

# **IMPACT INVESTING**

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# IMPACT INVESTING

Monitor group:

“... actively placing capital *in businesses and funds* that generate social or environmental good and at least *return nominal principal* to the investor”

Very different from SRI

Very different from philanthropy

# Mapping Sources of Capital to Impacting Investment

I am going to use a graphic to flow from topics for this talk.

- I. Landscape of impact opportunities
  - Categorization
  - Characterize impact funds
  - What do we know about returns?
- II. Sources of capital: Who has a willingness to pay & why?

CAPITAL

VEHICLE

LABEL

RETURNS

Philanthropy

Impact Investment

For-Profit Impact  
Sector VC, SRI

Impact Investment (Broad Definition)

Social

Investment  
Returned

Financial



# Mapping Sources of Capital to Impacting Investment

## I. Landscape

- Providers of investment opportunities like to define Impact Investing broadly.
  - This is disservice to owners of capital who want and need to understand their return profile.
  - Allows funds to bundle investments
- To understand:
  - Let's look at the sources of capital...

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# Mapping Sources of Capital to Impacting Investment

Foundations

Household  
& Wealthy

Government/  
NGOs

State  
Pensions

Other long  
horizon investors

Let's keep our sources of capital (above) simple for now.

Imagine many opportunities that just market themselves as a bundling of impact returns and financial returns.

Fiduciary duty investors above (in green) cannot invest.

Thus, investment opportunities emerge with more precise labels

Impact Investment (Broad Definition)



CAPITAL

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These have negative expected returns.

These have lower than market expected returns.

Grants

Venture Philanthropy, Subsidized Loans (Negative Return)

Social Impact/Mission Funds, Development Bonds

Double Bottom Line VC, Green Bonds, SRI allowing tradeoff

Impact Sectors VC, SRI Funds

Philanthropy

Impact Investment

For-Profit Impact Sector VC, SRI

Impact Investment (Broad Definition)

Social

Investment Returned

Financial

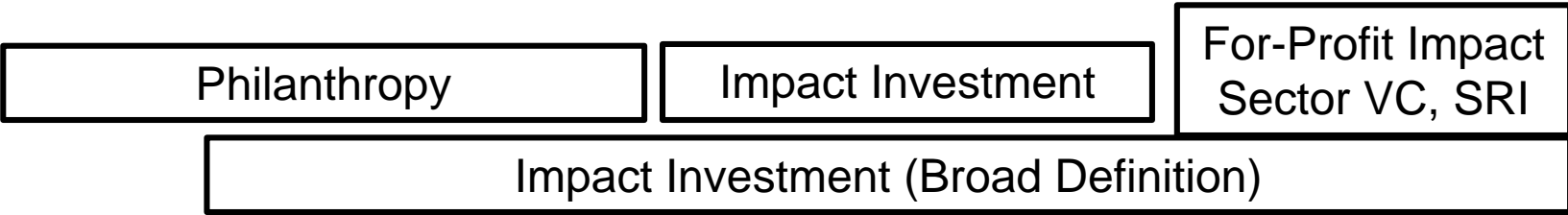
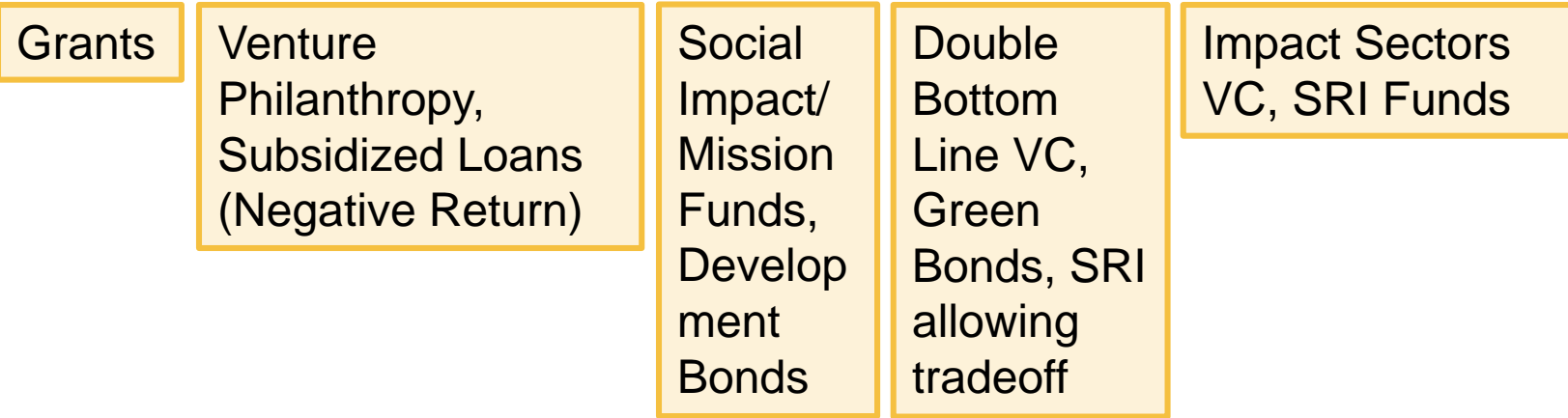
CAPITAL

VEHICLE

LABEL

RETURNS

These aim only for financial returns (i.e., no social return concern beyond the “goodness” of investing in “good” sectors)



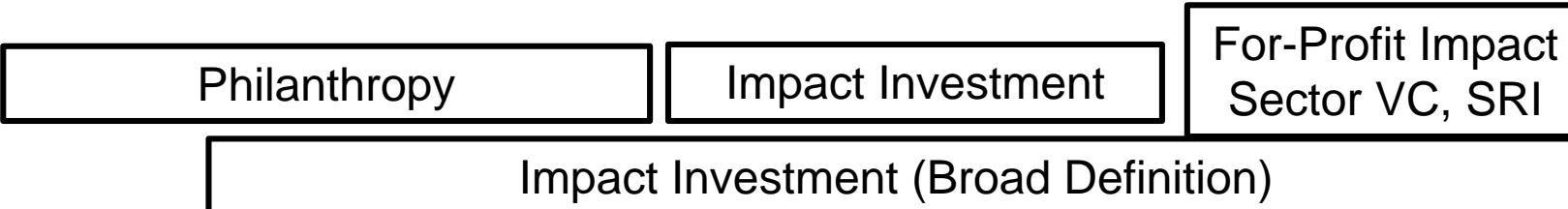
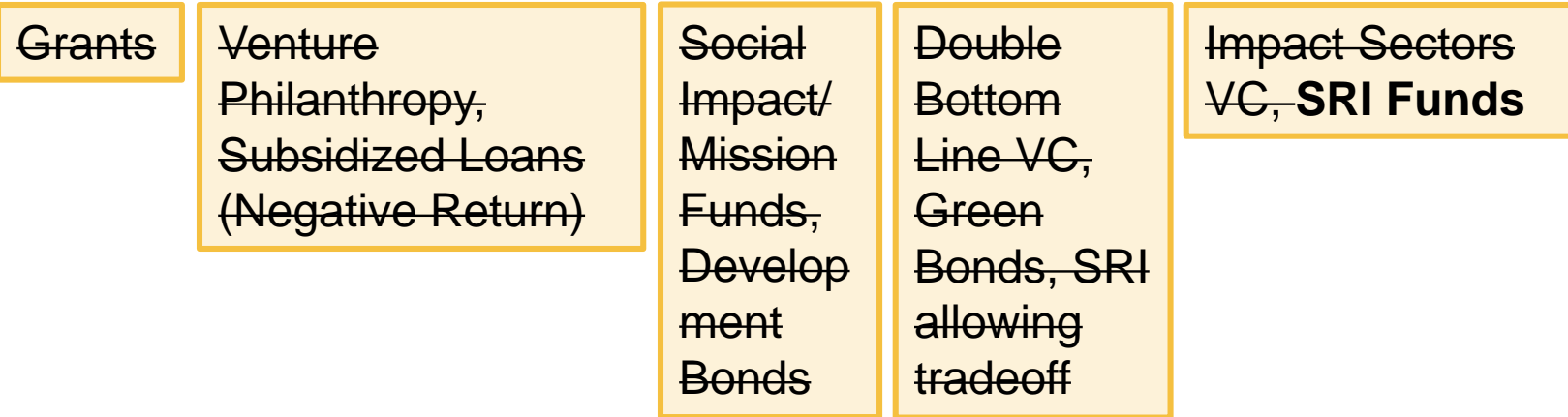
CAPITAL

VEHICLE

LABEL

RETURNS

# Observation 1: The vast, vast majority of capital is here



CAPITAL

VEHICLE

LABEL

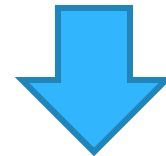
RETURNS



Observation 2: As Laura Starks has probably already said, these have performed more or less at market over the last couple of decade.

