM Index scores, concentrating in the 0 to 20 and 20 to 40 quintiles. Furthermore, the countries with the highest GDP per capita are represented in both quintiles. The Czech Republic is in quintile 0 to 20, and Slovenia is in 20 to 40.

FIGURE 6. GDP PER CAPITA IN THE ATM AVAILABILITY INDEX



V. DEEP STATISTICAL DIVE

There does not seem to be a clear correlation between a country's population and the availability of ATMs in that country. In the case of the worldwide ATM Index, the 20 to 40 quintile's score is so large because of China, and in the EU14 index, the 20 to 40 quintile's score is so large because of Russia.

There doesn't seem to be a clear relationship between ATM share — the ATM extractions as a percentage of GDP — and ATM availability. In other words, a country's tendency to use cash does not seem to be related to the ratio of ATMs per 100,000 people.

FIGURE 7. POPULATION IN ATM AVAILABILITY INDEX

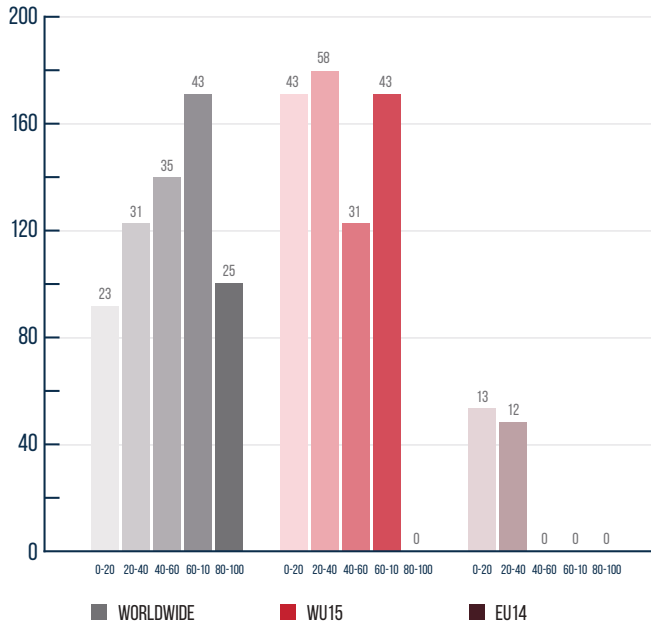
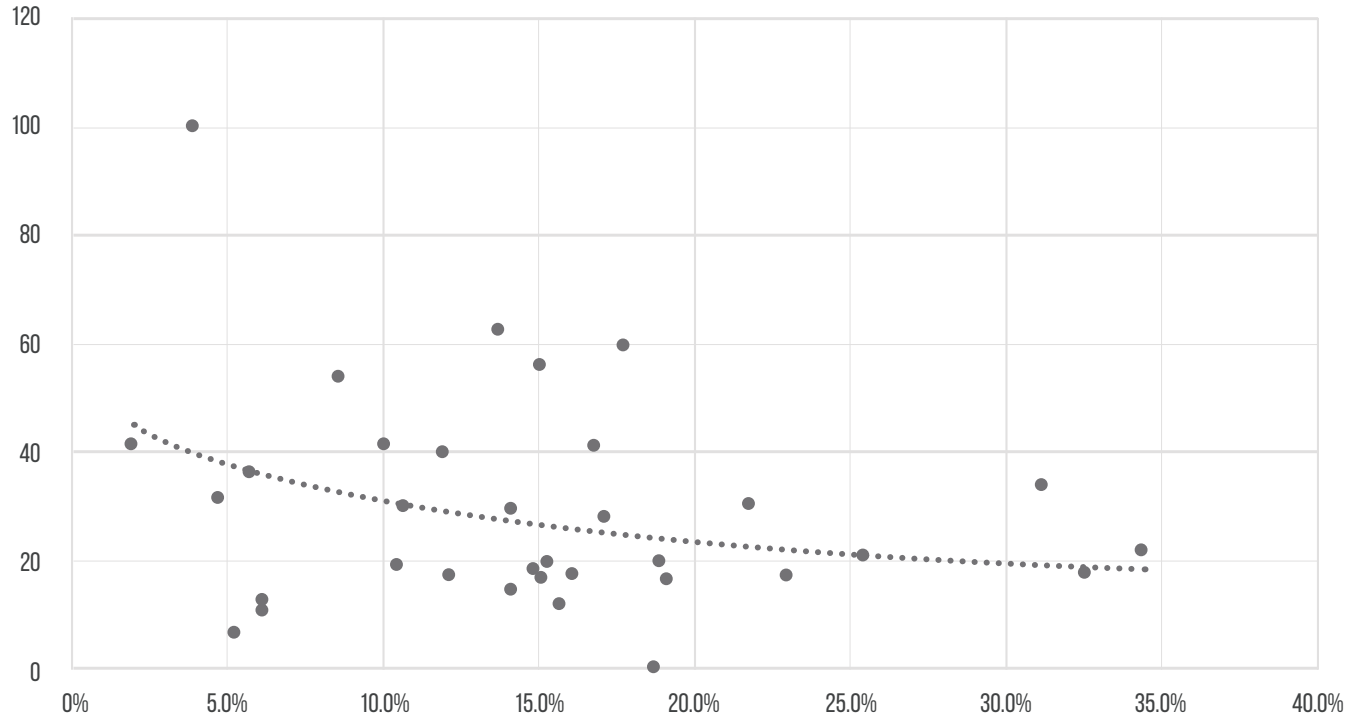


FIGURE 8. ATMS PER 100,000 AND ATM AVAILABILITY



V. DEEP STATISTICAL DIVE

FIGURE 9. ATM SHARE IN THE ATM AVAILABILITY INDEX

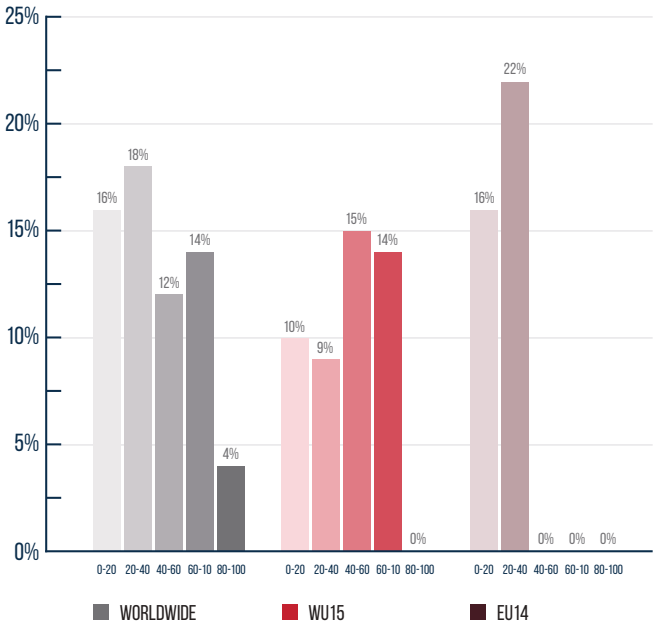
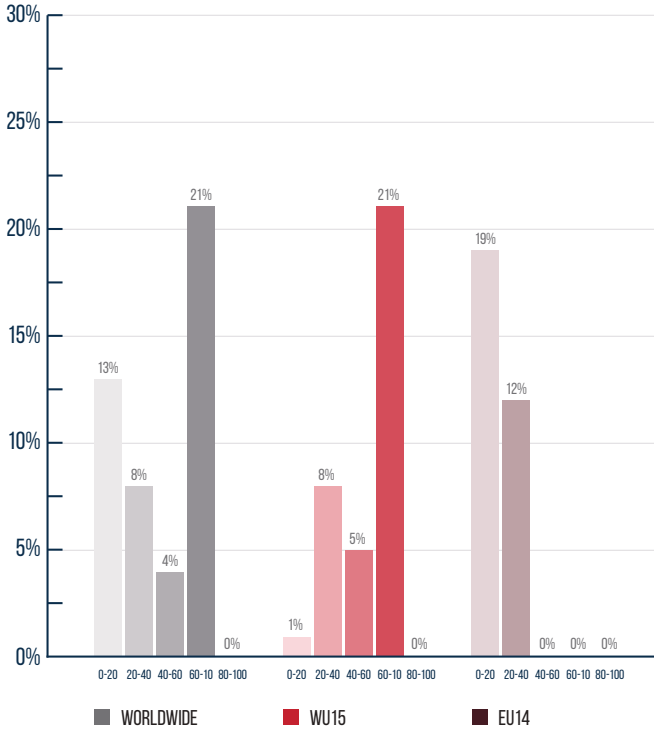


