Étude des différents acteurs du financement participatif d’EnR en France

Séminaire Financement de la transition énergétique de la Chaire Energie et Prospérité

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■ RE deployment as a mitigation solution

■ Recognition of human influence on climate and ways to address this
  ▶ How to reduce GHG emissions to limit the physical risks associated with climate change?
  ▶ What can be done to decarbonize the energy sector?

■ Low-carbon RE sources can meet various energy needs (power, heating and cooling, transport)

Figure: Evolution of world primary energy consumption in million tonnes oil equivalent and fossil fuel share. *Data source: BP (2019).*
RE crowdfunding in France

- Regulation of the sector since 2014 and a favorable environment since then
- Strong growth of the sector

Figure: Amounts collected via crowdfunding platforms, all sectors combined and for RE projects, in France. Data sources: GreenUnivers and FPF (2017, 2018, 2019, 2020), Mazars and FPF (2020).

- Scarce and relatively new literature on crowdfunding, mostly considered as an entrepreneurial finance tool
Les acteurs du CF d’EnR en France
■ Context and literature gap

■ In France, RE crowdfunding has experienced a strong growth

■ No author had specifically looked at the different actors involved in the RE crowdfunding sector in France: platforms, project promoters and investors

■ Building on the previous exploratory case study to give a broader overview of platforms and their customer segments

■ Crowdfunding cannot be considered as a pure entrepreneurial finance tool
Research question and methodology

Research question

What are the characteristics of the different actors involved in the RE crowdfunding sector in France?

Exploratory descriptive analysis of 2 sources of data

Proprietary questionnaire sent (May to September 2020) to French platforms that have historically organized RE campaigns with the support of FPF

- 4 answers received: Enerfip, Lendopolis, Lendosphere, Lumo
- Data regarding: campaigns and projects, platforms, projects promoters, and investors

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Campaigns</td>
<td>2</td>
<td>25</td>
<td>52</td>
<td>73</td>
<td>112</td>
<td>211</td>
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<tr>
<td>MEUR collected</td>
<td>0.08</td>
<td>2.9</td>
<td>11.9</td>
<td>18.3</td>
<td>28.7</td>
<td>56.9</td>
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<tr>
<td>Share of the sector</td>
<td>99%</td>
<td>89%</td>
<td>74%</td>
<td>85%</td>
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</table>

Survey data from investors regarding profile and motivations collected (between February and March 2019, 2,154 respondents) by YouGov France for FPF and the MTES
Platforms

- Free access for contributors but project promoters pay a fee between 3 and 7% of the funds collected
- Diversification of funding instruments offered
- Specific characteristics of platforms regarding instruments, energy financed, and project promoters’ profile
- 3 out of 4 have links with the banking sector
- Main risk: regulatory risk
### Funding instruments and projects (2014-2019)

#### Funding instruments

<table>
<thead>
<tr>
<th></th>
<th>Bonds</th>
<th>Minibons</th>
<th>Lending</th>
<th>Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share in total (av.)</td>
<td>64 to 94% (84%)</td>
<td>2 to 27% (10%)</td>
<td>0 to 8% (5%)</td>
<td>0 to 5% (2%)</td>
</tr>
<tr>
<td>Av. duration in years</td>
<td>3 to 6 (up to 13 before 2018)</td>
<td>3 to 6 (up to 11 before 2018)</td>
<td>1 to 4</td>
<td>4.3 to 6.5%</td>
</tr>
<tr>
<td>Av. return</td>
<td>3.6 to 5.5%</td>
<td>3.6 to 6%</td>
<td>4.3 to 6.5%</td>
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</table>

#### Projects funded

<table>
<thead>
<tr>
<th></th>
<th>Solar</th>
<th>Wind</th>
<th>Biomass</th>
<th>Hydro</th>
<th>Other RE-related</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share in total (av.)</td>
<td>50 to (69%)</td>
<td>2 to (25%)</td>
<td>41%</td>
<td>0 to 6%</td>
<td>0.3 to 3% (2%)</td>
</tr>
<tr>
<td></td>
<td>98%</td>
<td>98%</td>
<td>98%</td>
<td>98%</td>
<td>98%</td>
</tr>
</tbody>
</table>
Project promoters