How? (we don't know):

- A “goodness” factor being incorrectly priced (seems unlikely, but maybe)
- ESG investing loading on priced factors
- \*\* New disclosure on the quality of companies emerging in ESG process.
  - governance literature
  - Alex Edmans on labor



Impact Sectors  
VC, SRI Funds

For-Profit Impact  
Sector VC, SRI

Philanthropy

Impact Investment

Impact Investment (Broad Definition)



Social

Investment  
Returned

Financial

VEHICLE

LABEL

RETURNS

Observation 3: Regulators should require retail SRI mutual funds with intentional trade off to label themselves differently.

... hard: positive versus negative screening, portfolio materiality of exclusions, loss of diversification, etc.

... also of concern: FinTech startups for millennials which have double layers of transaction costs to provide platform-like SRI opportunities



Double Bottom Line VC, Green Bonds, **SRI allowing tradeoff**

Impact Sectors VC, **SRI Funds**

Philanthropy

Impact Investment

For-Profit Impact Sector VC, SRI

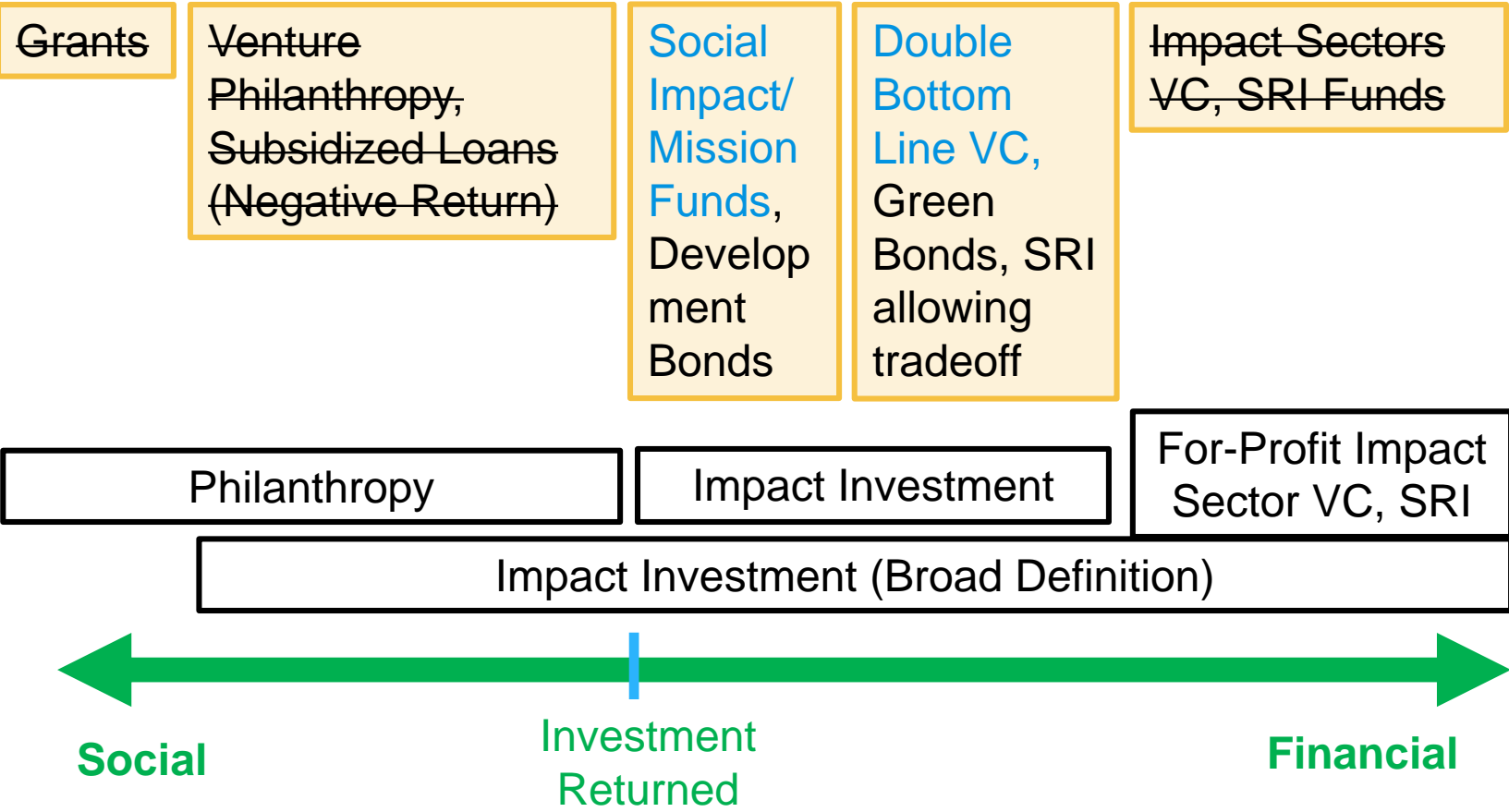
Impact Investment (Broad Definition)



VEHICLE LABEL RETURNS

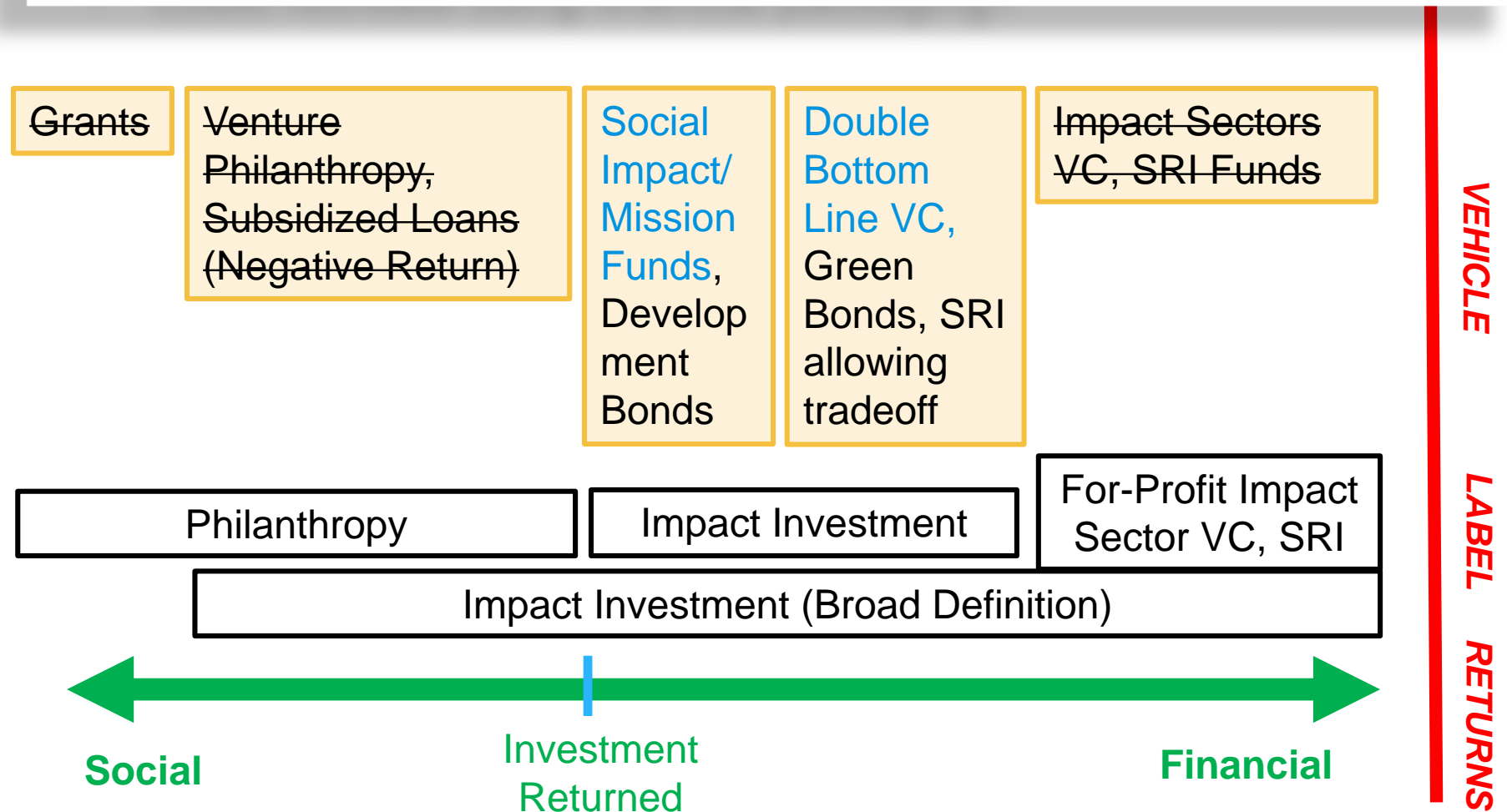
Impact Investing: Under the definition here, capital owners know they are investing in an instrument with a tradeoff