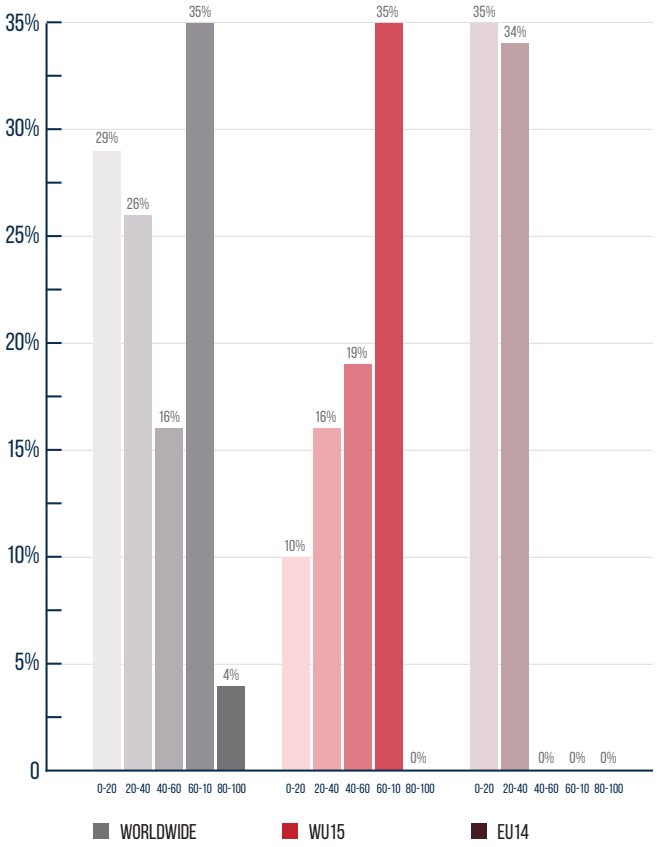
FIGURE 10. OTC SHARE IN THE ATM AVAILABILITY INDEX



When we examine the amount of money withdrawn through over the counter (OTC) interactions, there's no clear relationship between OTC share — the percentage of the GDP driven by OTC transactions — and the availability of ATMs. In other words, relying heavily on OTC transactions, which can be done inside banks, does not seem to be related to having fewer ATMs.

Cash share and ATM index dynamics are complex. In the case of the entire world, ATM availability doesn't seem to be related to how much a country actually uses cash. However, when we take a closer look, patterns become apparent. For the WU15, for example, there's a correlation between cash share and ATM availability, while ATM availability seems to be consistent regardless of the cash share in the EU14.

FIGURE 11. CASH SHARE IN THE ATM AVAILABILITY INDEX



In the case of POS per 100,000 people, the WU15 has a much higher POS availability than the rest of the world. In particular, countries that score low on the ATM Availability Index have a high POS. Malta has fewer than 50 ATMs per 100,000 people and falls into the 0 to 20 quintile, but it has 3,455 POS per 100,000 people.

BANK BRANCH AVAILABILITY INDEX

Here we go again with our second index, but my, my, how can we resist? The Bank Branch Availability Index measures the number of bank branches per 100,000 people. It follows a similar pattern as the ATM Availability Index. Though the EU14 use more cash than the WU15, the EU14's Bank Branch Availability Index is lower than that of the WU15. On the whole, though, scores for the Bank Branch Availability Index are higher than scores for the ATM Availability Index.

Spain did particularly well and scored 100 on the Bank Branch Availability Index with its 67 bank branches per 100,000 people. By comparison, the Netherlands scored just 6.7 points on the index because of its 10 bank branches per 100,000 people. The average score was 52.5 points, while the median was 54.8.

In the case of the EU14, Bulgaria had the highest index score at 74.6 points, or 52 bank branches per 100,000. Meanwhile, Estonia had the worst score with 3 points, representing 8 bank branches per 100,000. Estonia also has the lowest cash share in the EU14 with a small and sweet cash share of just 18 percent. The average score in the country is 29.7 points and the median is 29.7 points.