Main motivations: (i) local awareness and acceptance, (ii) bonus on the purchasing price of electricity, (iii) raise funds

Profile

<table>
<thead>
<tr>
<th></th>
<th>Small French developers</th>
<th>Large French developers</th>
<th>Foreign developers</th>
<th>Local groups or authorities</th>
<th>Entrepreneurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share in total (av.)</td>
<td>0 to 10% (4%)</td>
<td>51 to 99.8% (83%)</td>
<td>0 to 12% (4%)</td>
<td>0.2 to 4% (2%)</td>
<td>0 to 5% (1.5%)</td>
</tr>
</tbody>
</table>
■ Types of project promoters based on amounts collected by each platform
■ **Contributors**

- Profile: About 3/4 are men, about 80% are between 25 and 64 years old
- About 60% have used another instruments to invest in RE sources
- Motivations
Décision d’investissement en CF d’EnR
Context and literature gap

- Interesting case study of France to investigate RE crowdfunding

- Little knowledge of the decision-making process of crowdfunding investment based on survey data (mostly past campaigns data)

- No paper has used survey data to investigate the decision-making process of RE crowdfunding investors

- Extensive literature on the determinants of pro-environmental behaviors: (i) external variables (e.g., social norms, incentives), (ii) individual socio-economic variables (e.g., gender, age, income), and (iii) individual psychological variables (e.g., attitudes, believes) (Li et al., 2019)
Research question and methodology

Research question

- What is the influence of opinion variables on the decision to crowdfund RE projects?

Empirical analysis of survey data collected (between February and March 2019) by YouGov France for FPF and the MTES

- Sample of 2,968 individuals, post-stratification weighting factors to improve representativeness regarding the French population
- Probit analysis dependent variable: dummy variable for investment in RE sources using crowdfunding
- Independent variables: binary opinion variables regarding the RE sector, RE crowdfunding risk, other investments in RE sources, local acceptance of wind and solar energies, and socio-economic variables (age, gender, education, socio-professional category, region)
# Overview of the results