- I'll ignore debt and the tradeoff SRI funds for the rest of the talk and focus on **impact VC funds**



## Question 1: What is the wiliness-to-pay in returns for impact, if any?

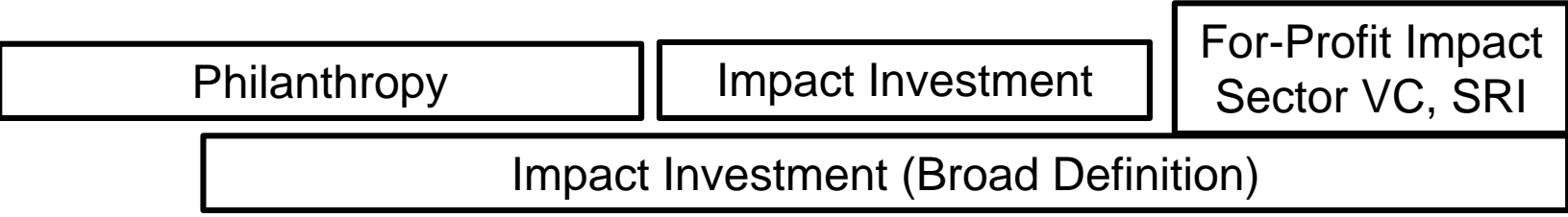
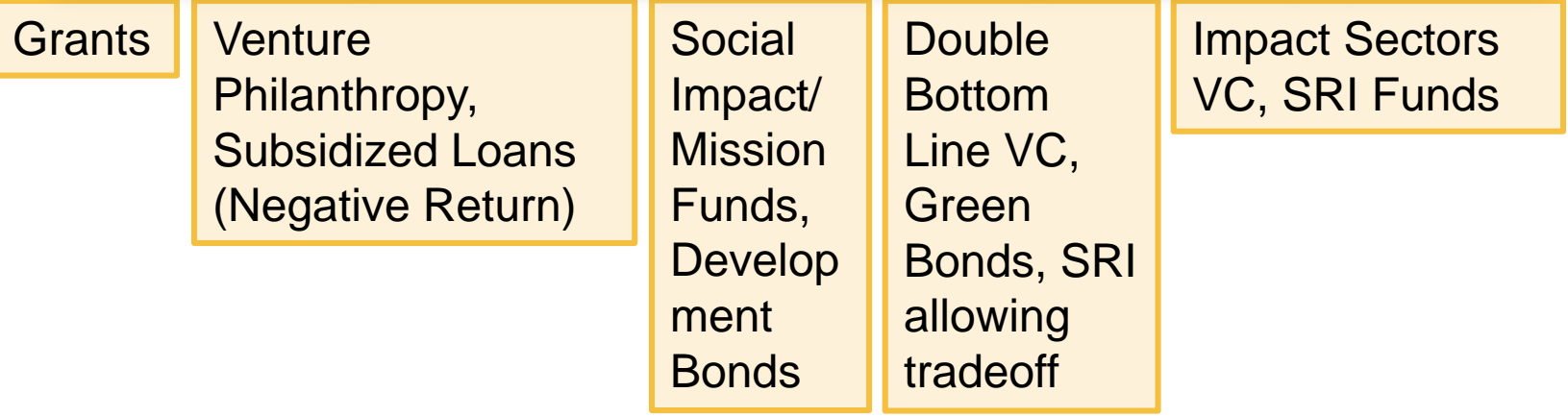
- Important to know whether there is demand for hybrid startups with dual objective
  - Advantage: loading equity incentives on philanthropic agenda
  - Could recreate using financial packaging?





**Question 2: Who is willing to pay?**

- If drawing arrows from above, which go to tradeoff?



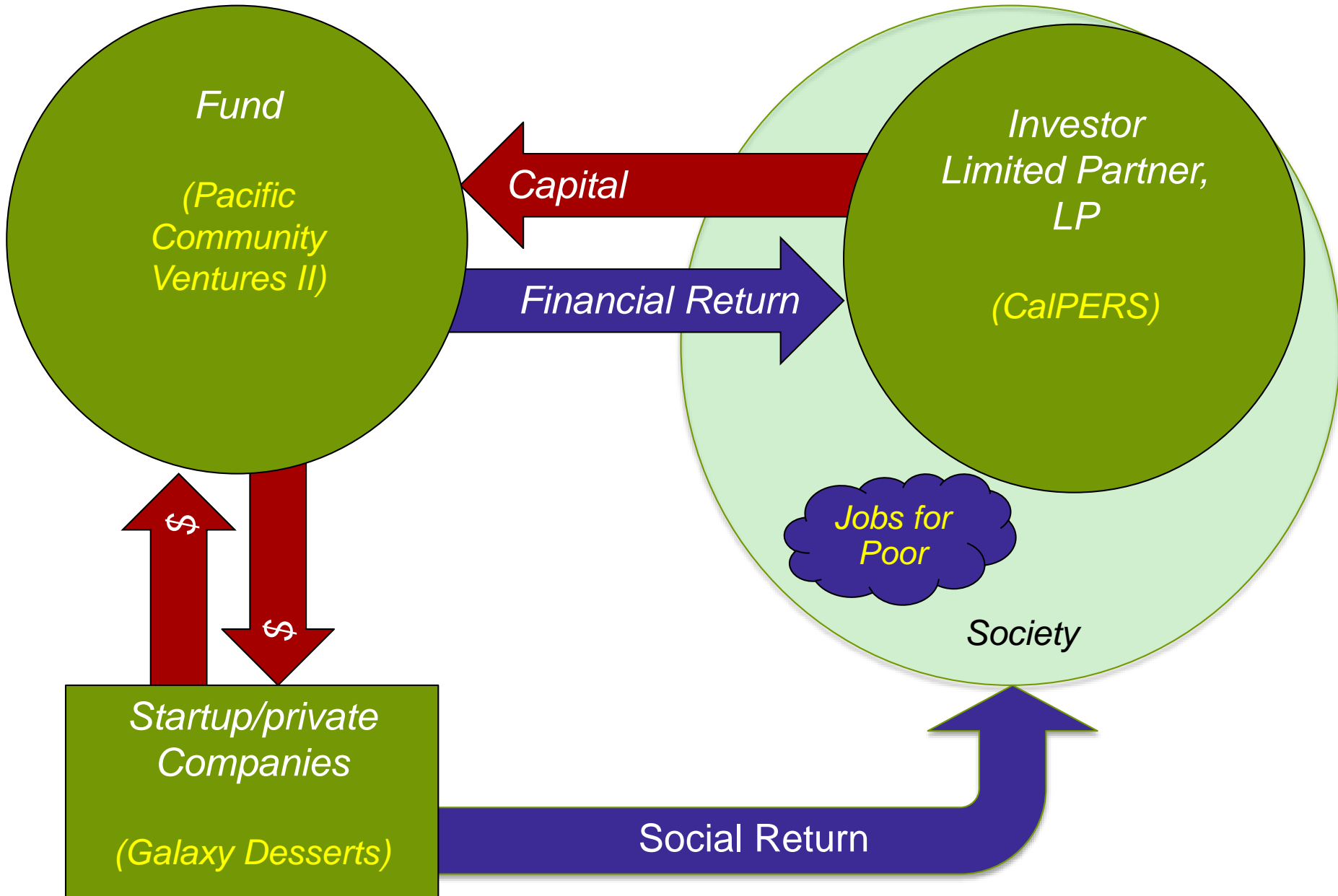
**CAPITAL**  
**VEHICLE**  
**LABEL**  
**RETURNS**