FIGURE 12. POS PER 100,000 PERSON, BY ATM AVAILABILITY INDEX GROUP

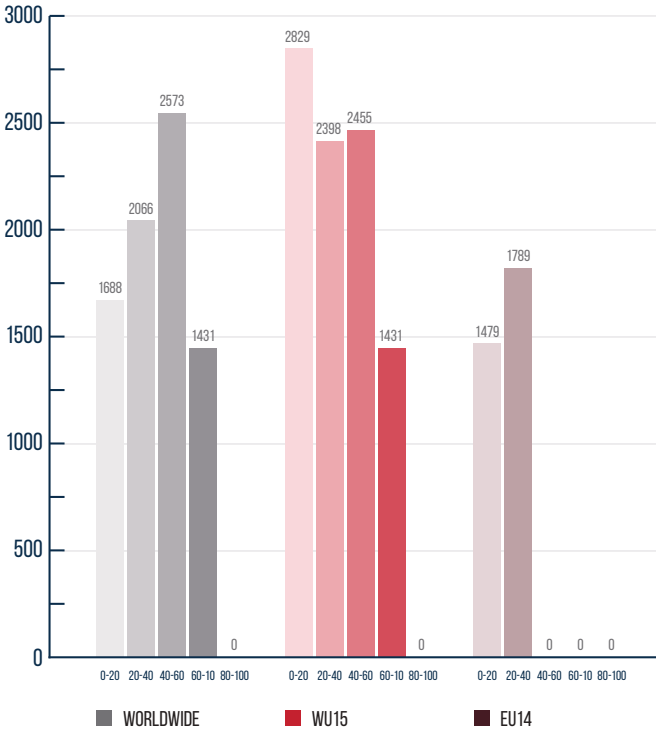


FIGURE 13. BANK BRANCH AVAILABILITY INDEX

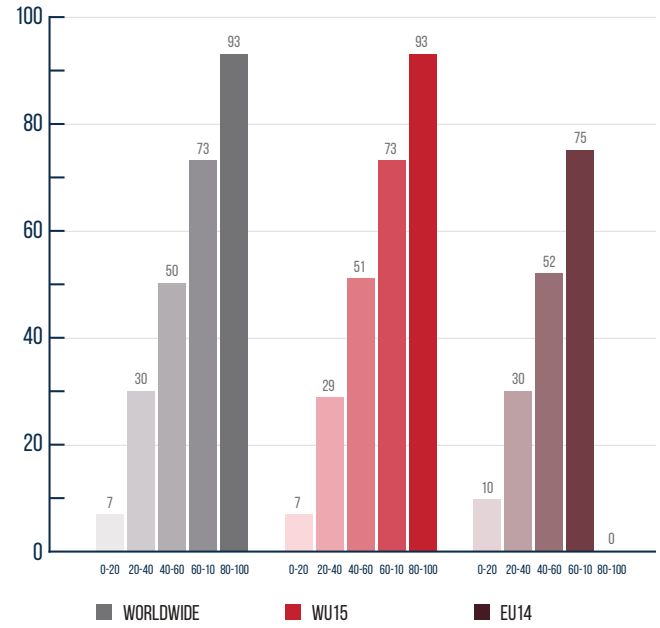
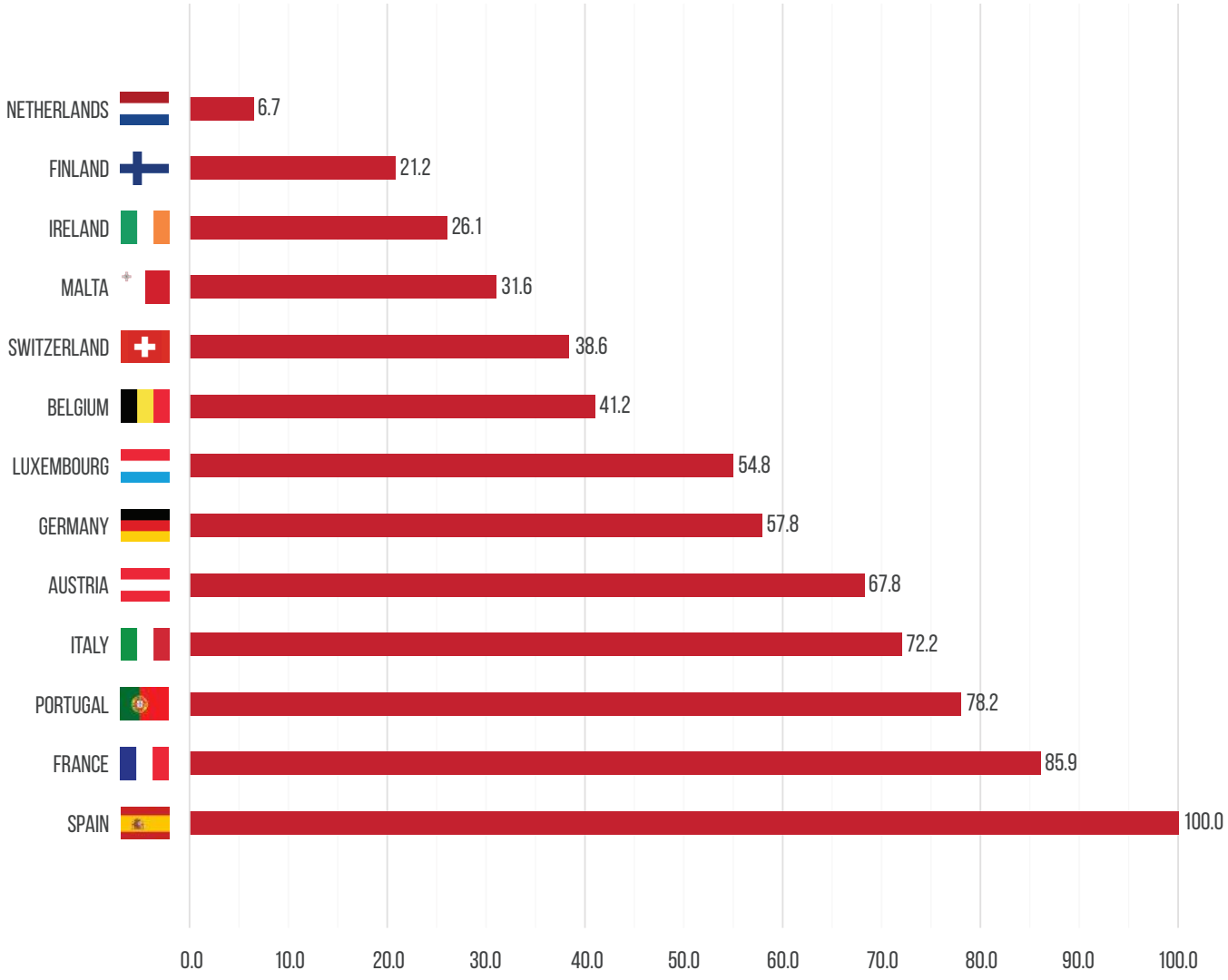
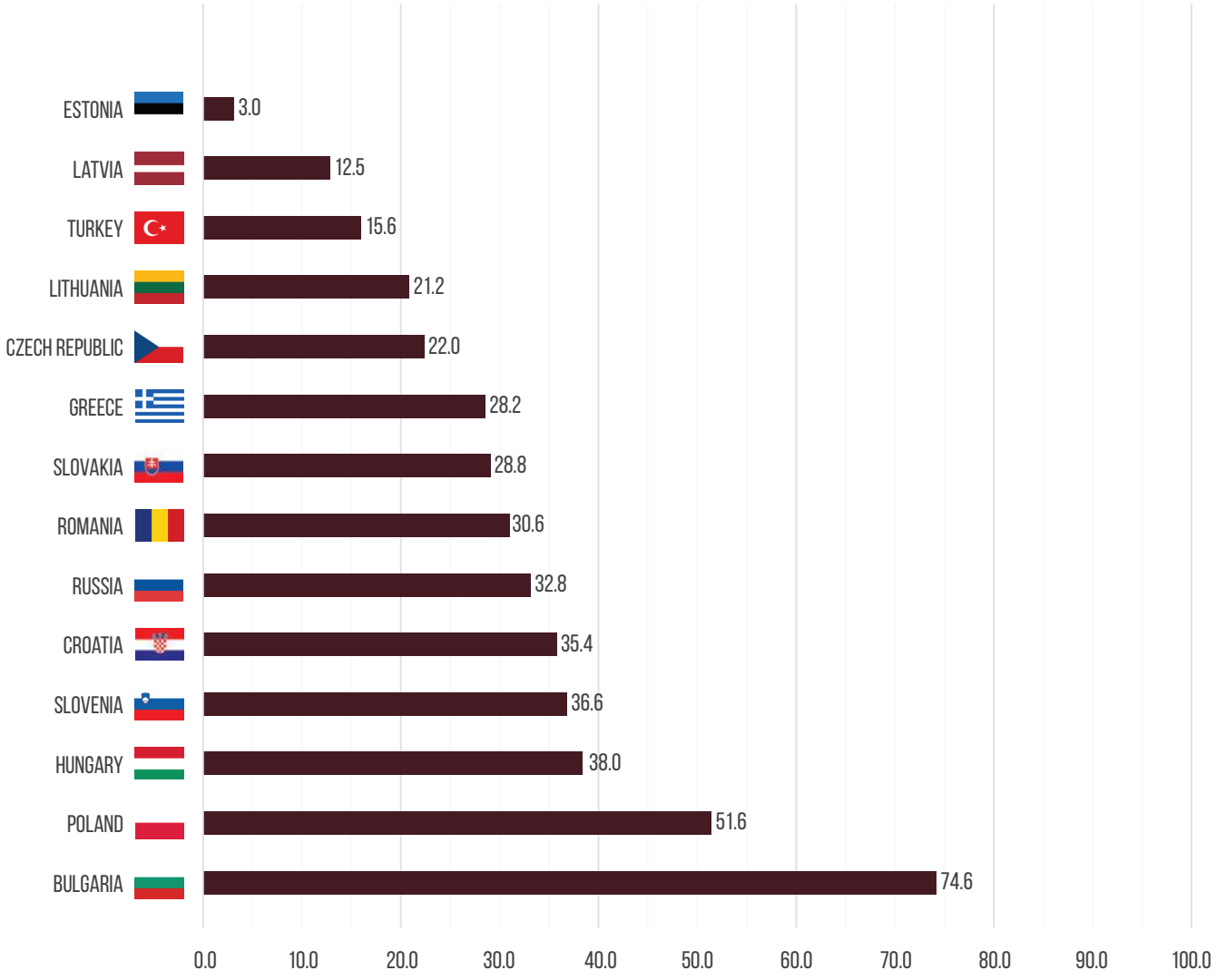


