

# The FinTech Index

Assessing digital and financial inclusion  
in developing and emerging countries



# Executive Summary

## Improving financial inclusion through digital inclusion...

Many of us take easy access to financial services for granted. Still 2 billion people globally are excluded from formal financial services, mainly in developing countries. New, innovative financial technology (FinTech) can be the solution to include these people financially.

As a result, many governments put FinTech centre-stage in their digital and financial inclusion policies. And more and more investors include FinTech in their investment strategies. However, there is no panacea to improve a country's FinTech supportive environment, since this is the product of a multitude of factors which are related to economic development, such as the state of the physical and technological infrastructure.

## ...requires country specific investment policies

These differences raise the question: is it possible to give more insights related to the FinTech climate of developing countries to steer government and investment policies to improve it? This report presents a FinTech index that assesses a country's need for FinTech led financial inclusion, its FinTech infrastructure as well as country risks. The FinTech index highlights three key insights:

### 1. Asia: supportive FinTech environment meets high need for financial inclusion

The conditions for FinTech to thrive look promising in East Asia. Mobile penetration and the reliability of the electricity grid are highest in this region. So is the innovation climate. While this is also the case in Europe and Central Asia, the urgency for FinTech led financial inclusion is much higher in East Asia as many more people and businesses are unserved, poverty rates are higher and more people live in rural areas. East Asia seems to combine a high need for financial inclusion with a supportive FinTech environment.

### 2. Africa: high need meets poor FinTech climate

The need for FinTech led financial inclusion is highest in Sub-Saharan African countries. In these countries, however, the quality of the FinTech infrastructure is relatively poor with internet and mobile coverage being lowest compared to other regions.

### 3. Investors must choose

The results present a trade-off to investors as few countries have both favourable or unfavourable supply and demand factors. Investors with a strong focus on financial inclusion are more or less forced to enter countries with a less favourable FinTech climate. As such they should also consider investments aimed at building the required capacity for the FinTech sector to grow. For example, investments in mobile and internet coverage. Investors that focus on countries with better supply conditions seem to have fewer opportunities to create impact regarding financial inclusion. As such, the FinTech index provides a tool for both impact and more commercially oriented investors to prioritise their FinTech investments.

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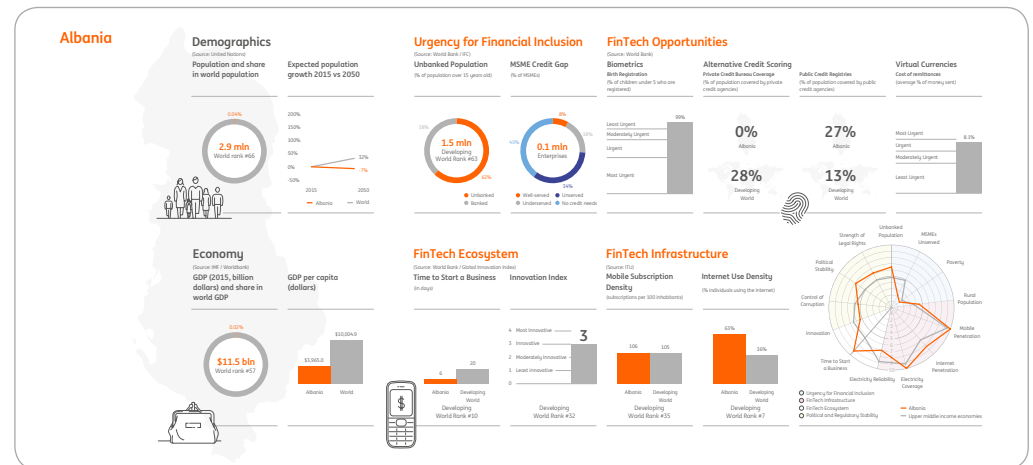
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## Country infographics

This report is accompanied by a separate document with 73 FinTech country infographics.



## Introduction: the why

# Countries differ in their FinTech supportive environment... ...as such FinTech is likely to take off at different speed

### FinTech has great potential to financially include the bottom of the pyramid...

The role of financial technology (FinTech) is centre-stage in the discussion on how to financially include poor people in developing economies. FinTech has the potential to impact the whole financial value chain. Identification technologies, for example, allow for better 'know your customer procedures'. Alternative credit scoring methods give better insights into which enterprises to finance. And once you know who is who, and if the entrepreneur is creditworthy, loan disbursement can be improved by mobile and internet banking, crowd lending and the use of virtual currencies. The loan portfolio can be better monitored if clients use cloud computing and business monitoring apps.

In the 2016 edition of the A Billion to Gain report, ING assessed the benefits of FinTech technologies for micro, small and medium sized businesses (MSMEs). In that report we concluded that FinTech can give MSMEs better and cheaper access to finance. As such FinTech can help reduce the large MSME credit gap that exists in developing countries. This is of utmost importance to guide policies aimed at improving the lives of the poor at the bottom of the pyramid as MSMEs are the major job creators in developing countries.









### ...and create macro economic benefits

At the same time McKinsey concluded that digital and financial inclusion could potentially have major macro-economic benefits. FinTech for example could boost GDP of emerging economies by 6% in 2025 which creates about 95 million new jobs for the poor. These numbers illustrate the potential of FinTech very well, but were based on rather similar assumptions across countries. In practice, however, it is striking to see how countries differ from each other. FinTech in that respect is no exception as two countries might differ a lot in terms of the FinTech enabling environments.

### This report is accompanied by in depth country infographics

This edition of the A Billion to Gain series takes an in depth look at the FinTech environment in 73 developing economies. It does so by creating a FinTech index that ranks the FinTech environment in each of these economies. As such it is one of the first attempts to identify where FinTech innovations can help spearhead financial inclusion. This report is accompanied by a separate document with 73 country infographics that give more detailed information on a countries' FinTech environment.

