NATIONAL BANK OF ROMANIA

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Fintech - Changing the financial industry

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The opinions expressed in this presentation are those of the author and do not necessarily reflect the views of the National Bank of Romania

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1. Introduction

"So as you can see, **fintech** has the potential to **improve efficiency** in the financial sector, **create better products** and **push prices down** for consumers. But it has other dimensions too, in the shape of potential risks and new regulatory questions. It is in all our interests to rise to this challenge."

Mario Draghi, May 2017
Introductory statement at the ECON committee of the EP

1. Motivation

- To what extent can Fintech enter the market? Are the markets accommodative enough for new innovative financial projects?

- What are the main drivers of Fintech phenomenon?

- Will Fintech shape the financial/banking landscape going forward?

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2.1. Fintech market indices – Data and methodology

- **Four indices that can influence and drive Fintech market entry** :
  - Demand factors (financial inclusion);
  - Supply factors (available technology and infrastructure);
  - Business environment (ease of starting new business);
  - Investment climate (risk factors).

- **EU countries** in focus.

- **Timeframe**: 2007 – 2016.

2.1. Fintech market indices – Data and methodology

- **Methodologies** used for ranking: z-scores and 1 to 10 ranking;

- **Scores** provide insights whether the Fintech development environment in one country is better or worse relative to the rest in the sample;

- **National indices** were computed as unweighted averages of sub-indices;

- **EU overall index** was computed as population weighted average of the national indices;

- **Results** are robust across the two methodologies.

2.1. Fintech market indices – Data

Demand factors (financial inclusion)	Impact	Supply factors (available technology and infrastructure)	Impact
Unbanked population (% without a bank account)	−	Automated Teller Machines (per 100,000 adults)	+
Ease of access to loans* (index)	+	Usage of internet (% of individuals using the internet)	+
People at risk of poverty or social exclusion (% of total)	−	Technological readiness* (index)	+
Rural population (% of total)	−	Mobile-cellular telephone subscriptions (per 100 inhabitants)	+
		Quality of electricity supply* (index)	+

Note: * higher value of the indicator means a more positive outcome.
Sources: World Bank, Eurostat, international Monetary Fund, United Nations specialized agency for ICTs, Global Competitiveness Index

2.1. Fintech market indices – Data

Business environment (ease of starting new business)	Impact	Investment climate (risk factors)	Impact
Capacity for innovation* (index)	+	Corruption perception* (index)	+
Number of procedures to start a business	-	Burden of government regulation* (index)	+
Number of days to start a business	-	Property rights* (index)	+
Availability of scientists and engineers* (index)	+	Legal rights* (index)	+
Financial services meeting business needs* (index)	+		

Note: * higher value of the indicator means a more positive outcome.
Source: Global Competitiveness Index

2.1. Fintech market indices – Methodology

Sub-indices are built following two rules:

- if a <u>higher</u> value of the indicator leads to a <u>positive</u> outcome → (1) and (3)
- if a <u>lower</u> value of the indicator leads to a <u>positive</u> outcome → (2) and (4)

Z-score methodology:

$$z_{year\,t}^{country\,i} = \frac{x_{year\,t}^{country\,i} - mean\left(x_{year\,t}^{EU\,countries}\right)}{std\left(x_{year\,t}^{EU\,countries}\right)} \quad (1)$$

$$z_{year\,t}^{country\,i} = -\frac{x_{year\,t}^{country\,i} - mean\left(x_{year\,t}^{EU\,countries}\right)}{std\left(x_{year\,t}^{EU\,countries}\right)} \quad (2)$$

1 to 10 ranking methodology*:

$$Index_{year\,t}^{country\,i} = 9 * \frac{x_{year\,t}^{country\,i} - min\left(x_{year\,t}^{EU\,countries}\right)}{max\left(x_{year\,t}^{EU\,countries}\right) - min\left(x_{year\,t}^{EU\,countries}\right)} + 1 \quad (3)$$

