

The Financial Crises of the 21st Century

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The Psychology of Trust in Money

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“...trust in money...”

- ...is a widely quoted phrase. Its meaning however is obscure for at least two reasons:

“...trust in money...” (1/2)

- *Trust*: albeit a subject of research in almost all the disciplines of the social sciences, theories and related operationalizations of trust concepts are heterogeneous (see Castelfranchi & Falcone 2010 for detailed critique).
- Further, who is the trustee when we assert trust in money?
 - An institution? – and which one?
 - the money token?
 - a buyer?...

“...trust in money...” (1/2)

- Information about the object of trust...
 - be it in the form of knowledge, beliefs, opinions
 - or even through its absence
- ...is constitutional for the trust evaluation process

“...trust in money...” (2/2)

- Peoples understanding of money only appears to be self-evident. What do we mean by money?
- Lay-concepts of money may differ widely.
- Therefore: what is trusted when “money” is trusted? What is money to the trustor?

“...trust in money...” (2/2)

- Object of trust (trustee) must be captured prior to an analysis of trustors' trust
 - => what is money to the trustor ?
 - => what is his/her understanding of money?
 - A subjective perspective must be necessarily the focus of any trust analysis
 - Lay theories of money constitute the ground of trust in money.

Lay-theories ...of money

- We find works which deal with
 - the lay-conceptions of the economy in general (Vergès 1989; Bastounis, Leiser, Roland-Lévy 2004; Allen, Ng, Leiser 2005),
 - inflation (Leiser, Drori 2005)
 - the understanding of economic terms in times of the **crisis** (Leiser, Bourgeois-Gironde, Benita 2010; Roland-Lévy, Pappalardo Boumelik, Guillet 2010; Gangl, Kastlunger, Kirchler, Voracek 2012),
 - but none which analyzes the adult understanding of money per se.
- No systematic studies available on the lay-understanding of money

Main purpose of the study

- Purpose of the research is two-fold:
 1. Identifying for this purpose lay theories of money and the monetary system
 2. Development of appropriate trust measures for trust in money (=stability of the monetary system)

A precognitive analysis of money

WHAT IS MONEY? AND: WHAT IS MONEY TO YOU?

From objective to subjective

- What do experts suggest that money is?
 - Social scientists
 - Economists
- A pre-cognitive analysis of money

Define „Money“?

- A functional definition of money
 - A medium of exchange
 - A store of value
 - A unit of account
 - A deferred means of payment
 - Or: „Money is what money does“ (Hicks 1967, p1)

But:

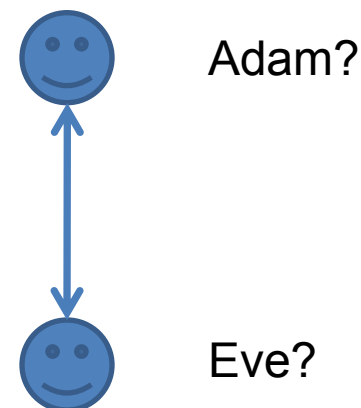
- A medium of exchange is a medium of exchange
 - because it stores value
 - in countable form

An interdisciplinary perspective on money

- Anthropologists find it difficult to adopt the definition of money as provided by economists to identify certain tokens as „money“
- Economists' definition of money (medium of exchange, store of value, unit of account, means of future payment, (Javon, 1875)) **is** „overlapping, redundant and confused,, (Coderer, 1968, p558)

„Bilateral Barter“

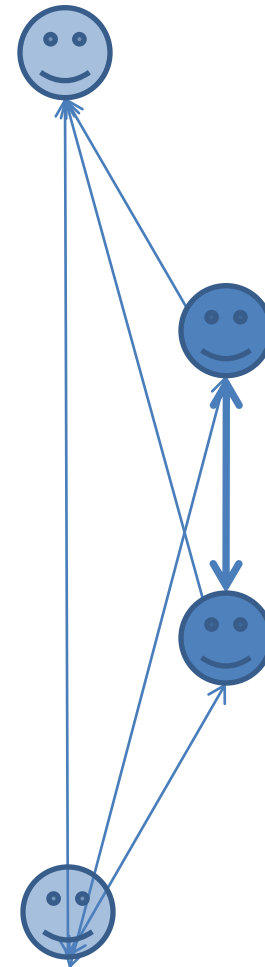
- „Double coincidence of wants“
(Javons, 1875) is a reductionist view on the exchange process
- It holds true only under the unrealistic condition of
 - a socially **isloated and**
 - **synchronic market exchange**