### FinTech technologies

	Identification technology
	Alternative credit scoring
	Mobile and internet banking
	Crowd and P2P lending
	Virtual currencies
	Cloud computing
	Business monitoring apps
	Blockchain

Sources: ING; FinTech for micro, small and medium sized enterprises, 2016. McKinsey; Digital Finance for all: powering inclusive growth in emerging countries, 2016.

# Introduction: the who

## A reference card for different type of investors

### Ranking the FinTech environment prioritises investments...

Different countries offer different FinTech investment opportunities. For example, one country could have a good FinTech business climate that supports innovation and entrepreneurship, but might be lacking a proper FinTech infrastructure regarding internet and mobile coverage or the reliability of the electricity grid. Such a country needs to invest in FinTech-related infrastructure, while other countries should give priority to improving the FinTech business climate.

### ...which helps investors to focus on their strengths

Whether these investments are attractive largely depends on the investors themselves, their goals and the instruments they employ to reach these results. Donor organisations are more concerned about the social return of their investments rather than the financial return that is leading motivation for commercial investors. As such, donor organisations might look for countries where the need for financial inclusion is highest due to poverty rates and might not shy away from capacity building investments that are less attractive to commercial investors. In this way, the FinTech index provides investors insights that might help them to answer the question: in which countries do I want to develop the FinTech sector in order to stimulate financial inclusion?

### Different type of investors

- **Commercial investors** whose mandates require them to ensure the maximum return on their investments. Social returns are desirable but remain a secondary aspect. Risk-averse investors may prefer an economy that is stable and has the right ecosystem environment for FinTech. Risk-loving investors, on the other hand, may be looking for higher gains in comparable countries that are more perilous, but may provide larger growth opportunities.
- **Donor organisations** focusing on maximising social returns are likely to invest in those countries where financial exclusion is highest. However, they may also wish to understand which of these economies has a better capacity to absorb their funds to create the most impact.
- **Social investors** want to create both social impact and a financial return (so-called 'double bottom line' results). They can focus on all the above elements to select countries that meet their preferred combination of social and financial return.

#### Donor organisations

- Maximise social returns.
- Reliant on subsidies and donations.
- Often charities, philanthropists or development banks.

#### Social Investors

- Mix of financial and social returns.
- Combined use of grants, debt and equity.
- Non and for-profit funds, investment vehicles, government-sponsored organisations, development banks, social enterprises, etc.

#### Commercial Investors

- Maximise financial returns for a given risk profile.
- Combined use of debt and equity.
- Investment funds, asset funds, venture capitalists, etc.

Impact Returns

Financial Returns

## Introduction: the how

# An in depth look at FinTech demand, supply and risk

### 1. Demand



The (potential) demand for FinTech-led financial inclusion. This aspect considers the urgency for FinTech to financially include individuals as well as MSMEs, especially those located in rural areas far away from bank branches.

### 2. Supply



The market supply side of FinTech technologies. This is an assessment of a country's supportive environment for FinTech. This dimension can be further split into two components: (1) the state of IT and physical infrastructure and (2) a FinTech ecosystem which assesses a country's business and innovation environments.

### 3. Risk



The political and regulatory risk environment. This is a proxy for a country's investment climate. A country could have a high urgency for FinTech, good infrastructure and ecosystem, but may be less attractive due to an unstable investment climate.

The FinTech Index covers three broad aspects that can influence and drive FinTech investment decisions. The index is constructed in such a way that it provides a relative assessment of the 73 countries based on these indicators. As such, the index scores should not be interpreted in absolute terms. Scores provide insights whether the FinTech environment in one country is better or worse compared to other countries in the sample.

Dimension	Sub-Index	Indicator and description
Demand	Urgency for Financial Inclusion	<b>Unbanked:</b> share of population without a bank account at a financial institution. <b>Credit gap:</b> share of MSME that are unserved by the financial sector. <b>Poverty:</b> share of population living below \$3,10 per person per day. <b>Rural population:</b> share of population living in rural areas.
Supply	FinTech Infrastructure	<b>Mobile subscription density:</b> subscriptions per 100 inhabitants. <b>Internet density:</b> percentage of inhabitants using internet. <b>Electricity coverage:</b> share of population connected to the electricity grid. <b>Grid reliability:</b> number of electrical outages in a month.
	FinTech Ecosystem	<b>Start-up attractiveness:</b> time to start a business (number of days). <b>Innovation Index.</b>
Risk	Political and Regulatory Environment	<b>Corruption Index.</b> <b>Political stability and absence of violence and terrorism Index.</b> <b>Strength of legal rights Index.</b>

See the appendix for a description of the index methodology and the sources of the different indicators.



# FINANCIAL TECHNOLOGY

## FinTech Index Results

Assessing the FinTech potential for  
low and middle income countries

# Assessing a country's FinTech climate

## A regional perspective

### Overcoming the FinTech trap in low-income countries

Many low and some lower-middle income countries are trapped in a situation where the need for financial inclusion is highest, the enabling elements for FinTech are missing and political and regulative institutions are weak. In particular, least developed economies find themselves still at a stage where they need to heavily develop the reach and reliability of their FinTech infrastructure. Coupled with a high-risk environment, there is a need for international development agencies to step in to attract private investment.