FIGURE 14. BANK BRANCH AVAILABILITY INDEX FOR WU15 COUNTRIES



Note: Due to lack of data, Bank Branch Availability Indexes could not be constructed for all WU15 countries.

FIGURE 15. BANK BRANCH AVAILABILITY INDEX FOR EU14 COUNTRIES



V. DEEP STATISTICAL DIVE

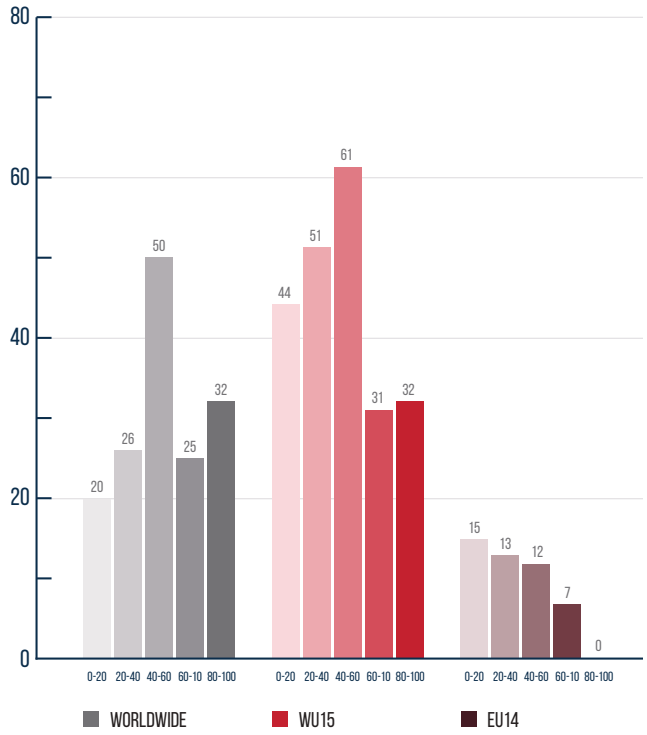
Table 8 breaks out the Bank Branch Availability Index into worldwide, the WU15 and the EU14 in comparison to other variables.

TABLE 8. BANK BRANCH AVAILABILITY INDEX

VARIABLES	WORLDWIDE					WU15					EU14				
	0-20	20-40	40-60	60-10	80-100	0-20	20-40	40-60	60-10	80-100	0-20	20-40	40-60	60-10	80-100
Avg Index	7	30	50	73	93	7	29	51	73	93	10	30	51.6	74.6	—
Population	165	18	91	22	55	17	5	31	27	55	27	24	38.0	7.2	—
GDP per cap (avg)	20	26	50	25	32	44	51	61	31	32	15	13	11.9	6.8	—
ATM share	17%	14%	14%	15%	12%	7%	10%	14%	14%	12%	19%	18%	14.8%	17.6%	—
OTC share	10%	11%	12%	18%	7%	1%	2%	5%	13%	7%	6%	18%	26.1%	31.0%	—
Cash share	28%	25%	23%	33%	18%	7%	13%	18%	27%	18%	25%	36%	41.0%	48.6%	—
ATM per 100,000	67	64	98	117	102	41	57	112	129	102	13	25	37.6	51.6	—
Bank Branches per 100,000	11	24	37	51	63	10	24	37	50	63	0	0	0.0	0.0	—

The WU15 countries with the highest GDP per capita have Bank Branch Availability Index scores in the 40 to 60 quintile. This includes countries such as Germany and Luxembourg. In the EU14, the countries with the highest GDP per capita have Index scores falling into the 0 to 20 quintile, which includes countries such as Estonia and Latvia. The two countries have a GDP per capita 18 percent higher than the average for the EU14.

FIGURE 16. GDP PER CAPITA IN THE BANK BRANCH AVAILABILITY INDEX



V. DEEP STATISTICAL DIVE

FIGURE 17. POPULATION IN THE BANK BRANCH AVAILABILITY INDEX

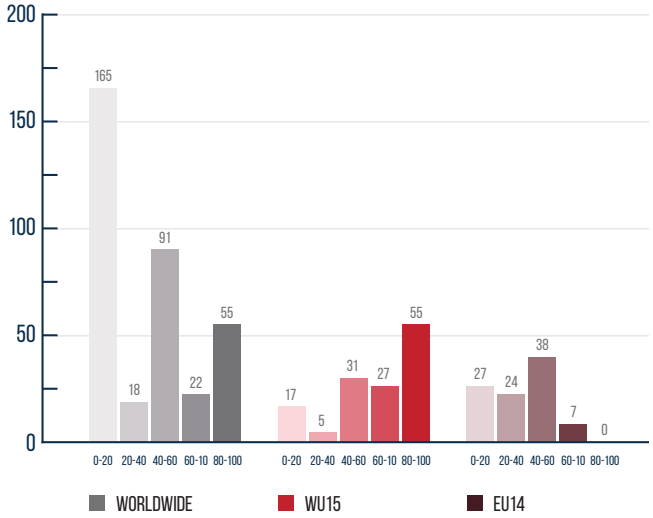
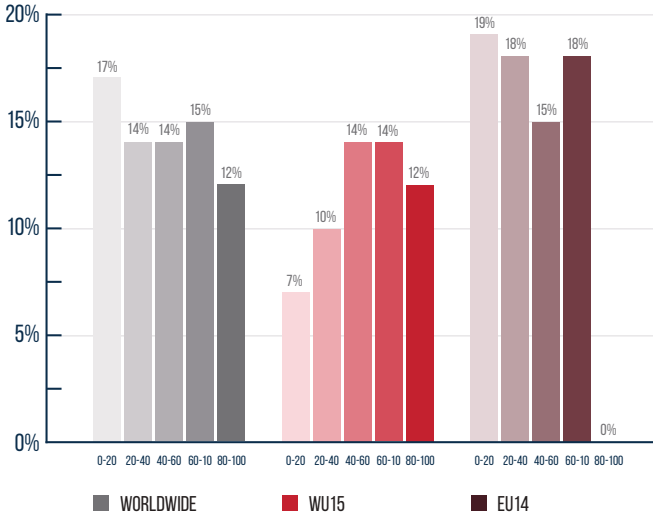