Multilateral Barter

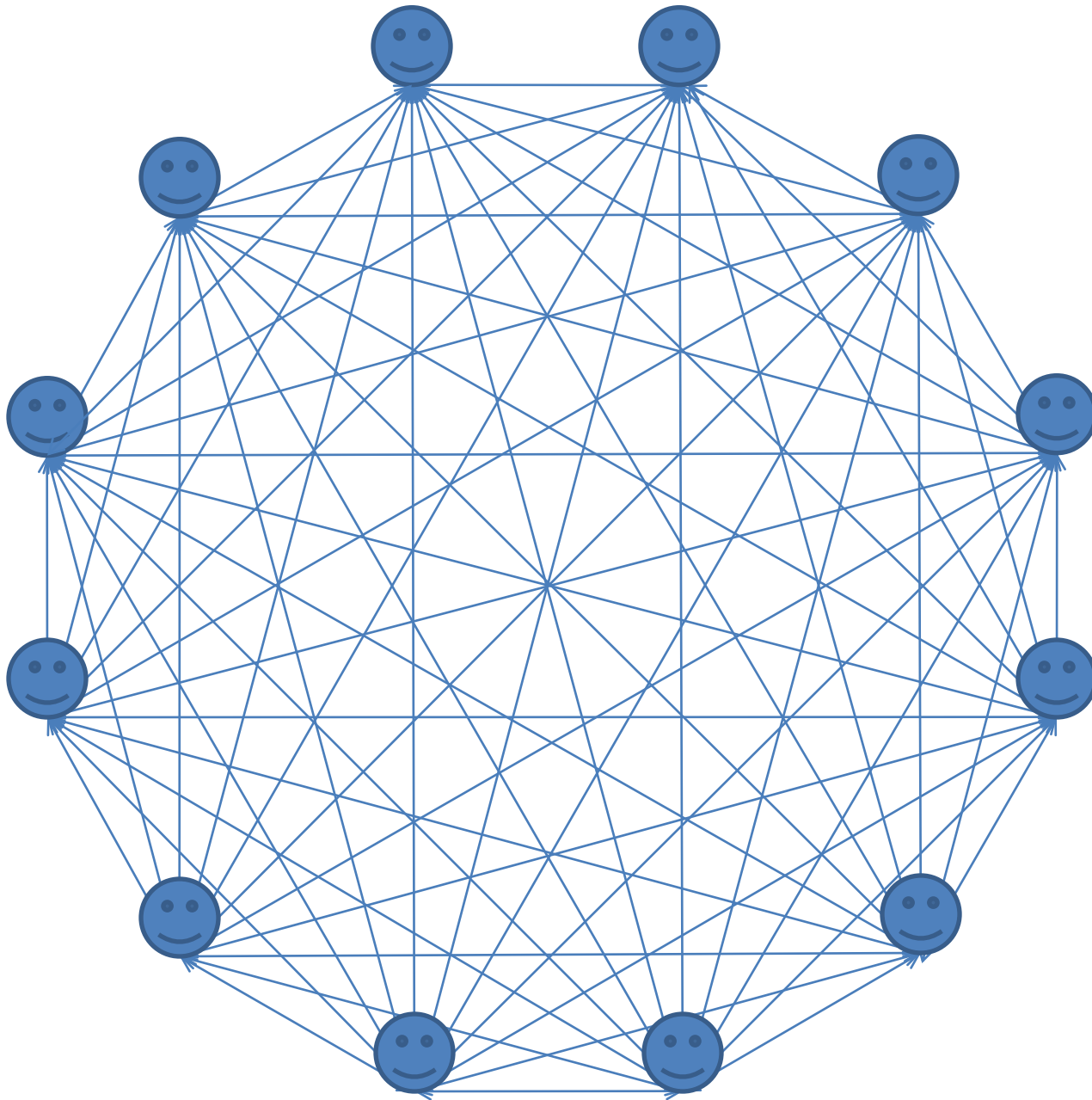
- Even if the actual exchange manifests bilaterally
- economic exchange implies the (latent) presence of others („the free market“)
- which gives ground for the establishment of **preferences**.