$$Index_{year\,t}^{country\,i} = (-9) * \frac{x_{year\,t}^{country\,i} - min\left(x_{year\,t}^{EU\,countries}\right)}{max\left(x_{year\,t}^{EU\,countries}\right) - min\left(x_{year\,t}^{EU\,countries}\right)} + 10 \quad (4)$$
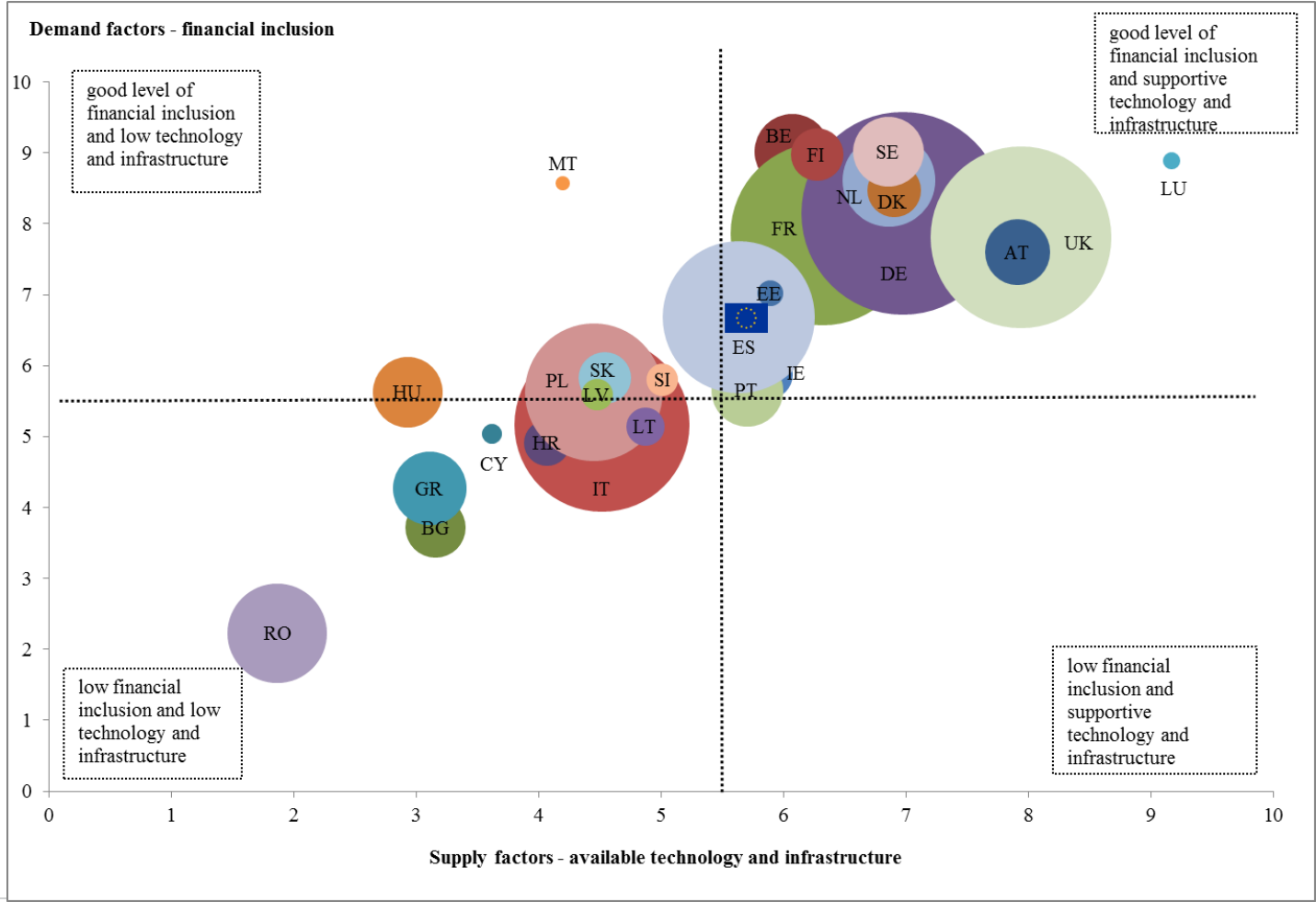
The FinTech Index, ING, 2016