FIGURE 18. ATM SHARE IN THE BANK BRANCH AVAILABILITY INDEX

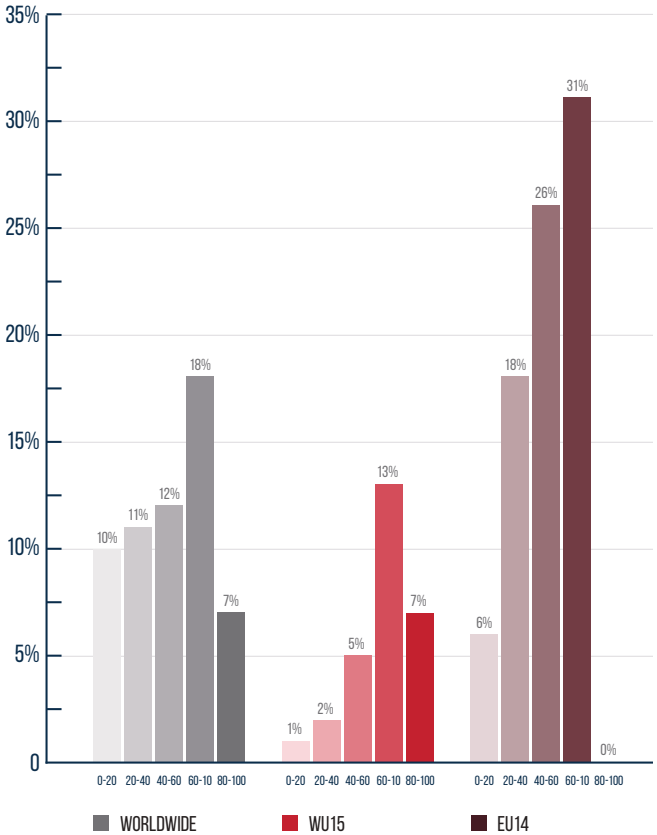


Similar to the findings related to the ATM index, there doesn't seem to be a clear correlation between the availability of bank branches and the population of different countries. The 0 to 20 quintile for the Worldwide Index score has a high value because of India's presence. China was not part of this Index.

With the exception of the WU15, there doesn't seem to be a correlation between ATM share and Bank Branch Availability Index Score. In other words, over all, the countries with the fewest bank branches available don't seem to have the highest Bank Branch Availability scores to compensate for the lack of ATMs.

When it comes to OTC share, the EU14 averages 24 percent, higher than the worldwide average (8 percent) and that of the WU15 (5 percent). This might be because the EU14 heavily uses cash but has few ATMs, meaning people are forced to withdraw money OTC. That said, the EU14 countries in the bottom quintile for Bank Branch Availability also had the lowest percentage of OTC share.

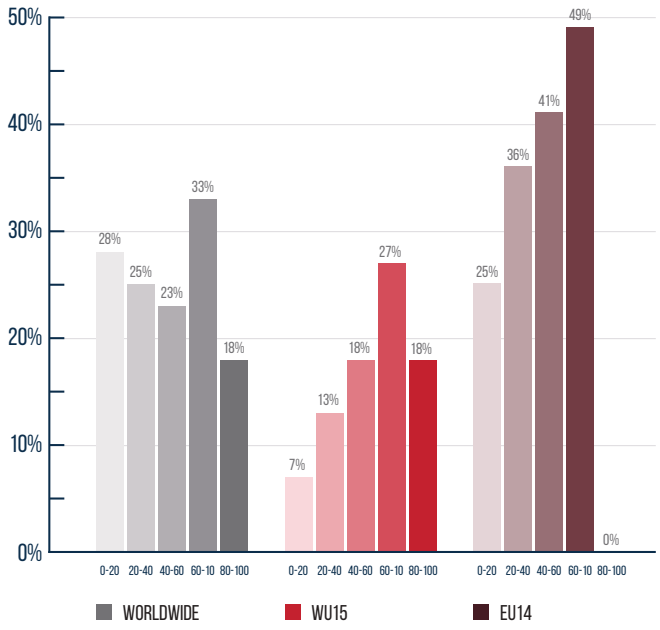
FIGURE 19. OTC SHARE IN THE BANK BRANCH AVAILABILITY INDEX



V. DEEP STATISTICAL DIVE

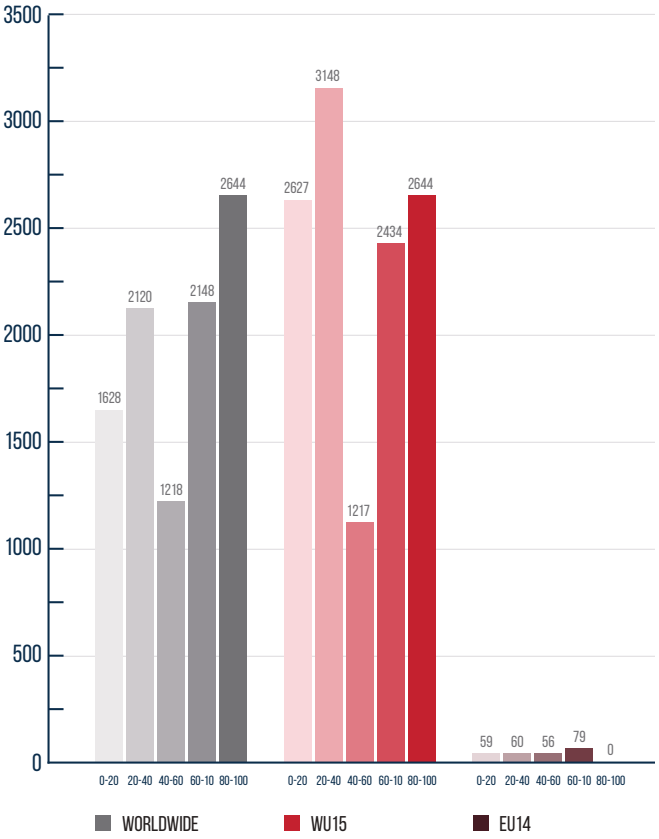
There's a positive relationship between cash share and the Bank Branch Availability Index score for both the WU15 and the EU14. This relationship is less clear worldwide, though. The countries in the 0 to 20 quintile for Bank Branch Availability score is the second highest (28 percent) for cash share, which means there are some places where people use cash but it's not very accessible.

FIGURE 20. CASH SHARE IN THE BANK BRANCH AVAILABILITY INDEX



Finally, when we compared the POS per 100,000 to Bank Branch Availability Index scores, the EU14 stands out. Overall, the POS per 100,000 people is very low in the EU14. It is 1,590 per 100,000 inhabitants, on average, and 18.8 percent lower than the Worldwide average of 1,958 per 100,000 people. It is also 34.8 percent lower than the WU15, which is 2,438 per 100,000 people.

FIGURE 21. POS PER 100,000 PERSON, BY BANK BRANCH AVAILABILITY INDEX GROUP



FEATURE STORY

WHEN IT COMES TO PAYMENTS, EU CONSUMERS WOULD RATHER PICK CASH

Despite the growing availability of and interest in digital and contactless payments, when it comes to consumer preference, cash continues to be the ultimate show stopper.