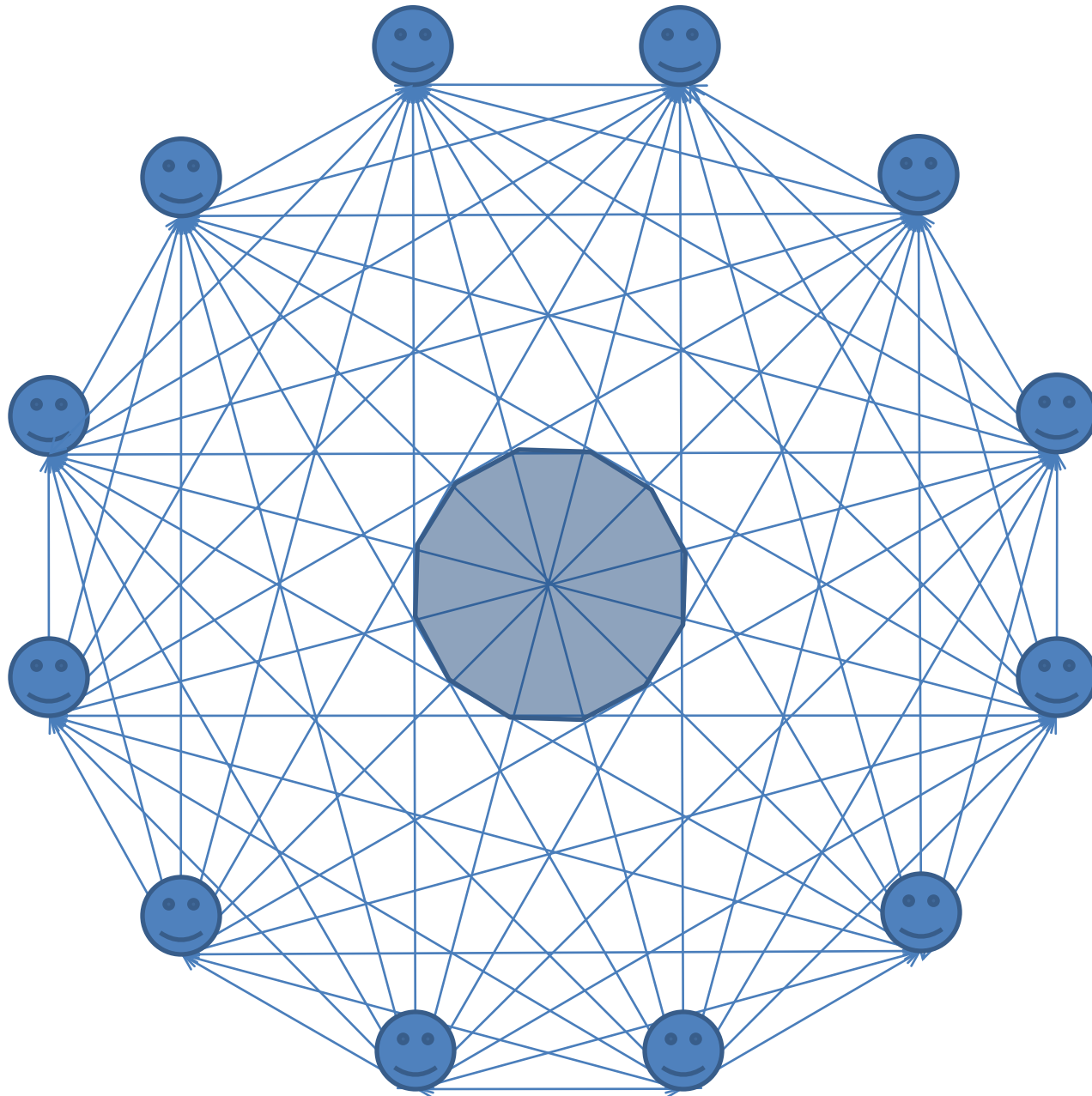
Barter has necessarily a multilateral background



**In
Multilateral
Barter**

**a market
emerges**





**In
Multilateral
Barter**

**a market
emerges...**

**... however
highly
costintensive**

**in terms of
knowledge
and
trust**

**to bring about
exchange:**

El Sehity, Castelfranchi, Falcone (2008)

FROM INTER-ACTIONAL TRUST TO TRANS-ACTION TRUST

Barter Trust (1/3)

- Some Economists consider barter as the primitive precursor to monetary exchange. Since Javons' (1875) famous formulation of the „double coincidence of wants“ barter has been dismissed as an inefficient form of exchange.
- It is however less the double coincidence of **wants** rather than the „**trust-intensiveness**“ of barter which renders barter inefficient:

Barter Trust_(2/3)

- The true difficulty in barter is not the „wants“ dimension but
 - the time dimension of: when and how fast giving and taking (exchange) will conclude (the Hobbesian „Covenant dilemma“)
 - both exchanging parties need to **agree explicitly** on the terms of exchange due to the improbable synchronicity of a swap (who gives what where and when first)
- Given the contractualization of economic exchange processes, trust has to be considered an apriori condition to the factual exchange

Barter Trust (3/3)