Rest of the talk is from:

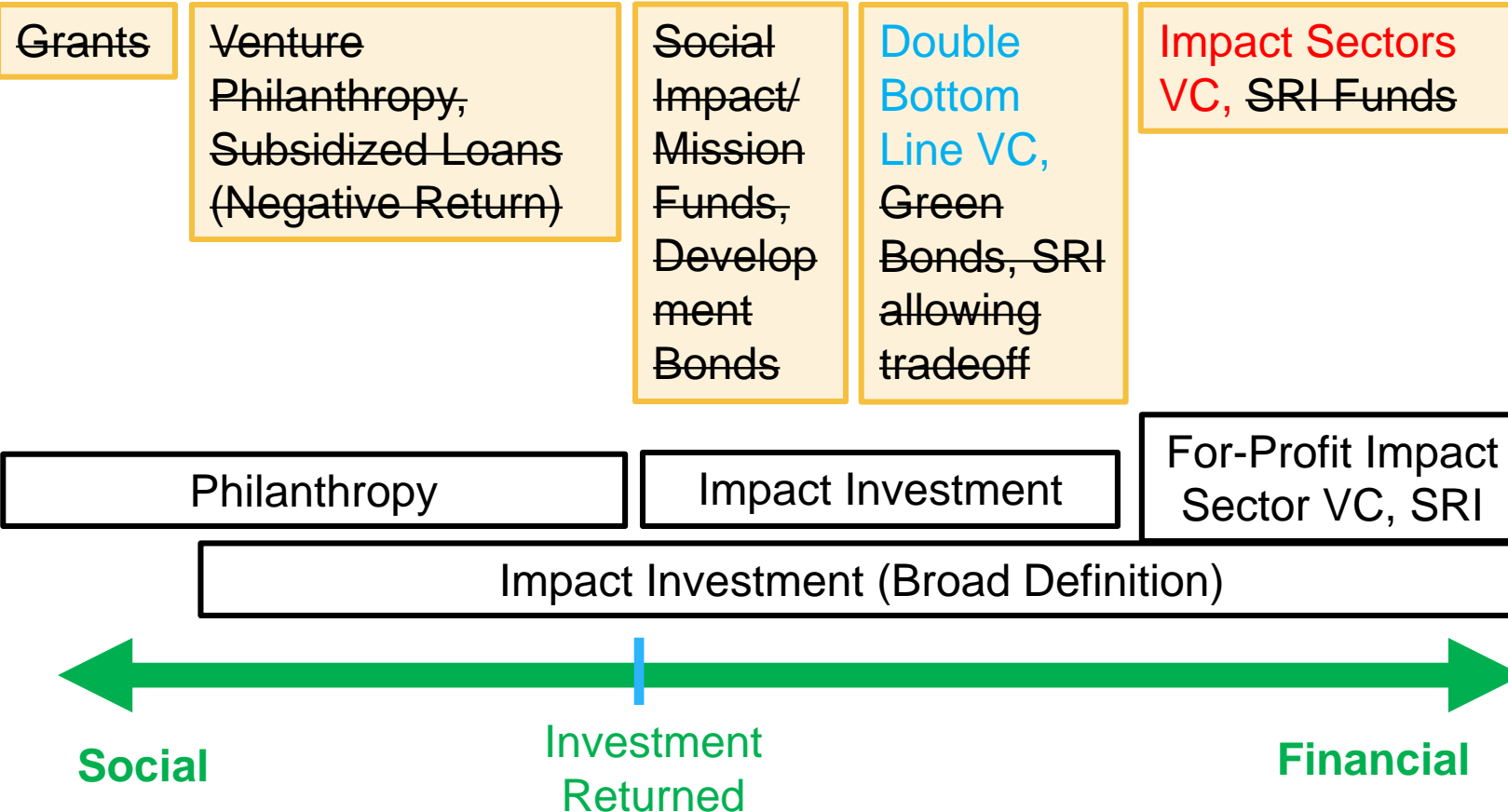
“Impact Investing” with Brad Barber & Ayako Yasuda

- Winner of the 2016 Moskowitz Prize
- Study Impact funds with explicit dual objectives in order to uncover willingness to pay
  - And to answer: Who has the willingness to pay
  - Note: willingness does not have to be an explicit utility over social goods

# Impact Funds



Spent a couple years of effort to eliminate Impact Sector VC funds (red below) that are strictly for profit





# Data Example: Impact Funds and LP Investors

## Bridges Ventures

“Bridges Ventures is a UK-based private equity firm with **the aim of combining financial returns with social and environmental impact**

### Limited Partner Investors (LPs) in Bridges:

3i (Institutional Asset Manager)

All Souls College Oxford (Endowment )

Department for Business Innovation & Skills (Government)

HSBC Group (Bank)

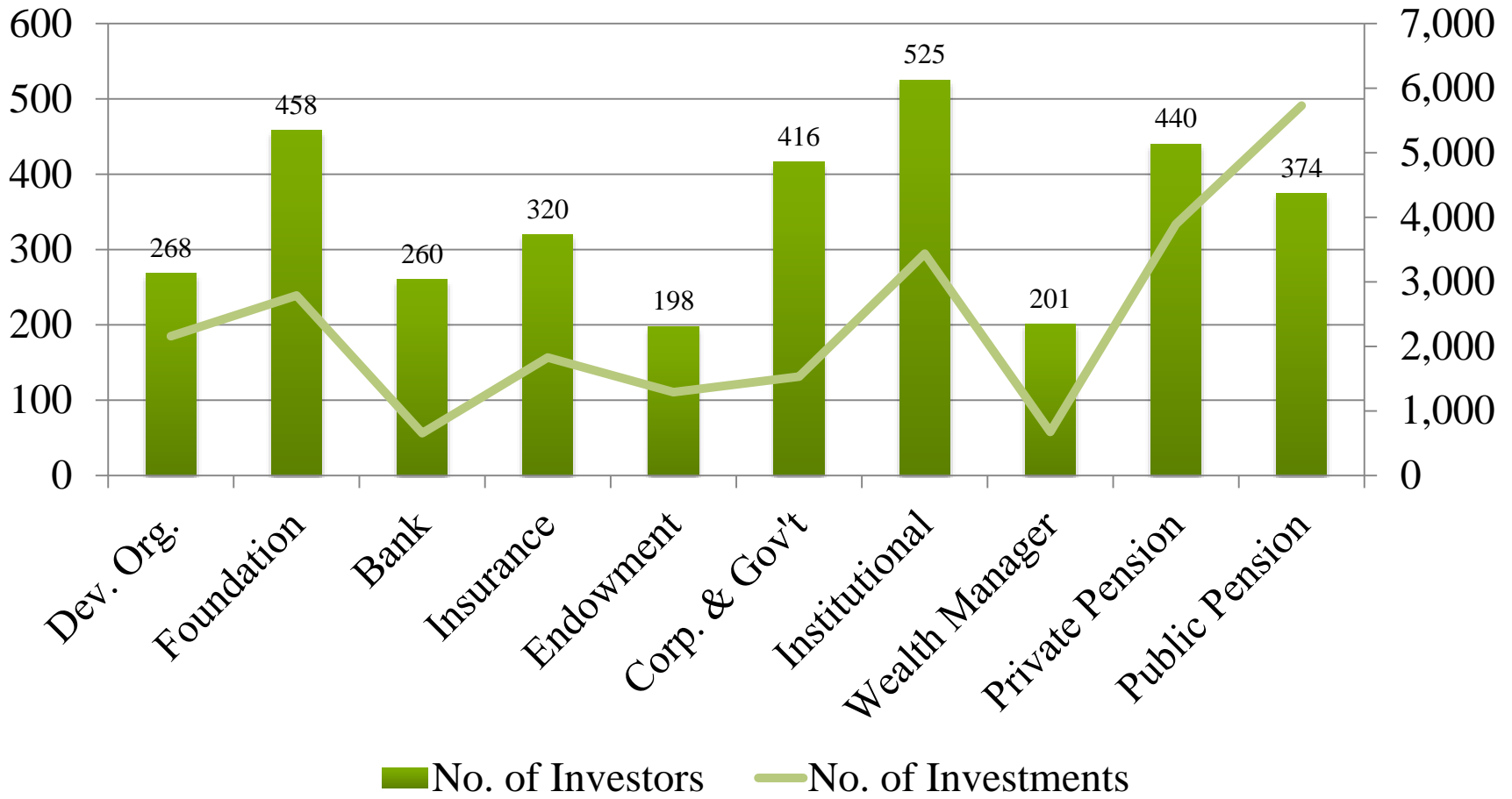
Barclays Bank (Bank)