Nearly 75 percent of point-of-sale transactions in the European Union (EU) today are paid using cash, according to a recent European Central Bank study, which surveyed more than 65,000 consumers in 17 countries. While there is an overall increase in circulation of cash, each of the member states in the EU have a varying affinity for it.

PYMNTS recently caught up with Ron Delnevo, director of the ATM Industry Association (ATMIA), to discuss European cash use and touch upon some of the emerging payment trends in the U.K. — many of which may prove to be the bellwether for use of differing payment methods across Europe.

While cash may be losing some of its share in certain markets, Delnevo said, overall use of cash in Europe is continuing to increase at a healthy rate and will likely be in the driver's seat for years to come.

Cash and its changing accessibility

With growth in online banking in the EU, foot traffic to bank branches has steadily declined over the last few years.

Some 9,100 bank branches were shuttered in 2016 alone, a 4.6 percent decline on the previous year, according to the European Banking Federation. And, with that, access to cash-dispensing ATMs has steadily decreased as well.

Additionally, the number of ATMs installed across Europe has reportedly been declining by 6 percent every year since 2010.

"This is starting to cause problems — not so much for the accessibility and withdrawal of cash, but certainly [for] the ability to deposit cash," Delnevo said, adding that consumers in smaller towns must increasingly make long trips to deposit cash.

"Catterick, Yorkshire, for example, is a town of nearly 3,000 inhabitants, a race course, an army barracks, shops and swans, [but has] no bank branch or post office," he said. "So, if you want to deposit cash, you have to go to Richmond, a few miles away, to find an ATM that accepts cash."

While the shift toward digital banking has contributed to a decline in bank branches and ATM machines, it hasn't made a severe impact on use of cash. With the closure of bank ATMs, third-party ATM companies are quickly expanding their footprints to fill the void, Delnevo added.

Banks often take a conservative position when it comes to cash and have a mindset that cash and ATMs aren't going to be around for too long, he explained, so why should those financial institutions feel compelled to invest much money?

Instead of hoping for consumers' need for cash to go away, though, banks must understand market demand and focus on developing innovative ATMs that not only recycle cash, but also hold the potential for replacing bank branches, Delnevo said.

Cash's fight with contactless payments

Contactless payments have come a long way since their U.K. introduction 10 years ago. Today, in fact, U.K. consumers can tap-and-go to board the London Underground and spend up to £30 via contactless payments. With that, overall use of contactless payments has quickly skyrocketed.

> "They see advantages with cash as a financially inclusive medium, as an educational medium and as store of value."

By the end of 2016, nearly 27 percent of card-based payments were contactless, a 15 percent increase from the year before, according to the UK Cards Association.

And, while contactless payments seem to have taken a sizeable bite out of Chip- and PIN-based transactions, they are still an underdog when compared to cash — at least in the retail setting.

Nearly 76 percent of transactions made at approximately 50,000 convenience store locations in the U.K. are still made using cash, according to a 2017 report by the Association of Convenience Stores.

"That's despite the fact that we have [had] contactless in the U.K. longer than any other European country, but cash is still something that many people trust," Delnevo said. In addition, most mom and pop stores in the U.K. are contactless-enabled.

Although Delnevo foresees an increase in use of contactless payments even at such mom and pop stores, he believes it's unlikely to gain significant traction in the near future, even if the £30 limit were to be increased to a £100. If anything, he sees an increase in the limit as a possible deterrent in contactless payments growth.

"Contactless wasn't invented for £100 transactions," Delnevo said. "Making that too high would have big security implications. Increasing it to a £100 makes it very worthwhile to steal someone's card for seven or 10 transactions. All of [the] sudden, that's not minor theft anymore."

That's something which stands true for any country in the European Union, Delnevo said.

Growth in circulation

Despite the ever-growing competition, overall use of cash keeps increasing. In 2016, the U.K.'s overall use of cash hit £70 billion, an increase of 10 percent, marking its fastest growth in a decade, according the Bank of England.

Meanwhile, cash's circulation in Western European countries continues to remain very high, especially in Austria, Germany, Italy, Slovakia, Spain and Portugal, Delnevo pointed out. In fact, even among countries that have seen cash use decrease, there's little interest in steering away from it completely.

"I have met with central banks in Sweden, Denmark and Norway — [none] want to go cashless," Delnevo said. "They see advantages with cash as a financially inclusive medium, as an educational medium and as store of value."

Ultimately, as alternate payment options see growth in usage, consumers are bound to adopt a variety of payment methods.

"You don't want too much centralized power," Delnevo explained. "Let's have payment choices: WePay, Alipay, Apple Pay, Samsung Pay — we need choices and there's still room for all of them."

Delnevo sees growth of payment methods much the same as the evolution of the modern transportation system. Consumers can pick and choose between walking, flying, boating or riding a train, among other options, and all options can coexist.

"That's the way it should be in payments," he said. "It's too important to become thin and narrow."

And, with cash sharing its place with other payment methods, it seems consumers and small businesses remain far from the idea of trading it in for digital payment methods.

APPENDIX

METHODOLOGY AND DATA

The PYMNTS.com Global Cash Index powered by Cardtronics analyzes the level of overall cash usage and projected trends over the next five years for 40 countries around the world that provide sufficient data to make estimates on cash usage. These countries are divided into four regions, and we will publish reports that review cash share and total cash usage, covering one region each quarter. The four regions are as follows:

WESTERN EUROPE	EASTERN EUROPE	THE AMERICAS	ASIA AND OTHER
AUSTRIA	BULGARIA	UNITED STATES	AUSTRALIA
BELGIUM	CROATIA	MEXICO	CHINA
FINLAND	CZECH REPUBLIC	BRAZIL	INDIA
FRANCE	ESTONIA		JAPAN
GERMANY	GREECE		SOUTH KOREA
IRELAND	HUNGARY		SINGAPORE
ITALY	LATVIA		SAUDI ARABIA
LUXEMBOURG	LITHUANIA		SOUTH AFRICA
MALTA	POLAND		
NETHERLANDS	ROMANIA		
PORTUGAL	RUSSIA		
SPAIN	SLOVAKIA		
SWEDEN	SLOVENIA		
SWITZERLAND	TURKEY		
UNITED KINGDOM			

Total cash usage is the combination of two overall factors:

- The first factor is cash share, or the amount of total purchases that are made with cash. We measure cash share as the total amount of cash used by a country divided by the country's annual GDP. The total cash used by citizens of the country is assumed to be equal to the total amount of cash withdrawn at ATM machines plus the total amount of cash withdrawn OTC at bank branches in the country.
- The second factor is how the overall economy is growing. The total cash usage is estimated as the total cash share multiplied by the country's GDP. As a country's economy develops and grows, more overall spending occurs, which means more cash spending is occurring.

What we have found is that the total cash share is decreasing in most countries; however, because population and GDP are growing, the total cash usage is still growing (albeit at rates lower than the GDP).

In order to calculate the results in this report, we did the following for each country:

- Gather historic and projected data.
- Estimate OTC cash withdrawals for countries that do not report this data.
- Calculate historic cash share.
- Estimate cash share for 2015 forward.
- Estimate total cash usage for 2015 forward.