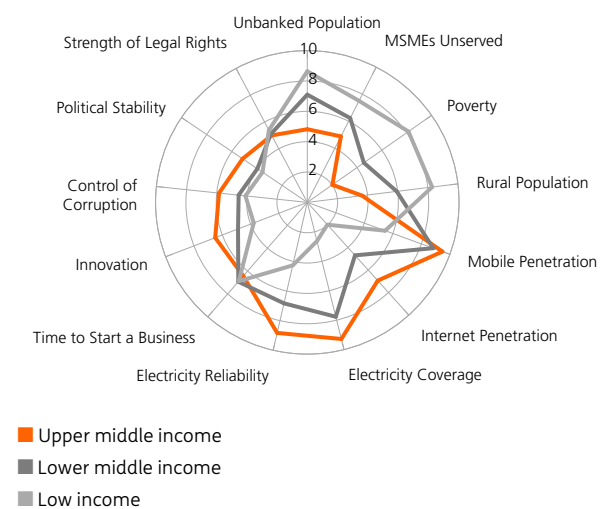
### Be aware of regional differences

From a regional perspective, the following stands out:

- The need for FinTech-led financial inclusion is highest in Sub-Saharan African countries. In these countries, however, the quality of the FinTech infrastructure is relatively poor with internet and mobile coverage being lowest compared to other regions.
- The conditions for FinTech to thrive look promising in East Asia. Mobile penetration and the reliability of the electricity grid are highest in this region. So is the innovation climate. While this is also the case in Europe and Central Asia, the urgency for FinTech led financial inclusion is much higher in East Asia, as many more people and businesses are unserved, poverty rates are higher and more people live in rural areas. East Asia seems to combine a high need for financial inclusion with a supportive FinTech environment.

### FinTech scores per income level

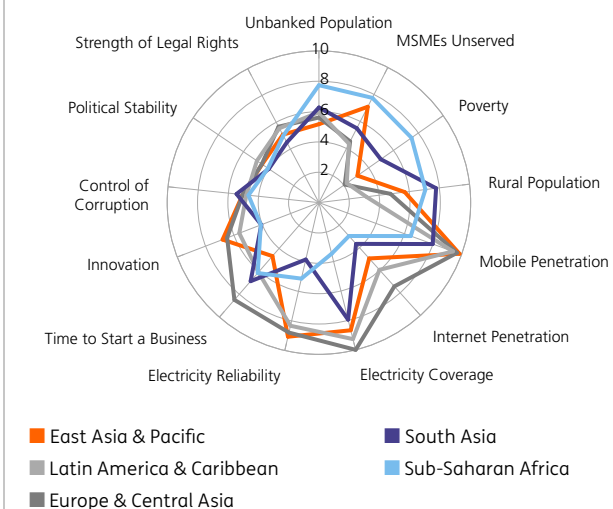
(higher values represent better performance or higher relevance)



Source: ING Economics Department.

### FinTech scores per region

(higher values represent better performance or higher relevance)



Note: the Middle East and Northern Africa region is left out due to a lack of countries in the index.



# Assessing a country's FinTech climate

## Looking at FinTech demand and supply

The graph plots the 73 countries in our sample in terms of the need for financial inclusion (demand) and the quality of the FinTech infrastructure and FinTech ecosystem (supply). The sizes of the dots represent the size of the population. As such India, China, Indonesia and Brazil immediately stand out. The colours represent the income level.

### Urgency for FinTech-led inclusion is high in low-income countries...

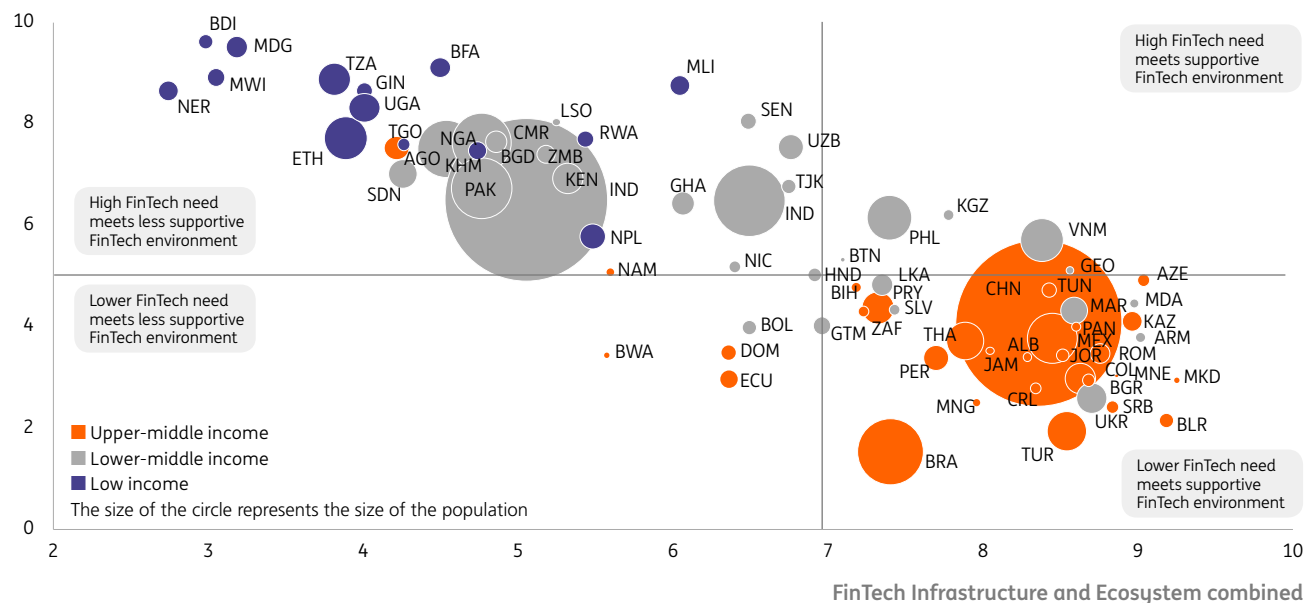
There is a strong relationship between a country's income level and the need for financial inclusion. In poorer countries more people are unbanked since branches tend to be few and mainly concentrated in urban areas. This is because setting up bank branches is quite expensive, especially in rural areas. As a consequence, it is unlikely that individuals will be well-served through an expansion of the traditional bricks and mortar banking model: the urgency for FinTech-led financial inclusion is therefore high in these countries. This is the reason that many low-income countries in Africa are found at the top of the graph, while the richer economies in our sample, such as Brazil and Turkey, can be found at the bottom of the graph.