South Yorkshire Pensions Authority (Public Pension)

Shine Trust (Foundation)

Wittington Investments (High Net Worth Family)

# Number of Investors (Investments) by Limited Partner (LP) Investor Type



# Fund Descriptive Statistics:

Preqin Data Covering 3,500 LP investors from 1995-2014

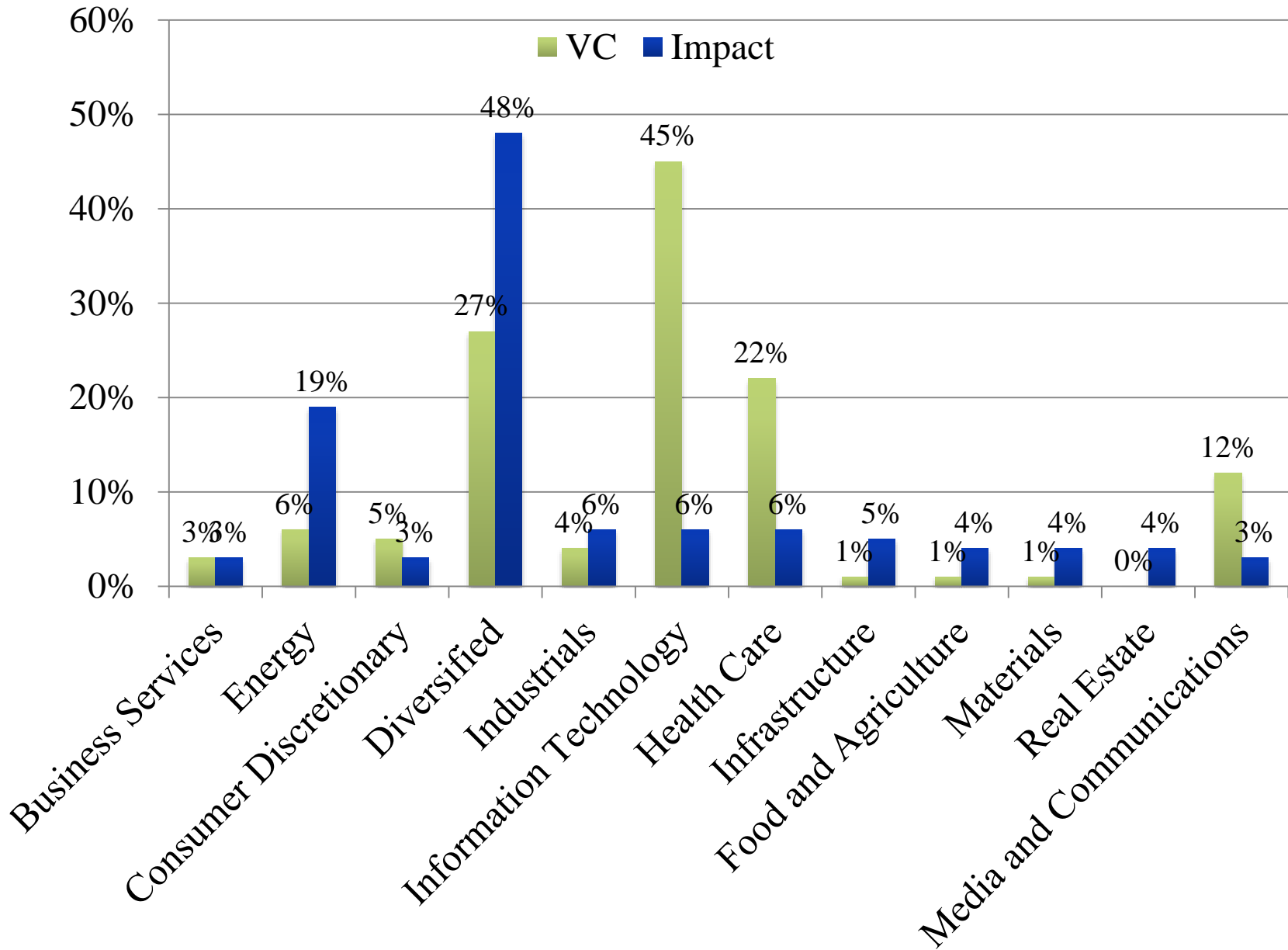
|                        | Traditional VC Funds |             |        |           | Impact Funds |             |        |           |
|------------------------|----------------------|-------------|--------|-----------|--------------|-------------|--------|-----------|
|                        | N                    | Mean        | Median | Std. Dev. | N            | Mean        | Median | Std. Dev. |
| Vintage Year           | <b>4500</b>          | 2005.4      | 2006.0 | 5.26      | <b>159</b>   | 2006.7      | 2008.0 | 4.44      |
| Fund Size (\$mil)      | 4000                 | 204.6       | 102.0  | 300.2     | 147          | 129.6       | 83.0   | 147.3     |
| Capital Commit (\$mil) | 2717                 | 22.2        | 14.6   | 33.8      | 125          | 27.1        | 15.0   | 32.9      |
| <b>IRR (%)</b>         | 1207                 | <b>11.6</b> | 7.4    | 32.1      | 76           | <b>3.7</b>  | 6.35   | 15.2      |
| VM - Value Multiple    | 1484                 | 1.51        | 1.22   | 1.94      | 91           | 1.17        | 1.10   | 0.56      |
| <b>Percentile Rank</b> | 1528                 | <b>0.49</b> | 0.50   | 0.30      | 93           | <b>0.34</b> | 0.28   | 0.30      |
| Fund Sequence Number   | 4500                 | 3.95        | 2.00   | 5.63      | 159          | 3.88        | 2.00   | 5.91      |