Gathering Historical and Projected Data

For each country, we collected historical data from 2000 through 2014 on the total population, the GDP, cash withdrawals from ATM and OTC, total card spending data, and data on payment infrastructures including the number of POS machines, the number of ATM machines, and the number of bank branches.[5] We also gathered data to project cash usage including projected GDP and projected population by age group.[6]

We gathered data from 2000 through 2016 and used as much data as is available. We have data on population and GDP for all years and data on cash withdrawals and payments infrastructure for many, but not all years.

For each country, we collected projections for the GDP and for population by age group. This data comes from the International Monetary Fund (IMF) and World Bank, respectively, and is from the same source as the historical data. Population projections are available every five years, and we used a linear interpolation for the years that are not reported. GDP projections are by year, and if we needed time periods beyond the last projected data point, we assumed that final GDP growth rate will be consistent over time.

Estimate OTC Cash Withdrawals for Countries Which Do Not Report This Data

As described above, cash share is defined as the total cash withdrawals from ATM machines plus total OTC cash withdrawals. We have selected the 40 countries in our analysis based on the availability of sufficient cash withdrawal data. The 40 included countries produced at least some data on the level of ATM withdrawals each year. If ATM withdrawals are not available, the country is excluded from our analysis.

While all 40 countries provided ATM data, only 12 provided data on OTC cash withdrawals. This means that for the other 28 countries, we had to estimate the level of OTC withdrawals. We did this by looking at each of our 28 target countries (the ones for which we need to estimate OTC withdrawals) and selecting a comparable country from the 12 countries that did provide data (we refer to these as our potential comparable countries).

The estimation procedure is done in the following four steps:

- **ONE:** Calculate the OTC-to-ATM ratio for each of the 12 potential countries that do provide OTC data. These are all potentially comparable countries. This is a simple calculation of dividing the level of OTC withdrawals by the level of ATM withdrawals for each year where data is available.

[5] Data on Population is from the World Bank [http://data.worldbank.org/indicator/SP.POP.TOTL], Data on GDP is from the IMF [http://www.imf.org/external/ns/cs.aspx?id=28], and data on cash with drawals, card spending and the payments infrastructure is from the Bank of International Settlements [http://www.bis.org/cpmi/publ/d142.pdf] or from the European Central Bank [https://www.ecb.europa.eu/pub/pdf/other/art2_mb201104en_pp79-90en.pdf]

[6] Data on projected population is from the World Bank, and projected GDP is from the IMF. If these are the same, combine these footnotes into a single footnote.

- **TWO:** Estimate the logarithm trend of the OTC to ATM ratio from 2000 through 2014 for each of the potentially comparable countries.[7]

$$\overline{\left(\frac{OTC}{ATM}\right)_{Year}} = \propto + \beta \times LN(Year) + \varepsilon$$

We do this to remove any data jumps or movements that are due to factors specific to the country. This trend gives us a complete trend of the OTC to ATM ratio for each year from 2000 through 2014.

- **THREE:** Select the potential comparable country. For each country that does not have OTC data (target country), we select the most comparable country from the list of countries that do provide OTC data. This country is selected by comparing the trends and levels in five different variables:
  - ATM withdrawals as a percentage of GDP
  - Card spending as a percentage of GDP
  - Bank branches per 1,000 people
  - ATM terminals per 1,000 people
  - POS terminals per 1,000 people

For each potential comparable country, we calculate a difference in levels and a difference in changes over an eight-year period from 2006 to 2014. These are calculated as follows:

$$Difference\ in\ levels = \sqrt{\sum_{i=2006}^{2014} (Variable_{Comparable/i} - Variable_{Target/i})^2}$$

$$Difference\ in\ changes = \sqrt{\sum_{i=2006}^{2014} \left(\frac{Variable_{Comparable/i}}{Variable_{Comparable/i-1}} - \frac{Variable_{Target/i}}{Variable_{Target/i-1}}\right)^2}$$

In the formula above, i is the year and "Variable" refers to each of the five variables listed above. We perform this calculation for each of the 28 target countries against each of the 12 potential comparable countries. This provides a difference in levels and a difference in changes for each of the five variables for each combination of a target country and comparable comparison country. We then assign a weight of two-thirds to the difference in levels and one-third difference in changes, and for each target and comparable country, we calculate a weighted average difference:

$$Weighted\ Average\ Difference_{ij} = 0.667 * Avg\ difference\ in\ levels + 0.333 * Avg\ difference\ in\ changes$$

where i is the target country and j is the comparable country.

For each target country, we then have a weighted average difference for each of the 12 potential comparable countries. The comparable country for each target is selected as the potential comparable country with the smallest difference for each target

[7] For three countries, the reduction in OTC-to-ATM ratio was so strong that we used a polinomial trend. These three countries were Latvia, Romania and Slovakia.

APPENDIX

country. The following table shows the comparable country selected for each of the 28 target countries.

NUMBER	TARGET	COMPARABLE
1	AUSTRALIA	UNITED KINGDOM
2	AUSTRIA	ITALY
3	BELGIUM	NETHERLANDS
4	BRAZIL	MALTA
5	BULGARIA	HUNGARY
6	CHINA	SLOVAKIA
7	CROATIA	MALTA
8	ESTONIA	NETHERLANDS
9	FINLAND	NETHERLANDS
10	FRANCE	ITALY
11	GREECE	HUNGARY
12	INDIA	SLOVAKIA
13	IRELAND	LATVIA
14	JAPAN	GERMANY
15	KOREA	UNITED KINGDOM
16	LUXEMBOURG	ITALY
17	MEXICO	CZECH REPUBLIC
18	POLAND	HUNGARY
19	PORTUGAL	UNITED KINGDOM
20	RUSSIA	ROMANIA
21	SAUDI ARABIA	SLOVAKIA
22	SINGAPORE	NETHERLANDS
23	SLOVENIA	HUNGARY
24	SOUTH AFRICA	SLOVAKIA
25	SWEDEN	NETHERLANDS
26	SWITZERLAND	NETHERLANDS
27	TURKEY	MALTA
28	UNITED STATES	UNITED KINGDOM

- **FOUR:** Calculate the estimated level of OTC withdrawals for the target country. We have 28 target countries for which we are estimating the level of OTC withdrawals. For nine of these countries, we do have data on the OTC-to-ATM ratio for a single year but have no other data that can allow us to understand how it's trending. For these countries, we adjust the value of $\overline{\left(\frac{OTC}{ATM}\right)_{Year}}$ such that it matches the known OTC-to-ATM ratio. This has the result of shifting the OTC-to-ATM ratio for every year up or down such that our estimated trend line passes through the known point. For the other 19 countries, we assume that this adjustment is equal to zero or that the OTC-to-ATM ratio for the selected comparable country is the same as the OTC-to-ATM ratio for the target country.

  For each target country, we then take this adjusted value of $\overline{\left(\frac{OTC}{ATM}\right)_{Year}}$ for the selected comparable country and use it to calculate the level of OTC withdrawals for each from 2000 through 2014.

$$OTC\ Withdrawals_{Year} = \overline{\left(\frac{OTC}{ATM}\right)_{Year}} \times ATM\ Withdrawals_{Year}$$

  The following table identifies the 12 countries for which OTC data is reported, the nine countries for which we have to estimate the trend based on a comparable country but for which we do have a single known data point to set the level of OTC withdrawals, and the 19 countries for which the trend and OTC-to-ATM ratio are derived from the comparable country.