### ...FinTech infrastructure and ecosystem improve as countries become richer

As economies get richer, their FinTech infrastructure and ecosystem also improve. Through better mobile and internet coverage, fewer electricity outages, and an agile business environment that stimulates innovation and entrepreneurship these economies provide the necessary enablers that drive the development of a booming FinTech sector.

### FinTech index results: demand versus supply

#### Urgency for Financial Inclusion



Source: ING Economics Department.

50% of the countries are above or below the median values as represented by the lines.

### Investors must choose

The results present a trade-off to investors as there are few countries that have both favourable supply and demand factors. Investors with a strong focus on financial inclusion at the bottom of the pyramid are more or less forced to enter countries with a less favourable FinTech climate. As such

they should also consider investments aimed at building the required capacity for the FinTech sector to grow. For example, investments in mobile and internet coverage. Investors that focus on countries with better supply conditions seem to have fewer opportunities to create impact in terms of financial inclusion.

## Assessing a country's FinTech climate

# Countries could have a high need for FinTech but might be too risky to invest in

### Risk might exclude countries for FinTech investments

When it comes to investments, risk is an important variable to take into consideration. FinTech investments are no exception. FinTech innovations are often developed by start-ups, a high-risk investment segment, both in developed and in developing countries. Developing and emerging economies offer attractive opportunities, however in often risky environments. The mandates of many investors may not allow them to invest when risk is excessive, such as in countries with high political or regulatory instability. The political and regulatory environment includes this risk dimension in the analysis. The graph on this page plots the need for FinTech led financial inclusion against a political stability index that measures corruption, political instability and the strength of a country's legal system.

### Political and regulatory risk requires a country by country approach...

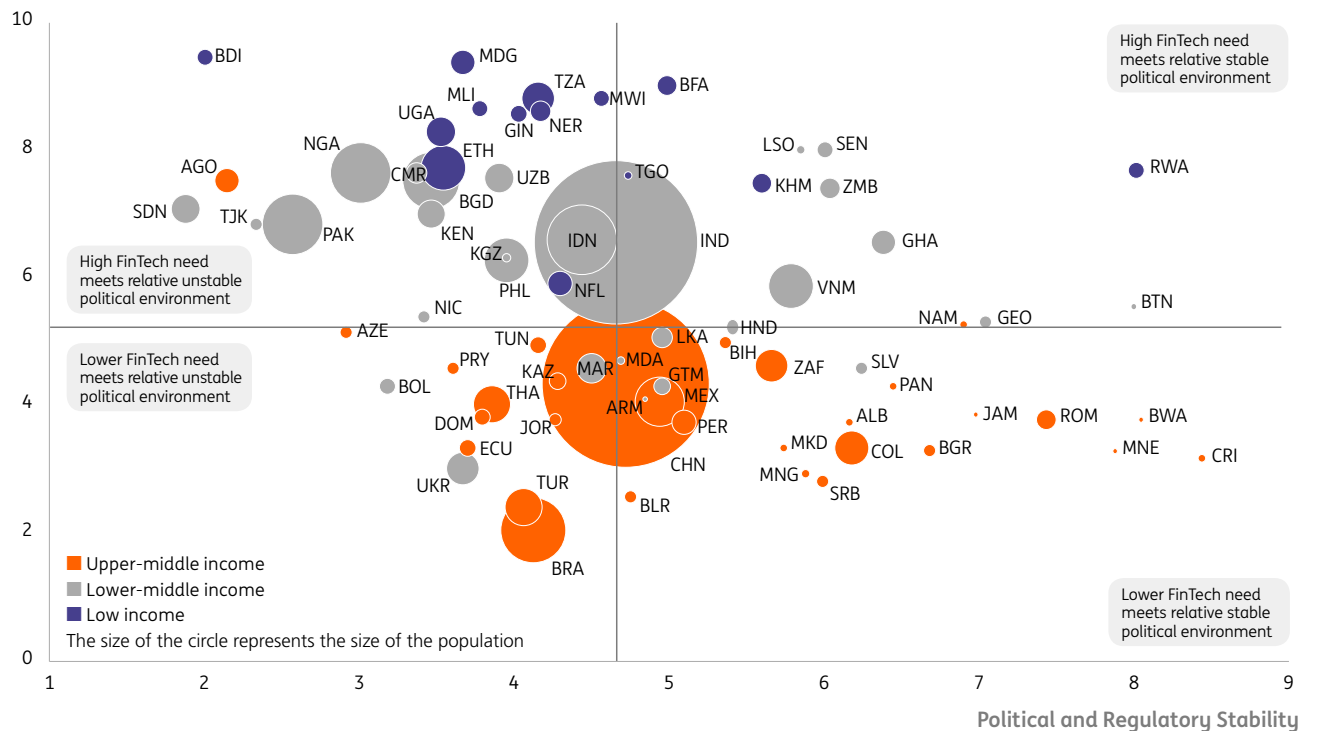
As with the previous graph, low income countries show a high need for financial inclusion (plotted at the top of the graph), whereas this need is much lower in the upper middle income countries. For every income level, however, there is a wide variance in a country's political and regulatory risk. Costa Rica, Botswana and Ghana are relative stable countries whereas Sudan, Burundi, Angola and Pakistan show substantial country risk.

### ...so that different countries might attract different investors

Investors who are constrained by risk might focus on countries plotted at the right side of the graph. When risk is not a limiting factor, the countries in the upper-left quadrant may provide a higher opportunity to focus on social returns as poverty and financial exclusions in these countries remain high.

### FinTech index results: demand versus country risk

#### Urgency for Financial Inclusion



Source: ING Economics Department.