# Characterizing Impact Funds & Investors

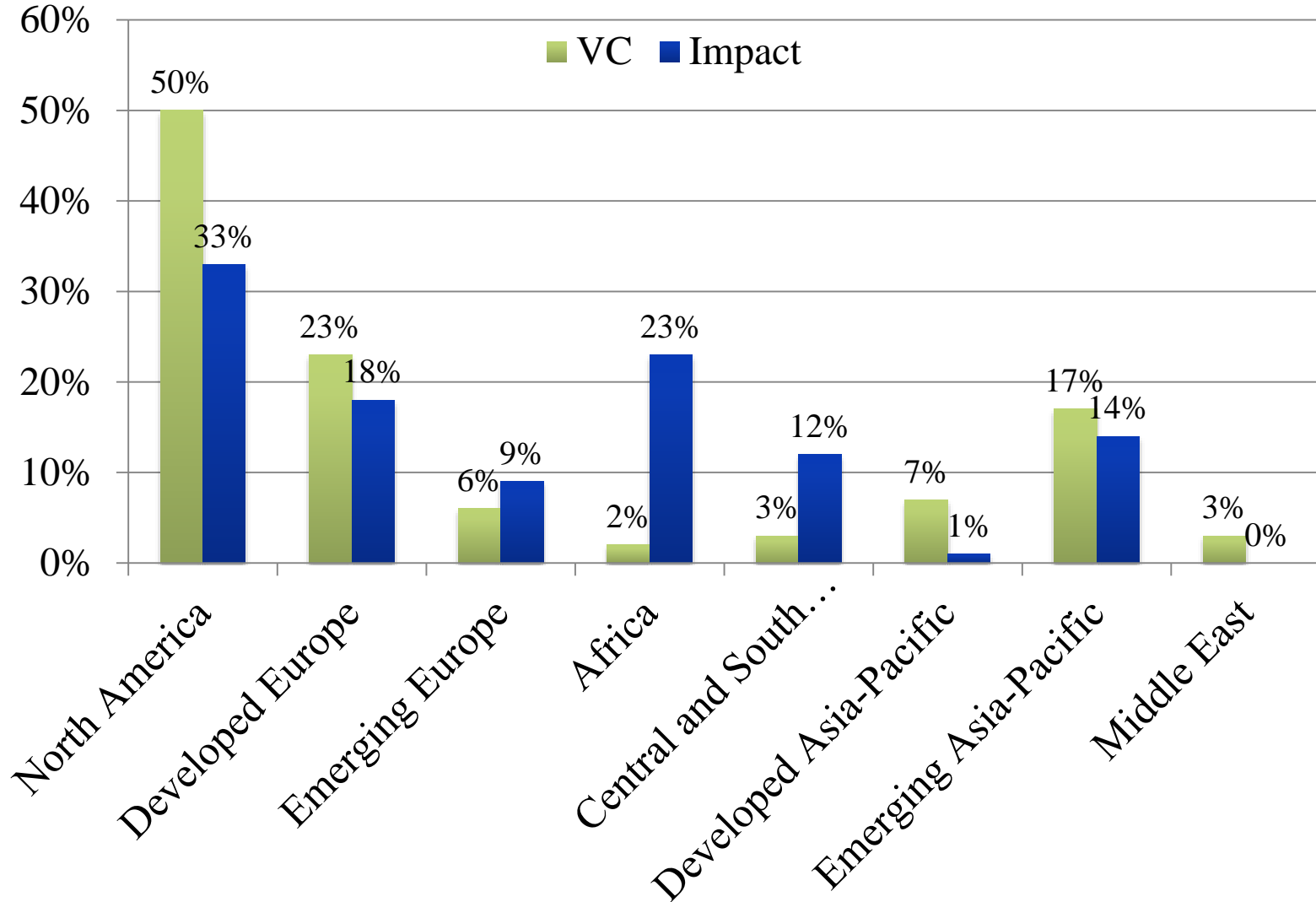
Next few slides:

- Impact Funds are about as likely to be **Local Community Development** as they are **Poverty** or **Green Energy**
- This matters because some types of LPs you would not expect (**banks** and **public pensions**) invest quite a bit in **home-biased local development**