2.1. Fintech market indices – methodology

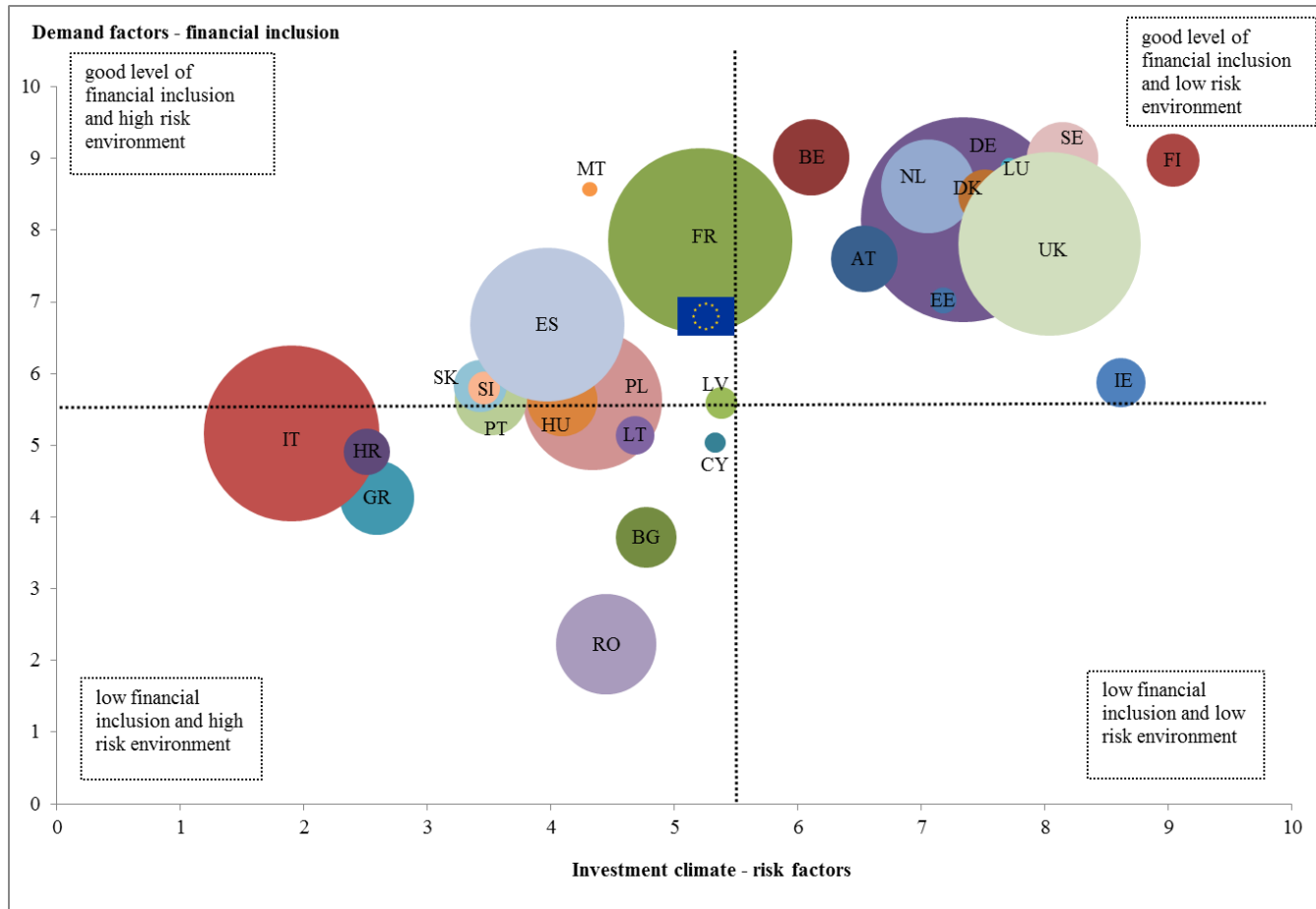| Market indices	Meaning of scores
Demand factors (financial inclusion)	1 or low z = low financial inclusion 10 or high z = high financial inclusion
Supply factors (available technology and infrastructure)	1 or low z= low infrastructure 10 or high z = high infrastructure
Business environment (ease of starting new business)	1 or low z= difficult 10 or high z = friendly
Investment climate (risk factors)	1 or low z= high risks 10 or high z = low risks