50% of the countries are above or below the median values by the lines.

Note that the index provides a relative assessment based on normalised scores from 1 to 10. As such, scores provide insights whether a country is performing better or worse compared to the others in the sample and should not be interpreted in absolute terms.

## Assessing a country's FinTech climate

# Improving a countries FinTech supply side: focus on FinTech infrastructure or ecosystem?

The speed at which FinTech can be implemented in a country is, amongst other things, dependent on the quality of the FinTech infrastructure (mobile and internet coverage) as well as the FinTech ecosystem (innovation and entrepreneurship). This graph takes a closer look at both dimensions to assess which areas are in need of improvement for FinTech to thrive.

### Easy implementers:

these are countries with good infrastructure and a supportive business environment. Examples of these are Mexico, Colombia, Morocco and Turkey<sup>1</sup>.

### Infrastructure first:

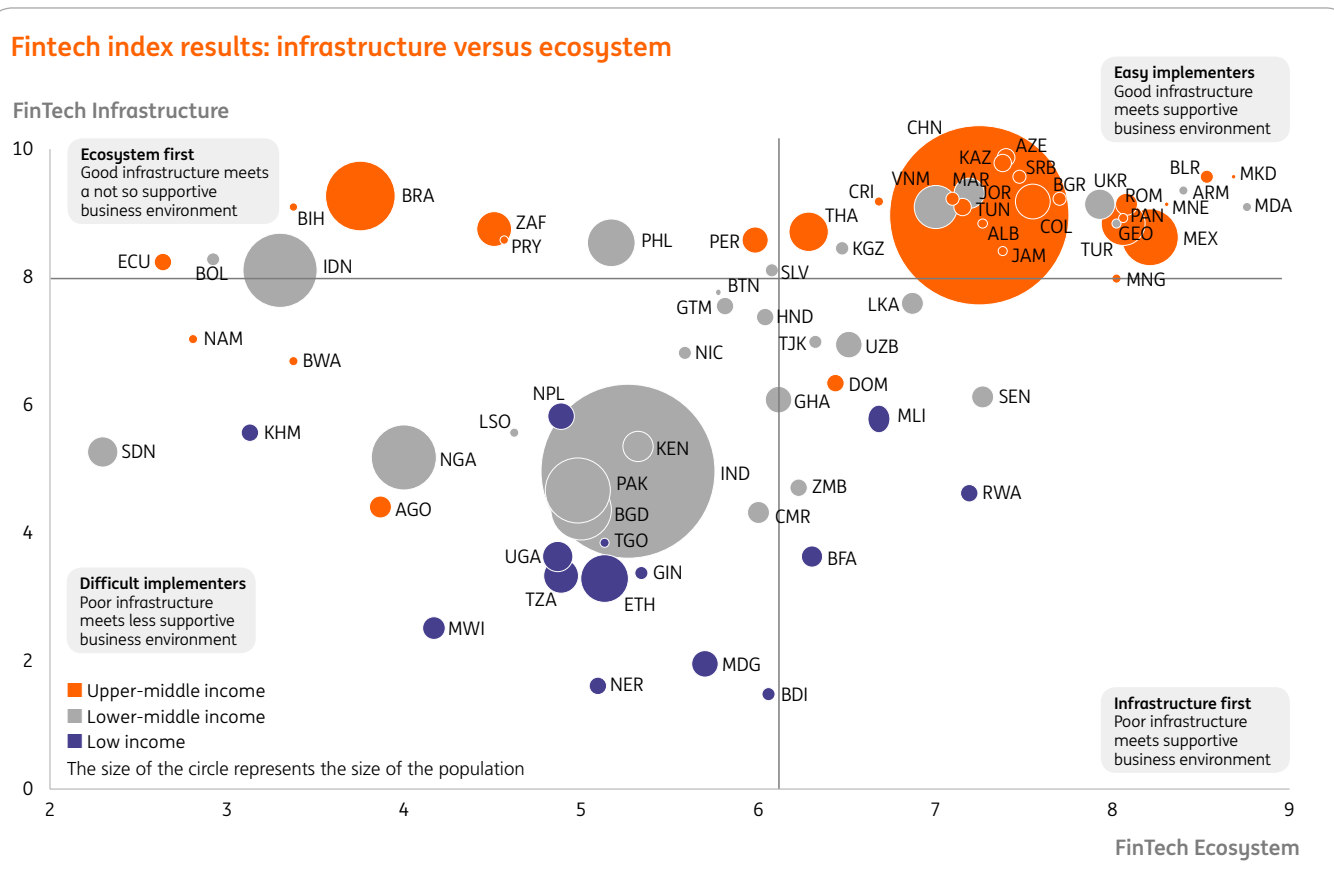
these countries provide an innovative and entrepreneurial business climate, but the infrastructure to implement FinTech solutions is weaker. As such, the telecommunications and energy companies hold the key for a better FinTech environment.

### Ecosystem first:

these countries provide sound infrastructure to develop FinTech solutions, but this is not supported by an innovative, agile and start-up friendly business environment.

### Difficult implementers:

in these countries both the FinTech infrastructure as well as the FinTech Ecosystem require improvement to make FinTech-led financial inclusion a success. This often requires collaboration between telecommunications and energy companies, as well as putting start-ups and innovation at the centre stage of their policies.



Source: ING Economics Department.

50% of the countries are above or below the median values as represented by the lines.

1 See ING; FinTech for micro, small and medium sized enterprises (2016) for a detailed analyses of a FinTech lending business case for MSMEs at ING Bank Turkey.



## Country Examples

A closer look at specific countries

## Countries in focus: the world's most populated countries

# India and China: FinTech can reach a third of the world population

China and India are two economies worth analysing separately as they host 2.6 billion people or roughly 36% of the world population. This, coupled with the fact that a high share of Indian and Chinese people live in rural areas (67% and 44% respectively) makes a compelling case for FinTech-led financial inclusion.