# Impact vs. Traditional VC by Industry

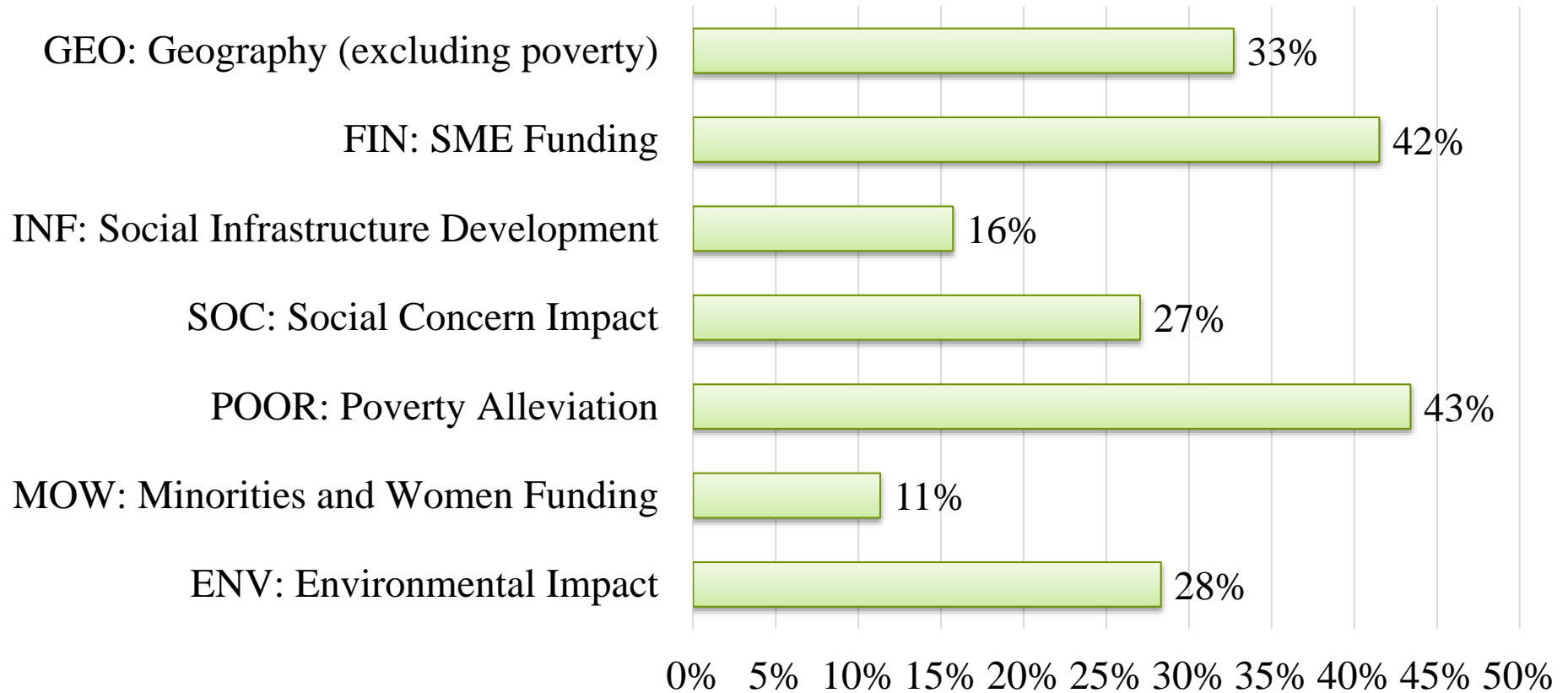


# Impact vs. Traditional VC by Region

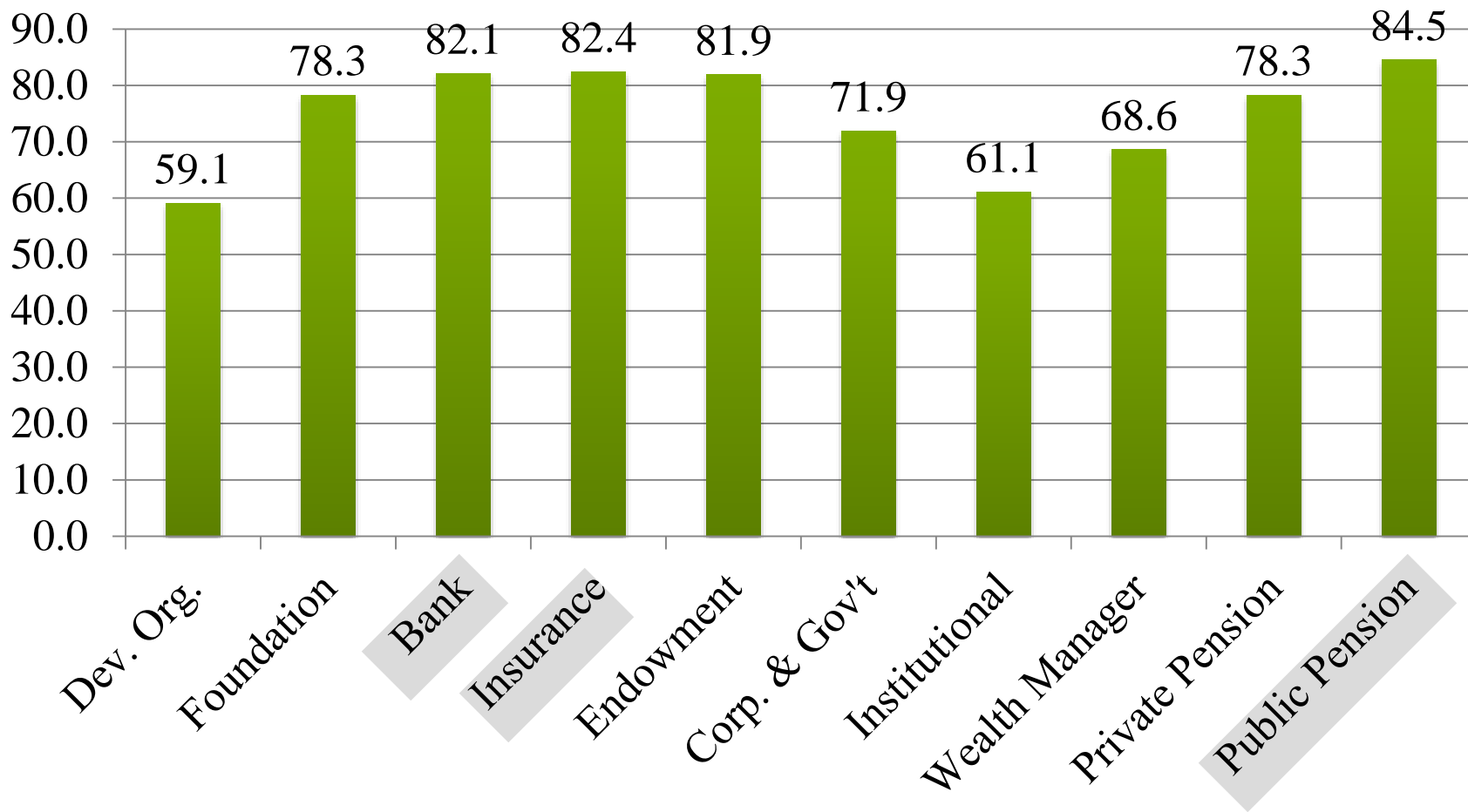


# Impact Categories:

% of Funds with Attribute (multiple entries allowed)



# % of Investments with Home Bias by Investor (LP) Type





# Contribution 1: **Realized Performance**

$$IRR_j = a + bIMP_j + XG + e_j$$

Three regression specifications:

1. Univariate with Impact Dummy
2. (1) + Vintage year fixed effects + fund covariates
3. (2) + Industry and Geography fixed effects

Robust standard errors, clustered by vintage year

# Realized Performance

|                  | (1)                | (2)                 | (3)               | (6)                | (9)                |
|------------------|--------------------|---------------------|-------------------|--------------------|--------------------|
|                  | IRR                | IRR                 | IRR               | VM                 | Rank               |
| Impact           | -7.89**<br>[3.705] | -9.94***<br>[2.638] | -4.73*<br>[2.616] | -0.36**<br>[0.164] | -0.08**<br>[0.036] |
| N - Impact Funds | 76                 | 76                  | 76                | 91                 | 93                 |
| Observations     | 1,283              | 1,252               | 1,252             | 1,518              | 1,563              |
| R-squared        | 0.004              | 0.146               | 0.166             | 0.131              | 0.068              |
| Controls:        |                    |                     |                   |                    |                    |
| Vintage Year FE  | NO                 | YES                 | YES               | YES                | YES                |
| Log(Fund Size)   | NO                 | YES                 | YES               | YES                | YES                |
| Log(Sequence)    | NO                 | YES                 | YES               | YES                | YES                |
| Fund Geo. FE     | NO                 | NO                  | YES               | YES                | YES                |
| Fund IndustryFE  | NO                 | NO                  | YES               | YES                | YES                |

# Methodology: Who has a Willingness-to-pay?

Idea: Investors have utility over impact and financial returns

- Hedonic pricing = methods to price attributes providing utility
  - Court (1939), Griliches (1961), Rosen (1974), McFadden (1986)
  - Cameron/James (1987): Willingness to pay from discrete choice.

$$U^*_{ij} = \mu_i + \beta \mathbb{E}[r_j] + \delta_i \text{IMP}_j + \Gamma' X_{ij} + \varepsilon_{ij}$$

- $U^*_{ij}$  : random utility of investor  $i$  from investing in fund  $j$
- $\mathbb{E}[r_j]$  : expected return for fund  $j$
- $\text{IMP}_j$  : dummy = 1 if fund  $j$  is impact fund
- $X_{ij}$  : other factors (prior relationship, size, geo, industry, home bias)

$$U_{ij}=1 \text{ iff } U^*_{ij}>0$$

$$\text{Logit}(U_{ij}) = \mu_i + \beta \mathbb{E}[r_j] + \delta_i \text{IMP}_j + \Gamma' X_{ij} + \varepsilon_{ij}$$

$$wtp\_imp_i = \frac{\left(\frac{\partial u}{\partial \text{IMP}_j}\right)_i}{\frac{\partial u}{\partial \mathbb{E}[r_j]}} = \frac{\partial \mathbb{E}[r_j]}{\partial \text{IMP}_j} = \frac{\delta_i}{\beta}$$

**Logit and  
Linear  
Probability  
Model of WTP**

*Dependent  
Variable:*

Investment 0/1  
Decision

*Sample:*

All Active LP  
Investors  
Looking at All  
VC Funds of  
that Vintage

|                                | Logit   | Linear Prob              |
|--------------------------------|---|--------------------------|
| Expected Returns               | 3.521***<br>[0.290]   | 0.0343***<br>[0.00342]   |
| Impact                         | 0.593***<br>[0.0600]  | 0.00458***<br>[0.000462] |
| Observations                   | 3,047,430   | 3,047,430                |
| Investment Rate Heterogeneity: | Dynamic LP Group<br>Fixed Effects                           | LP Fixed Effects         |
| Standard Errors:               | Clustered at LP   | Clustered at LP          |
| Controls:                      | Prior Relationship, Geography, Industry, Home<br>Bias, Size |                          |

$$wtp\_imp = \frac{\left(\frac{\partial u}{\partial IMP_j}\right)_i}{\frac{\partial u}{\partial \mathbb{E}[r_j]}} = \frac{\delta}{\beta}$$

**WTP**

**0.17**

**0.13**

*These WTP calculations are in percentile rank performance. Moving 17 percentile rank performance centered around mean (from rank 42%ile to rank 59%ile) implies **WTP in IRR of 2.9% – 4.2%***

# Next Steps

Our agenda is very much about understanding [WHO has a WTP.](#)

- **WTP by Region**
  - Prior Literature evidence suggests Europeans have higher WTP
- **WTP by LP Types**
  - Ie: Banks vs pensions vs development organizations
- **WTP by Attributes of these LP Types**

# WTP by Source of Capital (LP Home) Region

## Logit and Linear Probability Model of WTP

*Dependent  
Variable:*

Investment 0/1  
Decision

|                                | Logit                    | Linear Prob      |
|--------------------------------|--------------------------|------------------|
| Observations                   | 3,047,430                | 3,047,430        |
| Investment Rate Heterogeneity: | Dynamic LP<br>Group F.E. | LP Fixed Effects |
| <b>WTP_North America</b>       | <b>0.11</b>              | <b>0.11</b>      |
| <b>WTP_Developed Europe</b>    | <b>0.26</b>              | <b>0.22</b>      |
| WTP_Developed Asia-Pacific     | --                       | 0.07             |
| WTP Emerging Asia-Pacific      | --                       | 0.04             |
| WTP_Africa, Lat.Amer, E. Eur   | 0.34                     | 0.28             |