2.2. Fintech market indices – results (EU,2016)

- Lower-income: low financial inclusion and low technology and infrastructure;
- Higher-income (mainly EA countries): better level of financial inclusion and more supportive technology and infrastructures.
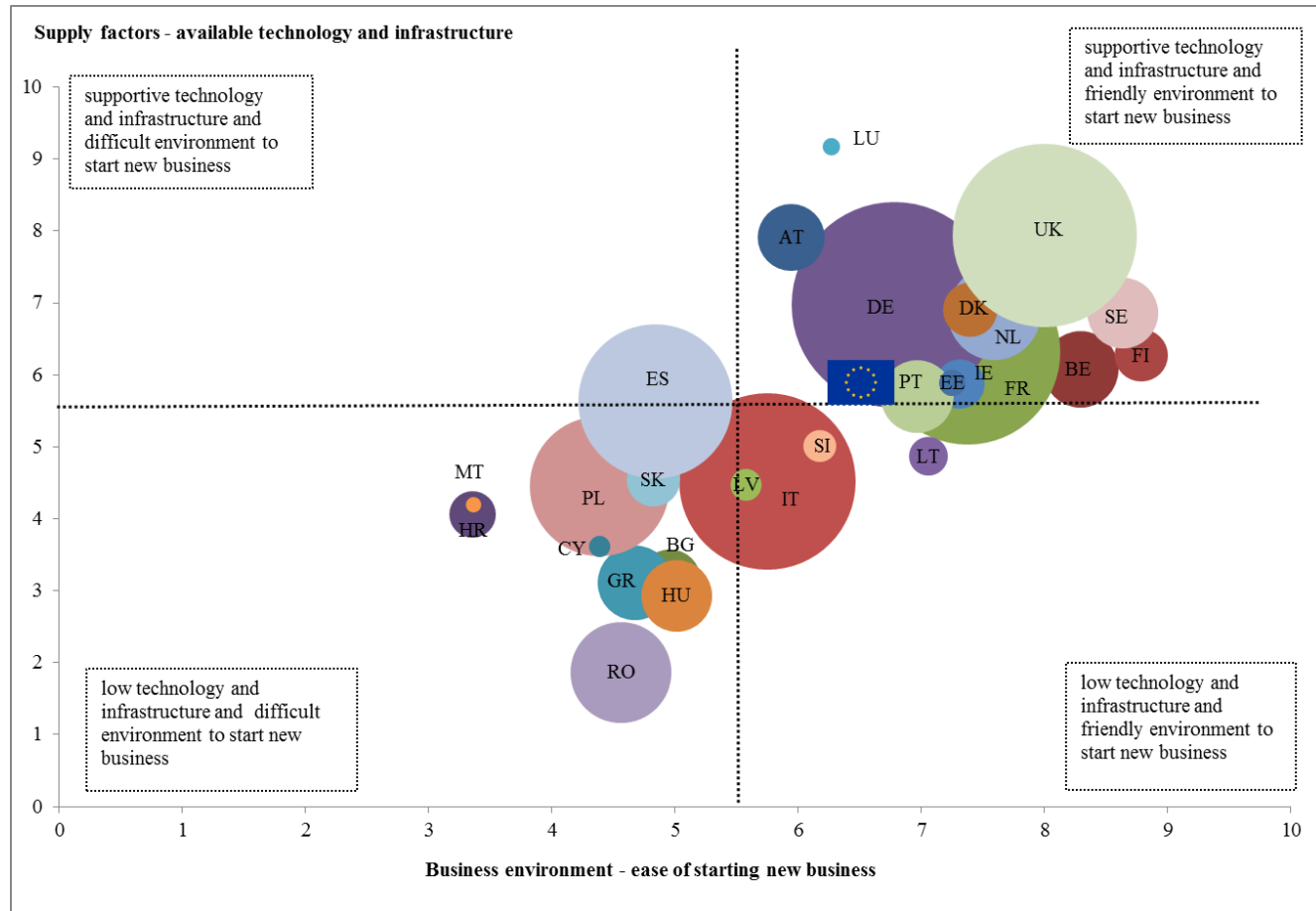
2.2. Fintech market indices – results(EU,2016)

- Countries may have a high need for more financial inclusion, however, the investment climate may not be very friendly ;
- Mainly EA countries show a good level of financial inclusion and a lower risk environment for investments.