The graph depicts the country scores for every indicator in the FinTech index. China scores higher than India in terms of FinTech infrastructure and internet use. As an indication, the number of registered Chinese patents is quickly catching up to that of high-income economies. On the other hand, the need for financial inclusion is higher in India with more people living in rural areas and in extreme poverty. However, both economies suffer from long procedures to formally open a business.

### FinTech enabling policies

#### India

The **Reserve Bank of India** has setup a committee that looks at ways to promote FinTech within India's financial system.

**Payment banks licenses** have been issued to 11 non-bank players, such as e-commerce platform **Paytm**. Recently, the platform has partnered with financial institutions to issue small, collateral-free working capital loans to small businesses based on the customer's purchasing history on the platform.

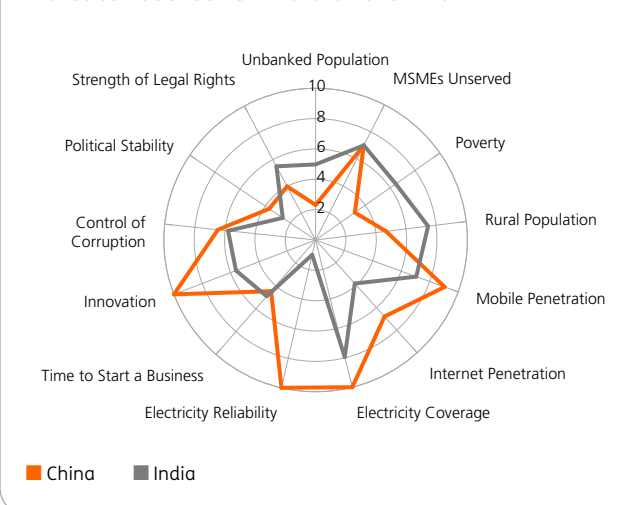
#### China

The **13<sup>th</sup> Five-Year Plan** (2016-2020) explicitly espouses digital financial technology as the way forward to achieve financial inclusion and fight poverty.

The **Internet Plus Strategy** sets the Internet at centre stage to drive economic growth, and includes the integration of mobile Internet, big data, cloud computing and the Internet of things with the country's competitive advantage in manufacturing.

Financial inclusion and poverty reduction through FinTech is already taking place in both countries. In India the scale of the **Aadhaar** identification project has the potential to revolutionize financial inclusion. Through this program the biometrics of over 1 billion people have already been captured. The scope of the program goes well beyond the provision of public services. As such, banks are incentivised to develop FinTech solutions that make use of these identification technologies. In China, previously excluded individuals can apply and obtain a loan within minutes by providing access to data on their smartphones. One example is **Kabbage**, with which ING has set up a strategic partnership. **Alibaba** has become China's most popular e-commerce, offering small loans to its users based on their transaction history on the platform.

Indicator scores for India and China



## Countries in Focus: South-East Asia

# Indonesia and Vietnam:

# FinTech led financial inclusion in remote areas

Indonesia and Vietnam are two countries that are rapidly growing, with GDP growth rates above the average level among economies in East Asia and Pacific. However, financial inclusion in both economies is still a pressing issue. For example, only 1/3rd of their population has access to a payment and savings account at a financial institution.

Indonesia presents a specific challenge due to the fact that it extends over 17,000 islands. For this reason, establishing a banking brick-and-mortar presence and developing an efficient and inclusive ICT infrastructure is difficult. Indeed, banking and internet access in remote areas are still challenging and expensive. Consistently, the data points out to high concentration of MSME unserved and low internet use.

### FinTech enabling policies

#### Indonesia

**President Joko Widodo** has openly supported the development of a national FinTech sector that can help foster financial inclusion, both for individuals and SMEs. The Financial Services Authority is expected to take steps to expand banking regulation to accommodate the development of FinTech.

The **Industry and Commerce Chamber** of Indonesia (Kadin) expects FinTech investments to reach 8 billion U.S. dollars by 2018.

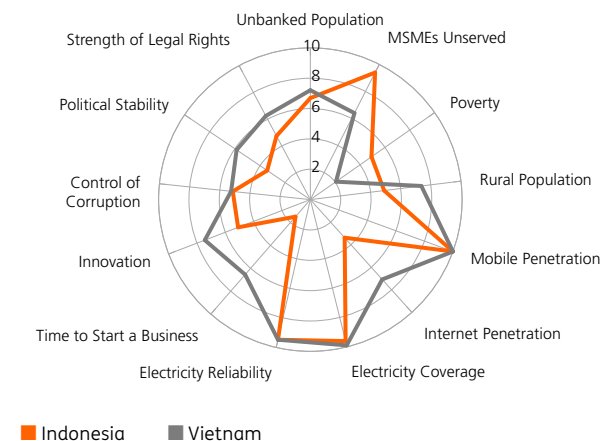
#### Vietnam

The **National Program to Support Innovative Start-up Ecosystem in Vietnam by the year 2025** has been approved by deputy prime minister Vu Duc Nam. This plan aims at developing and maintaining a supportive ecosystems for start-ups, with a focus on those operating in high technology markets. Main points of the program include the delivery of education services, online business support platforms, improvement of infrastructure and a reassessment of existing laws that impact the creation of a healthy ecosystem for start-ups.

Similarly to Indonesia, Vietnam is also facing difficulties in serving its largely rural population. About 60% of the Vietnamese population lives in rural areas. **MoMo**, a mobile wallet and payment app has turned these challenges into opportunities. Another area where FinTech can shine is the remittance market, which makes up 6.4% of national GDP.

Although the local FinTech sectors are still at their infant stage, especially in Indonesia, it is promising to see that both countries have committed to those policies meant to provide an enabling environment for FinTech and financial inclusion.