ASIA AND OTHER

NO	COUNTRY	SOURCE OF OTC DATA		
		OTC DATA AVAILABLE	KNOWN DATA POINT	VALUE IS DERIVED
1	AUSTRALIA		✔	
2	CHINA			✔
3	INDIA			✔
4	JAPAN			✔
5	SOUTH KOREA			✔
6	SINGAPORE			✔
7	SAUDI ARABIA			✔
8	SOUTH AFRICA			✔

APPENDIX

WESTERN EUROPE

NO	COUNTRY	SOURCE OF OTC DATA		
		OTC DATA AVAILABLE	KNOWN DATA POINT	VALUE IS DERIVED
1	AUSTRIA			✓
2	BELGIUM			✓
3	FINLAND		✓	
4	FRANCE		✓	
5	GERMANY	✓		
6	IRELAND		✓	
7	ITALY	✓		
8	LUXEMBOURG			✓
9	MALTA	✓		
10	NETHERLANDS	✓		
11	PORTUGAL		✓	
12	SPAIN	✓		
13	SWEDEN		✓	
14	SWITZERLAND			✓
15	UNITED KINGDOM	✓		

EASTERN EUROPE

NO	COUNTRY	SOURCE OF OTC DATA		
		OTC DATA AVAILABLE	KNOWN DATA POINT	VALUE IS DERIVED
1	BULGARIA			✓
2	CROATIA		✓	
3	CZECH REPUBLIC	✓		
4	ESTONIA			✓
5	GREECE			✓
6	HUNGARY	✓		
7	LATVIA	✓		
8	LITHUANIA	✓		
9	POLAND			✓
10	ROMANIA	✓		
11	RUSSIA			✓
12	SLOVAKIA	✓		
13	SLOVENIA		✓	
14	TURKEY			✓

AMERICAS

NO	COUNTRY	SOURCE OF OTC DATA		
		OTC DATA AVAILABLE	KNOWN DATA POINT	VALUE IS DERIVED
1	UNITED STATES		✓	
2	MEXICO			✓
3	BRAZIL			✓

Calculate historical cash share.

The cash share is defined as the total cash spending divided by the GDP. In this sense, cash usage is relative to the overall size of the economy. Total cash spending is defined as ATM withdrawals plus OTC withdrawals. Total cash share is calculated as follows:

$$Cash\ Share_{Year} = \frac{ATM\ Withdrawals_{Year} + OTC\ Withdrawals_{Year}}{GDP_{Year}}$$

Estimate cash share for 2015 forward.

The cash share is estimated as a logarithm trend of the historical data. We then estimate the log trend and adjust the line such that it lines up with the historic data for 2014. This creates a naïve historic cash share trend starting at the historic cash share for 2014, rolling forward for five or 10 years.

We then adjust this naïve cash share based on the demographic trends in the country and the likelihood that younger demographics will be more prone to shift away from cash to new payment methods such as mobile wallets or other new technologies that are becoming available. This adjustment analyzes the proportion of the population that is younger and accounts for the relative amount of spending (because younger people generally earn and spend less than older people). This analysis suggests that the actual cash share is likely to be lower than the naïve cash share estimated above once we take these factors into account.

This analysis results in a projected cash share that is less than the cash share projected using the naïve analysis described above.

Estimate total cash usage for 2015 forward.

The total cash usage is calculated by multiplying the adjusted cash share by the projected GDP for each year, 2015 through 2020.

ATM AND BANK BRANCH
AVAILABILITY INDEXES

We have created two Indexes based on the availability of ATMs and bank branches. To do this, we used economy data and population data from 40 countries, which are listed below:

- AUSTRALIA
- AUSTRIA
- BELGIUM
- BRAZIL
- BULGARIA
- CHINA
- CROATIA
- CZECH REPUBLIC
- ESTONIA
- FINLAND
- FRANCE
- GERMANY
- GREECE
- HUNGARY
- INDIA
- IRELAND
- ITALY
- JAPAN
- LATVIA
- LITHUANIA
- LUXEMBOURG
- MALTA
- MEXICO
- NETHERLANDS
- POLAND
- PORTUGAL
- ROMANIA
- RUSSIA
- SAUDI ARABIA
- SINGAPORE
- SLOVAKIA
- SLOVENIA
- SOUTH AFRICA
- SOUTH KOREA
- SPAIN
- SWEDEN
- SWITZERLAND
- TURKEY
- UNITED KINGDOM
- UNITED STATES

The Indexes measure the availability of ATM and bank branches per 100,000 inhabitants in each of the 40 countries. The maximum value Indexes can achieve is 100 points and the minimum is 0. Each country has its own score.

The following table shows how we calculated both Indexes for each country. We first obtained the number of ATM and bank branches per 100,000 people, then took the lowest and the highest number for each Index and set them at 0 and 100, respectively. The rest of the numbers were calculated according to the following formula:

$$Index_i = \frac{x_i - x_{Min}}{x_{Max} - x_{Min}}$$

In the formula, x is the number of ATM and bank branches per 100,000 people and i represents each country with neither a minimum nor a maximum score. In the table below, the pink highlights the minimum and the green denotes the maximum.

COUNTRY	SOURCE OF OTC DATA			
	OTC DATA AVAILABLE	KNOWN DATA POINT	VALUE IS DERIVED	VALUE IS DERIVED
AUSTRALIA	132.3	22.89	51.9	27.3
AUSTRIA	156.1	47.49	62.6	67.8
BELGIUM	139.7	31.33	55.2	41.2
BRAZIL	81.4	—	29.1	—
BULGARIA	79.2	51.61	28.1	74.6
CHINA	63.1	—	20.9	—
CROATIA	—	27.84	—	35.4
CZECH REPUBLIC	43.6	19.68	12.2	22.0
ESTONIA	61.0	8.15	20.0	3.0
FINLAND	37.3	19.21	9.3	21.2
FRANCE	96.1	58.45	35.7	85.9
GERMANY	104.5	41.43	39.5	57.8
GREECE	62.8	23.42	20.8	28.2
HUNGARY	48.9	29.38	14.5	38.0
INDIA	16.4	11.15	0.0	7.9
IRELAND	56.9	22.20	18.1	26.1
ITALY	81.6	50.13	29.2	72.2
JAPAN	107.7	—	40.9	—
LATVIA	53.3	13.90	16.5	12.5
LITHUANIA	41.9	19.21	11.4	21.2
LUXEMBOURG	92.0	39.61	33.9	54.8
MALTA	49.9	25.53	15.0	31.6
MEXICO	37.9	10.61	9.6	7.0
NETHERLANDS	41.4	10.42	11.2	6.7
POLAND	56.3	37.64	17.9	51.6
PORTUGAL	149.5	53.81	59.6	78.2
ROMANIA	57.9	24.91	18.6	30.6
RUSSIA	89.5	26.24	32.7	32.8
SAUDI ARABIA	54.9	6.34	17.2	0.0
SINGAPORE	50.8	8.51	15.4	3.6
SLOVAKIA	50.4	23.80	15.2	28.8
SLOVENIA	81.9	28.55	29.3	36.6
SOUTH AFRICA	52.7	7.37	16.2	1.7
SOUTH KOREA	239.7	14.84	100.0	14.0
SPAIN	107.5	67.01	40.8	100.0
SWEDEN	31.9	—	6.9	—
SWITZERLAND	84.6	29.76	30.5	38.6
TURKEY	62.1	15.79	20.5	15.6
UNITED KINGDOM	108.2	—	41.1	—
UNITED STATES	—	34.83	—	47.0

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