2.2. Fintech market indices – results (EU,2016)

- Most EA countries provide good capacity of innovation, good entrepreneurial business climate and sound infrastructure to develop further Fintech solutions;
- In lower-income countries (mostly non-EA) both infrastructure and business environment require improvements.
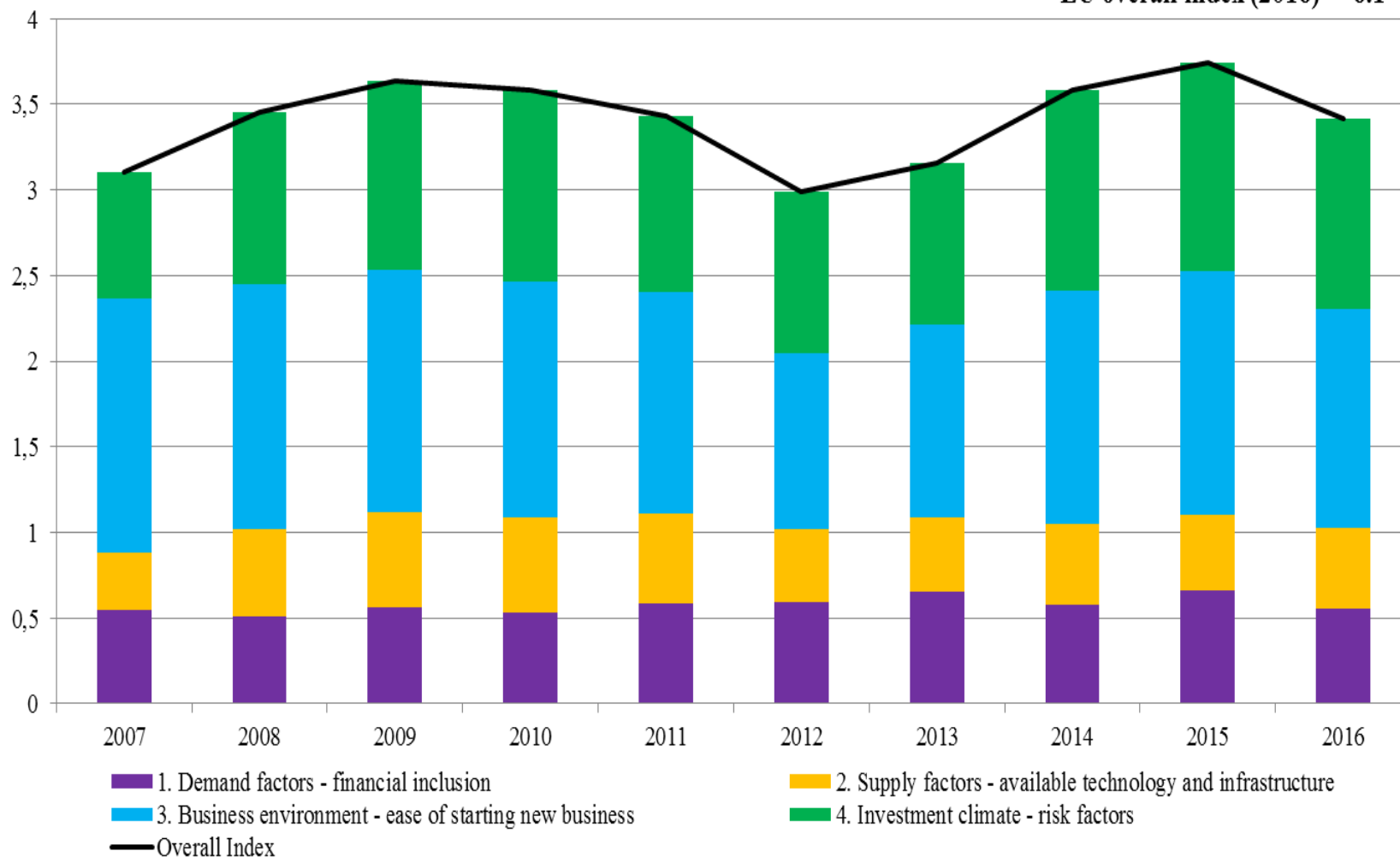
2.2. Fintech market indices – Romania

- **Urgency for financial inclusion** is **highly needed** (RO index 2.2 compared to 6.8 EU average);

- **Advance in relevant technology and infrastructure** is **highly needed** (RO index 1.8 compared to 5.8 EU average);

- **Ease of starting new business** should **be improved** (RO index 4.6 compared to 6.3 EU average);

- **Investment climate** should **be improved** (RO index 4.5 compared to 5.3 EU average).