## WTP by Source of Capital (LP) Type

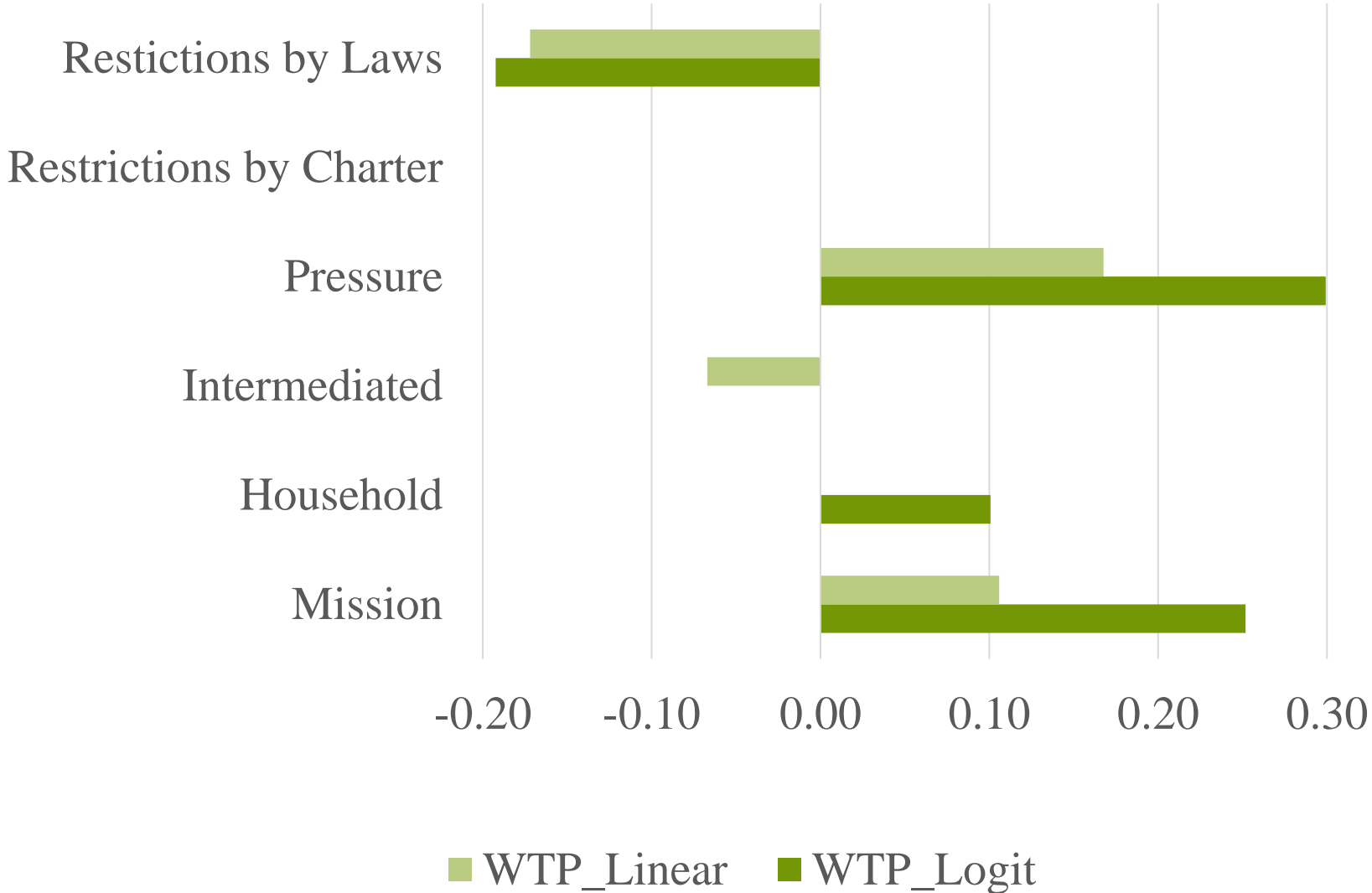
| WTP by LP Type              | Logit       |             | Linear Probability Model |             |
|-----------------------------|-------------|-------------|--------------------------|-------------|
|                             | (2)         | (3)         | (2)                      | (3)         |
| <b>Dev. Org</b>             | <b>0.32</b> | <b>0.26</b> | <b>0.36</b>              | <b>0.34</b> |
| Foundation                  | 0.10        | --          | 0.09                     | 0.08        |
| <b>Bank</b>                 | <b>0.29</b> | <b>0.26</b> | <b>0.20</b>              | <b>0.19</b> |
| <b>Insurance</b>            | <b>0.22</b> | <b>0.19</b> | <b>0.16</b>              | <b>0.14</b> |
| Endowment                   | --          | --          | 0.04                     | --          |
| Corporation                 | --          | --          | 0.06                     | 0.07        |
| Institutional               | --          | --          | 0.07                     | --          |
| Wealth Manager              | --          | --          | 0.08                     | 0.07        |
| Private Pension             | --          | --          | 0.05                     | 0.04        |
| <b>Public Pension</b>       | <b>0.24</b> | <b>0.21</b> | <b>0.20</b>              | <b>0.18</b> |
| <u>WTP by LP Geo</u>        |             |             |                          |             |
| North America               |             |             |                          |             |
| Developed Europe            |             | 0.12        |                          | 0.09        |
| Developed Asia-Pacific      |             | --          |                          | -0.06       |
| Emerging Asia-Pacific       |             | -0.25       |                          | -0.10       |
| Africa, Lat.Amer., E. Euro. |             | 0.15        |                          | --          |

# What attributes explain the WTP for impact?

| Limited Partner                   | Constituent | Intermediated | Mission | Pressures for Impact                      | Laws Restricting          | Charter Restricting |
|-----------------------------------|-------------|---------------|---------|---|---------------------------|---------------------|
| Development Organizations         | Org         | --            | yes     | --  | --                        | --                  |
| Foundations                       | Org         | --            | yes     | --  | UPMIFA and tax/PRI (U.S.) | --                  |
| Banks                             | Org         | --            | --      | Community Reinvestment Act (U.S.)         | --                        | yes                 |
| Insurance                         | Org         | --            | --      | State regulation modeled after CRA (U.S.) | --                        | yes                 |
| Endowments                        | Org         | --            | --      | --  | UPMIFA (U.S.)             | --                  |
| Corporate & Government Portfolios | Org         | --            | --      | --  | --                        | yes                 |
| Institutional Asset Managers      | Org         | yes           | --      | --  | --                        | yes                 |
| Wealth Managers                   | Household   | yes           | --      | --  | --                        | --                  |
| Private Pensions                  | Household   | --            | --      | --  | ERISA (U.S.)              | yes (non-US)        |
| Public Pensions                   | Household   | --            | --      | yes<br>Political pressure                 | State & National Laws     | --                  |



# WTP by Attribute, Controlling for Regional Differences



# WRAP-UP & NEXT STEPS

## Tradeoff willingness-to-pay is 3%

- Sometimes because of mission
  - Sometimes because of need for goodwill or regulatory credits
- 

## But impact fund universe is small vis-à-vis public markets.

- Punchlines do not necessarily scale. We have no idea of how much WTP is in aggregate.
  - And we do not know what is being achieved
- 

## Steps forward:

- What has most impact: Doing **Financial Packaging** of investors with different WTPs or (and/or) **blended tradeoff investments**?
- Is sustainable finance movement making companies better? Very overlooked in literature
  - It's not just about investors: Real effects from firm changes
- Financial innovation & research needs more Millennial thinking:  
*"It's obvious we internalize responsibility. Financial sector needs to do their job to optimize"*

# **APPENDIX**

**An example of financial structuring**

# Blue Forest Conservation Notes