Indicator scores for Indonesia and Vietnam



## Countries in Focus: Latin America

# Brazil and Mexico: Fast developing FinTech sector

Brazil and Mexico are two countries that have always attracted a lot of interest from impact investors, for example in the microfinance sector. Both countries offer a similarly attractive infrastructure development that can support FinTech solutions. Thanks to a high internet penetration and the fact that roughly one third of their population owns a smart-phone, the financial inclusion sector could potentially benefit from the most advanced technologies that FinTech has to offer, such as online lending and alternative credit scoring through smartphone-generated data.

Although World Bank's Findex data shows good progress for both economies, more than half of their respective population is still not formally financially included. In terms of credit gap for SMEs, Mexico stands out for the amount of companies currently being unserved (40%). Although in Brazil the number is lower (30%), the magnitude of the issues is still substantial.

### FinTech enabling policies

#### Brazil

Although the FinTech sector has not received specific attention, Brazil's security regulator **CVM** has recently announced it will undertake a thorough research on the development and application of the FinTech sector in the country. The project is part of the **broader Innovation Center for Financial Technology** and it aims at providing a better understanding of the national FinTech sector and creating better communication channels with entrepreneurs.

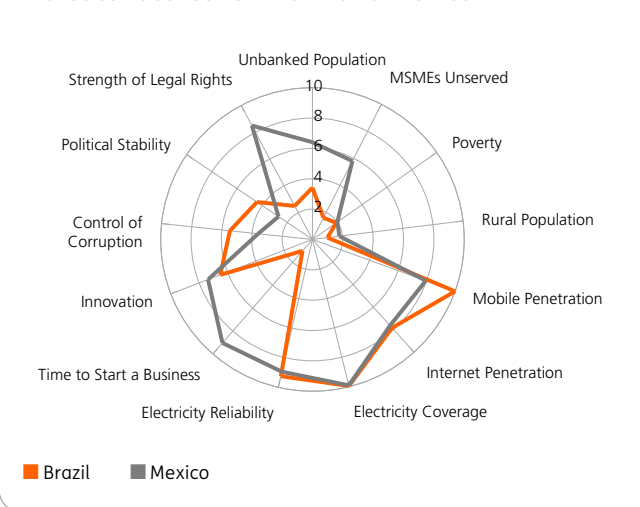
#### Mexico

Mexico joined the **United Nation's Better Than Cash Alliance** as part of its National Financial Inclusion Strategy (NFIS), which aims at leveraging financial technology solutions and reducing the use of cash as a means of payment.

On top of a good infrastructure, Mexico scores well in terms of opening a business and for the strength of its legal framework. Brazil, on the other hand, shows poor performance in that respect. For example, from World Bank data, it takes 11 procedures and about 3 months to open a business in Brazil. In comparison, this process can be finalized in 6 days with half the amount of procedures in Mexico.

In both economies the FinTech sector is fast developing and has already a broad range of incumbent start-ups. Examples in Mexico include remittance platform Chapulin, business financing provider Aspira and Señor Pago a mobile solution meant for the unbanked. In Brazil Nubank is a credit card provider which operates exclusively through their app, thus allowing for major cost savings. Other business oriented examples are ZeroPaper and Vindi for managing business cash flows.

Indicator scores for Brazil and Mexico





Appendices





# Appendix

## FinTech Index Methodology

### Sub-indices and indicators

The FinTech Index comprises of 3 sub indices. The total FinTech index includes all three sub-indices unless explicitly stated otherwise in the text.

1. The urgency or need for FinTech to financially include MSMEs. This could be seen as a rough proxy for potential demand.
2. The FinTech infrastructure assesses a countries hardware that enables FinTech to thrive.
3. The FinTech ecosystem assesses a countries business environment for FinTech companies.

The political and regulatory environment index is a proxy for a country's investment climate. A country could have a high urgency for FinTech, good infrastructure and ecosystem but investments might be difficult due to an unstable investment climate.

### Country selection and methodology

Data on 215 countries was retrieved from the World Bank database, divided into income categories (high, upper-middle, lower-middle and low income economies). The high income economies were left out as the focus of the A Billion to Gain reports is on the developing world. Combining the different data sources leaves a dataset of 73 countries for which all variables are available. In case data refers to different years, values have been extrapolated to a base year. All values have been normalized for the base year on a scale of 1-10 by applying the following linear transformations:

$$9 \times \frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}} + 1 \text{ for all indicators for which a higher value leads to a positive outcome; and}$$

$$-9 \times \frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}} + 10 \text{ for all indicators for which a lower value leads to a positive outcome.}$$

All values have been screened for potential outliers and have been adjusted if necessary. Sub-indices are an unweighted average of the indicator scores. We have tested the robustness of the FinTech index with other index methodologies, such as ranking, standardisation through z-scores and different percentile methodologies. In general results are robust across different index methodologies.

Dimension	Sub-Index	Indicator and description	Relationship	Source
Demand	Urgency for Financial Inclusion	<b>Unbanked:</b> share of population without a bank account at a financial institution.	<b>Positive</b>	World Bank
		<b>Credit gap:</b> share of MSME that are unserved by the financial sector.	<b>Positive</b>	International Finance Corporation (IFC)
		<b>Poverty:</b> share of population living below \$3,10 per person per day.	<b>Positive</b>	World Bank
		<b>Rural population:</b> share of population living in rural areas.	<b>Positive</b>	World Bank
Supply	FinTech Infrastructure	<b>Mobile subscription density:</b> subscriptions per 100 inhabitants.	<b>Positive</b>	ITU (the United Nations specialized agency for ICTs)
		<b>Internet density:</b> percentage of inhabitants using internet.	<b>Positive</b>	ITU (the United Nations specialized agency for ICTs)
		<b>Electricity coverage:</b> share of population connected to the electricity grid.	<b>Positive</b>	World Bank
		<b>Grid reliability:</b> number of electrical outages in a month.	<b>Negative</b>	World Enterprise Survey (World Bank)
	FinTech Ecosystem	<b>Start-up attractiveness:</b> time to start a business (number of days).	<b>Negative</b>	World Bank
		<b>Innovation Index.</b>	<b>Positive</b>	Global Innovation Index.org
Risk	Political and Regulatory Environment	<b>Corruption Index.</b>	<b>Positive</b>	World Bank
		<b>Political stability and absence of violence and terrorism Index.</b>	<b>Positive</b>	World Bank
		<b>Strength of legal rights Index.</b>	<b>Positive</b>	World Bank