2.2. Fintech market indices – Romania

RO overall index (2016) = 3.3
EU overall index (2016) = 6.1

Legend:
- 1. Demand factors - financial inclusion
- 2. Supply factors - available technology and infrastructure
- 3. Business environment - ease of starting new business
- 4. Investment climate - risk factors
- Overall Index

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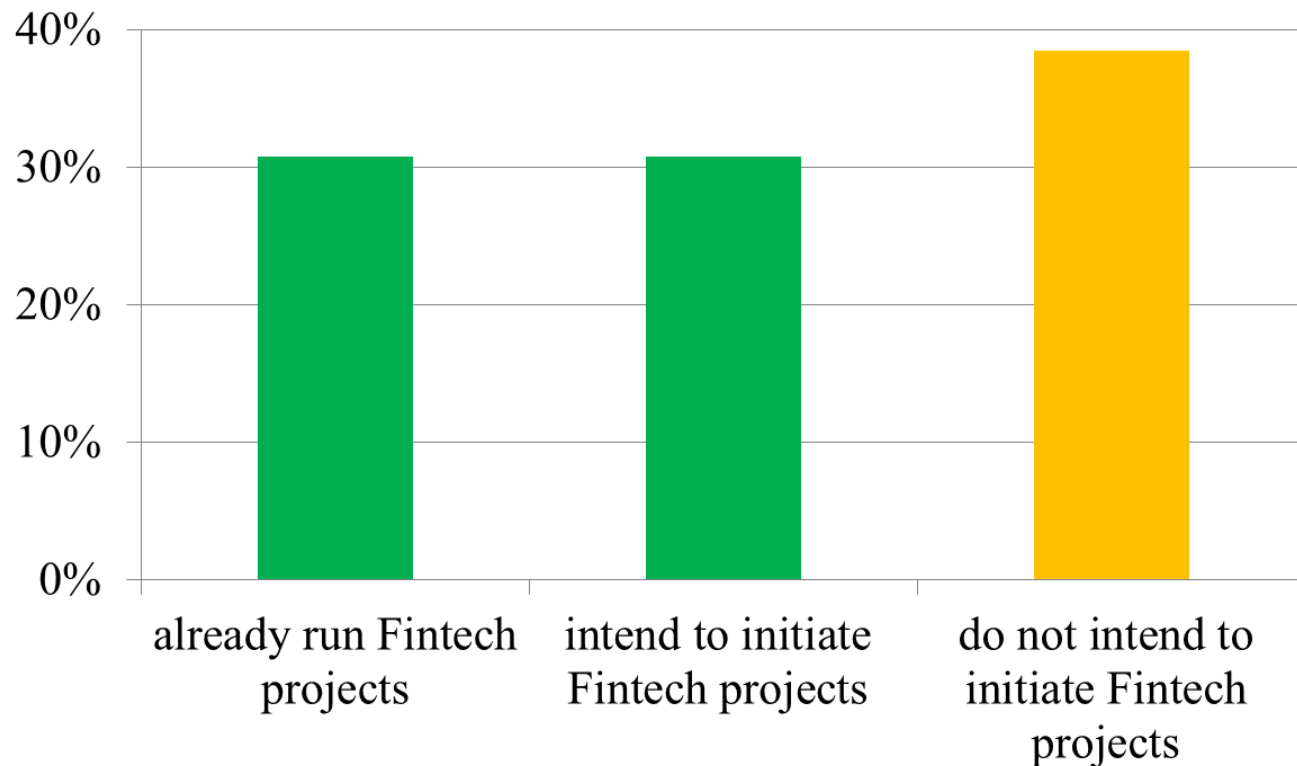
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3.1. Fintech – perspective from Romanian banks: data & methodology

- Questionnaire carried out by NBR Financial Stability Department in 2017;

- Structure:
  - 2 sections: main assessments & main risks related to Fintech;
  - 14 questions;

- Respondents: 13 banks, representing 90 % of total assets of the Romanian banking system.