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>(1) Probit (MLE)</th>
<th>(2) Probit (MLE)</th>
<th>(3) Probit (MLE)</th>
<th>(4) Probit (MLE)</th>
<th>(5) Probit (MLE)</th>
<th>(6) Probit (MLE)</th>
<th>(7) LPM (OLS)</th>
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<tbody>
<tr>
<td><strong>RE_Opinion</strong></td>
<td>0.44***</td>
<td>0.29*</td>
<td>0.08</td>
<td>0.30°</td>
<td>0.36*</td>
<td>0.23*</td>
<td>0.06°</td>
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<tr>
<td></td>
<td>(0.15)</td>
<td>(0.16)</td>
<td>(0.17)</td>
<td>(0.20)</td>
<td>(0.19)</td>
<td>(0.14)</td>
<td>(0.04)</td>
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<tr>
<td><strong>RE_Transparency</strong></td>
<td>0.58***</td>
<td>0.51***</td>
<td>0.49***</td>
<td>0.51***</td>
<td>0.56***</td>
<td>0.54***</td>
<td>0.14***</td>
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<tr>
<td></td>
<td>(0.09)</td>
<td>(0.09)</td>
<td>(0.09)</td>
<td>(0.11)</td>
<td>(0.10)</td>
<td>(0.08)</td>
<td>(0.03)</td>
</tr>
<tr>
<td><strong>RE_Profitability</strong></td>
<td>-0.16**</td>
<td>-0.2**</td>
<td>-0.23**</td>
<td>-0.13</td>
<td>-0.15</td>
<td>-0.07</td>
<td>-0.03</td>
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<td></td>
<td>(0.08)</td>
<td>(0.09)</td>
<td>(0.09)</td>
<td>(0.10)</td>
<td>(0.10)</td>
<td>(0.08)</td>
<td>(0.02)</td>
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<td><strong>RE_Inevitability</strong></td>
<td>0.42***</td>
<td>0.42***</td>
<td>0.32**</td>
<td>0.14</td>
<td>0.09</td>
<td>0.19*</td>
<td>0.04</td>
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<tr>
<td></td>
<td>(0.12)</td>
<td>(0.14)</td>
<td>(0.14)</td>
<td>(0.17)</td>
<td>(0.17)</td>
<td>(0.11)</td>
<td>(0.04)</td>
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<tr>
<td><strong>RE_Regulation</strong></td>
<td>-0.05</td>
<td>-0.07</td>
<td>-0.08</td>
<td>-0.05</td>
<td>-0.05</td>
<td>-0.06</td>
<td>-0.02</td>
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<td></td>
<td>(0.09)</td>
<td>(0.09)</td>
<td>(0.09)</td>
<td>(0.11)</td>
<td>(0.11)</td>
<td>(0.08)</td>
<td>(0.02)</td>
</tr>
<tr>
<td><strong>RE_Durability</strong></td>
<td>0.54***</td>
<td>0.58***</td>
<td>0.56***</td>
<td>0.52***</td>
<td>0.52***</td>
<td>0.31***</td>
<td>0.14***</td>
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<td>(0.09)</td>
<td>(0.10)</td>
<td>(0.10)</td>
<td>(0.12)</td>
<td>(0.12)</td>
<td>(0.08)</td>
<td>(0.03)</td>
</tr>
<tr>
<td><strong>RE_Impact</strong></td>
<td>0.08</td>
<td>0.05</td>
<td>0.02</td>
<td>-0.06</td>
<td>-0.06</td>
<td>0.20**</td>
<td>-0.01</td>
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<td>(0.09)</td>
<td>(0.09)</td>
<td>(0.10)</td>
<td>(0.11)</td>
<td>(0.11)</td>
<td>(0.08)</td>
<td>(0.03)</td>
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<tr>
<td><strong>RECF_Risk</strong></td>
<td>-0.38***</td>
<td>-0.46***</td>
<td>-0.4***</td>
<td>-0.38***</td>
<td>-0.38***</td>
<td>-0.37***</td>
<td>-0.10***</td>
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<td>(0.10)</td>
<td>(0.10)</td>
<td>(0.10)</td>
<td>(0.11)</td>
<td>(0.12)</td>
<td>(0.08)</td>
<td>(0.03)</td>
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</tbody>
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Other RE instruments: Yes, Yes, Yes, Yes, Yes, Yes, Yes
Wind and solar acceptance: Yes, Yes, Yes, Yes, Yes, Yes
Socio-demographic variables: Yes, Yes, Yes, Yes, Yes
Controls on region: Yes, Yes, Yes, Yes, Yes
Equal weights: Yes, Yes, Yes, Yes, Yes

Log likelihood: -1,775, -1,576, -1,517, -1,252, -1,201, -909
Pseudo R-squared: 0.13, 0.22, 0.25, 0.38, 0.41, 0.44
Pct. corr. pred: 68.34, 73.35, 75.60, 81.49, 81.72, 80.50, 81.77
Brier score: 0.19, 0.16, 0.15, 0.10, 0.10, 0.10
AUC score: 0.73, 0.82, 0.83, 0.91, 0.91
Discussion

Main results

- Opinion on transparency of investment opportunities offered in the RE sector (+)
- Opinion on durability of the RE sector (+)
- Opinion on risk (-)
- Other RE investments (+)

Coherence of existing public policies

- Transparency: crowdfunding for green growth label (2017)
- Long term perspective fort RE sector: multi-annual energy plan (PPE, introduced in 2015)
- Other RE investments: Greenfin label (2015), PACTE law (2019)

Need for additional research on the precise decision-making process based on survey data or experimental methods
Discussion of the results

- Exploratory contribution to a better understanding of the RE crowdfunding sector

- Future lines of research
  - Precise influence of crowdfunding on project development, including acceptance
  - Links of platforms with the banking sector and influence of regulation changes
  - RE investments portfolio allocation and influence of crowdfunding investment on opinion
  - RE crowdfunding from developed countries to developing countries

- Recommendations
  - Protection of investors: liquidity risk, presentation of risks
Merci pour votre attention.
Je suis à votre disposition pour répondre à toute question.
Bibliography


GreenUnivers and FPF (2020). Baromètre 2019 du crowdfunding des EnR.