## Appendix

# Remarks on the FinTech Index

### The index measures relative performance...

The index scores cannot be interpreted in absolute values. For example, a score of 6 does not mean that the country is scoring sufficiently on any given variable. Therefore all scores should be interpreted comparatively: a country scoring a 7, say on electricity coverage, means that a larger share of its citizens are enjoying access to the grid compared to a country scoring a 5.

### ...as such, a high score does not indicate that all problems are solved

The poverty sub-index measures poverty as the share of the population living on less than \$3.10 a day. While this is common practice in developmental economics, this measure should be interpreted cautiously while ranking countries on a relative basis. The index uses a measure of poverty that is more relevant to low and lower-middle income countries. Upper-middle income countries will score lower in relative terms as few people live in extreme poverty. This does not go to say that poverty in these countries is less of an issue. In fact, even in high income countries people live in poverty, but this is not captured by this particular indicator. When talking about absolute poverty numbers, national poverty line statistics that vary per country should be taken into account as well.

Similarly, the issue of financial exclusion for MSMEs exists in high income countries as well. In our sample, the country with the lowest percentage of MSMEs unserved is Turkey (21%). Since all scores are normalized taking into account the minimum and maximum values in the sample, the index assigns a score of 1 to Turkey for this particular indicator. As already discussed above, this score cannot be interpreted in absolute terms. 21% effectively means that 1/5th of all MSMEs are currently unserved. That is still a large number.

This report is accompanied by an addendum with country infographics for every single country in our sample. These give more inside in the absolute indicator values.

### A balance between detailed indicators and the number of countries that make up the index

Data availability is always an issue when constructing an index. We had to find a balance between including a sufficient number of relevant FinTech indicators and including as many countries as possible in our index. We did not want to limit our analyses to 20 countries only, as impact investors often have a global scope. In doing so, some indicators were dismissed as it caused too many countries to drop out of the sample. Given our set of indicators, some economies that may be promising in terms of FinTech-led financial inclusion are missing from the sample due to a lack of data availability.

### Proxy variables do not tell the full story

The index currently employs the use of proxy variables to assess a country's IT infrastructure readiness and accessibility. For example, the index looks at mobile and internet coverage in terms of the share of people that have coverage. This doesn't tell anything about the quality of the coverage. 3G and 4G coverage for examples offer much more possibilities to develop and run FinTech applications than 2G coverage. Unfortunately, this type of information is only available for a limited set of countries. In the future, the quality and analytical power of the index could be enhanced by incorporating these specific variables once they become available for a larger pool of countries.

# Appendix

## List of country abbreviations

Abbreviation	Country
ALB	Albania
AGO	Angola
ARM	Armenia
AZE	Azerbaijan
BGD	Bangladesh
BLR	Belarus
BTN	Bhutan
BOL	Bolivia
BIH	Bosnia and Herzegovina
BWA	Botswana
BRA	Brazil
BGR	Bulgaria
BFA	Burkina Faso
BDI	Burundi
KHM	Cambodia
CMR	Cameroon
CHN	China
COL	Colombia
CRI	Costa Rica
DOM	Dominican Republic
ECU	Ecuador
SLV	El Salvador
ETH	Ethiopia
GEO	Georgia
GHA	Ghana

Abbreviation	Country
GTM	Guatemala
GIN	Guinea
HND	Honduras
IND	India
IDN	Indonesia
JAM	Jamaica
JOR	Jordan
KAZ	Kazakstan
KEN	Kenya
KGZ	Kyrgyz Republic
LSO	Lesotho
MKD	Macedonia, FYR
MDG	Madagascar
MWI	Malawi
MLI	Mali
MEX	Mexico
MDA	Moldova
MNG	Mongolia
MNE	Montenegro
MAR	Morocco
NAM	Namibia
NPL	Nepal
NIC	Nicaragua
NER	Niger
NGA	Nigeria

Abbreviation	Country
PAK	Pakistan
PAN	Panama
PRY	Paraguay
PER	Peru
PHL	Philippines
ROM	Romania
RWA	Rwanda
SEN	Senegal
SRB	Serbia
ZAF	South Africa
LKA	Sri Lanka
SDN	Sudan
TJK	Tajikistan
TZA	Tanzania
THA	Thailand
TGO	Togo
TUN	Tunisia
TUR	Turkey
UGA	Uganda
UKR	Ukraine
UZB	Uzbekistan
VNM	Vietnam
ZMB	Zambia

# Colophon

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## Literature overview

<b>Brookings</b>	The 2016 Brookings Financial and Digital Inclusion Project, 2016.
<b>Capgemini, LinkedIn and Efma</b>	World Fintech Report 2017.
<b>ING</b>	FinTech for micro, small and medium sized enterprises – creating jobs at the bottom of the pyramid through financial and digital inclusion, 2016.
<b>McKinsey</b>	Digital Finance for all: powering inclusive growth in emerging countries, 2016.
<b>OECD and JRC</b>	Handbook on Constructing Composite Indicators.

## Abbreviations

<b>MSMEs</b>	Micro, small and medium sized enterprises.
<b>FinTech</b>	Financial Technology.

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