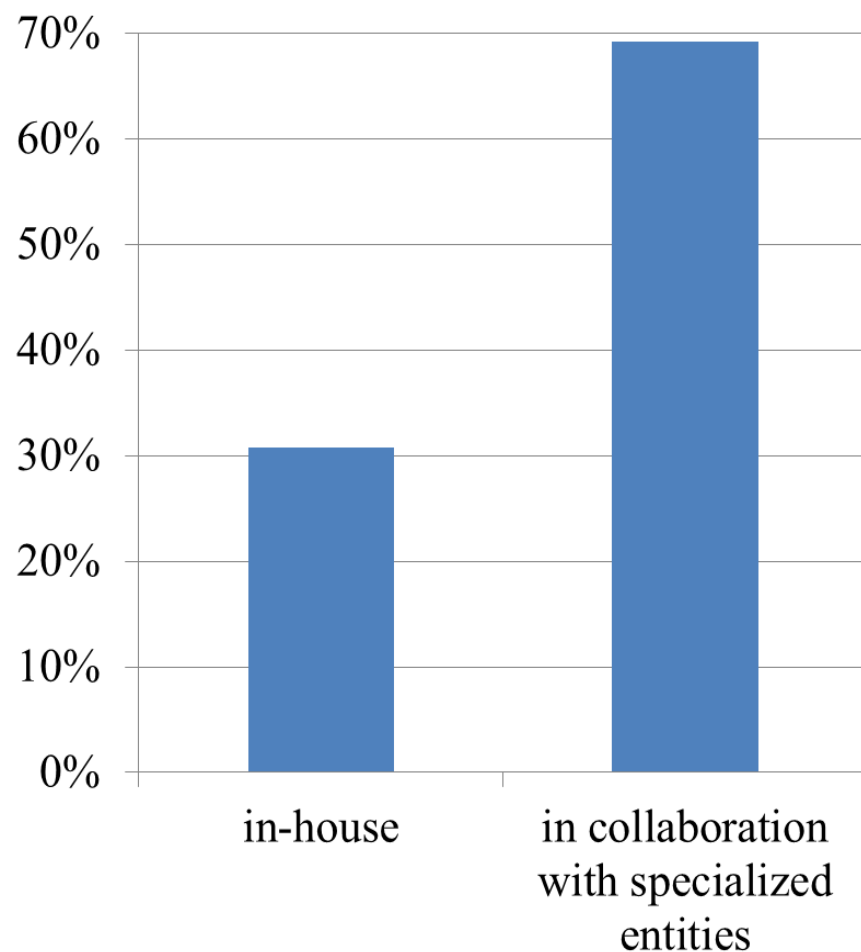# 3.2. Fintech – perspective from Romanian banks: main takeaways

- Most credit institutions in Romania are already involved in Fintech projects or intend to run such projects within a maximum of one year's time horizon.
- Banks are willing to invest funds in both development and acquisition of new technologies.

Source: Fintech Questionnaire 2017, National Bank of Romania

3.2. Fintech – perspective from Romanian banks: main takeaways

- 70% of the banks that are or will be involved in Fintech intend to collaborate with other specialized companies to develop Fintech projects.

- 30% of the banks that are or will be involved in Fintech tend to develop such projects internally.

Source: Fintech Questionnaire 2017, National Bank of Romania

3.2. Fintech – perspective from Romanian banks: main takeaways

- The main Fintech projects mentioned by the Romanian credit institutions (***Authentification, DLT, Blockchain, Big Data, Peer-to-Peer Transactions, Artificial Intelligence, Robotic Process Automation, Chatbot, Video Advisory, Natural Language Understanding***), target various bank business areas:
  - ➢payment systems;
  - ➢sales of banking products;
  - ➢advertising;
  - ➢client-oriented products;
  - ➢online platforms.

3.2. Fintech – perspective from Romanian banks: main takeaways

- The main benefits of Fintech projects according to Romanian banks perspective, are related to:
  - ➢ cost-efficiency through the online transfer of customer interaction;
  - ➢ customer portfolio growth, including clients from diaspora.

- Romanian banks monitor Fintech risks (usually included in the operational risks category), generally perceived as medium;

- ~45% of the banks that are or will be involved in Fintech perceive the evolution of this segment as a threat to their business (in terms of loss of revenues and business viability).

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4. Key messages

- The estimated overall EU index and national sub-indices provide a relative assessment of the EU countries with regards to the markets environment for Fintech.

- In general, Romanian banks are involved or willing to get involved in Fintech projects.

- National Bank of Romania is monitoring risks stemming from Fintech area with a view to identifying potential threats to the financial stability in Romania.

Thank you!

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