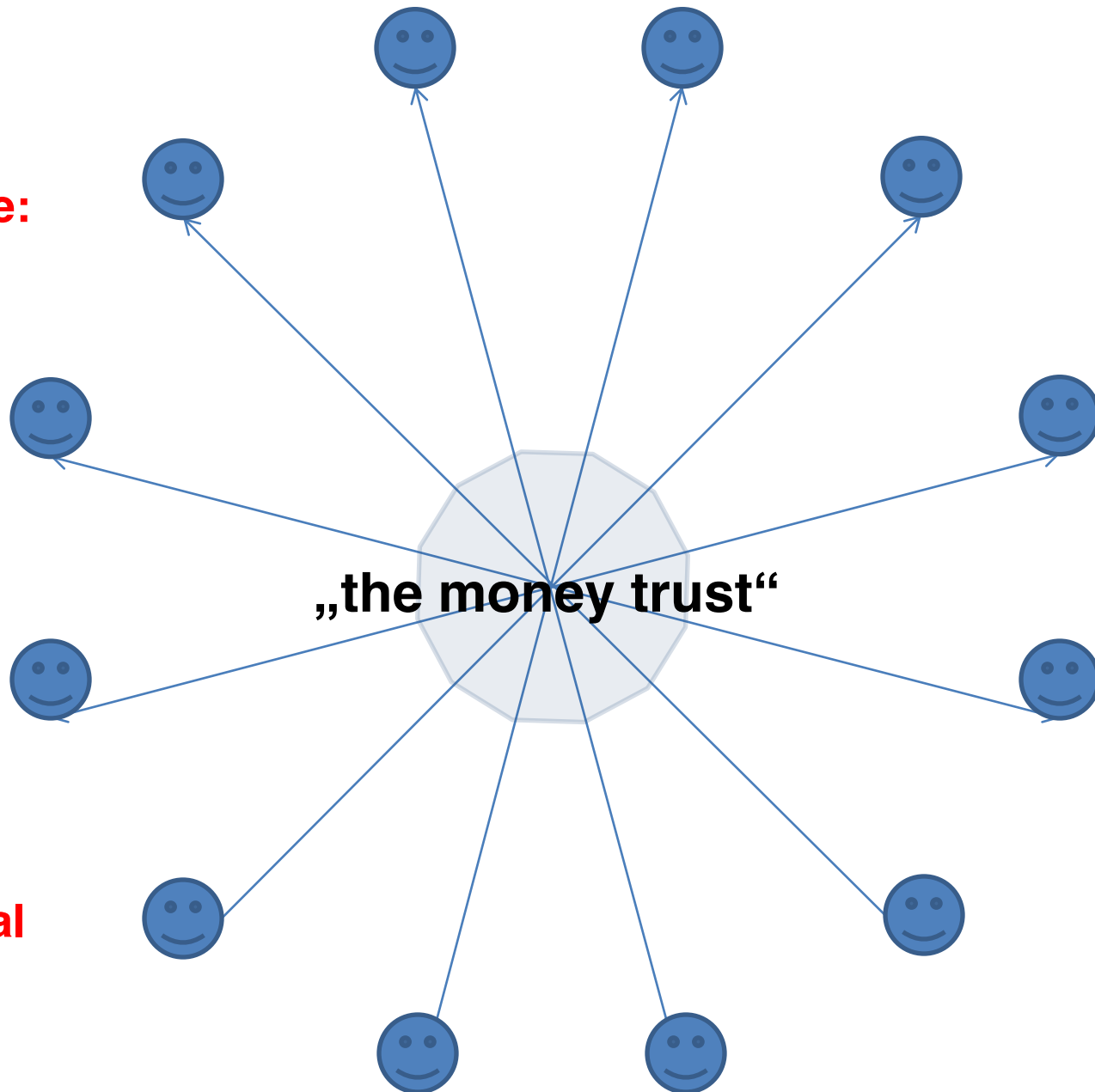
- Successful barter requires the same trust disposition beliefs of both exchanging parties:
- Both, X and Y, have to trust:
 - 1) The **other agent**, in terms of his/her Willingness, Motivation Belief, Skills and Competences
 - Reliability evaluation:
 - she/he will give me what he/she told me
 - she/he is in the objective condition to hold the promise (environmental condition)
 - 2) The **offered Goods**: not only does the other need to be reliable, but the good has to be a good one (quality)
- Thus, a cost intensive **fourfold trustworthiness** has to mediate the barter exchange

**From a
Network
Perspective:**

**Money is
an
exchange
hub**

**turning the
multilateral
barter
market**

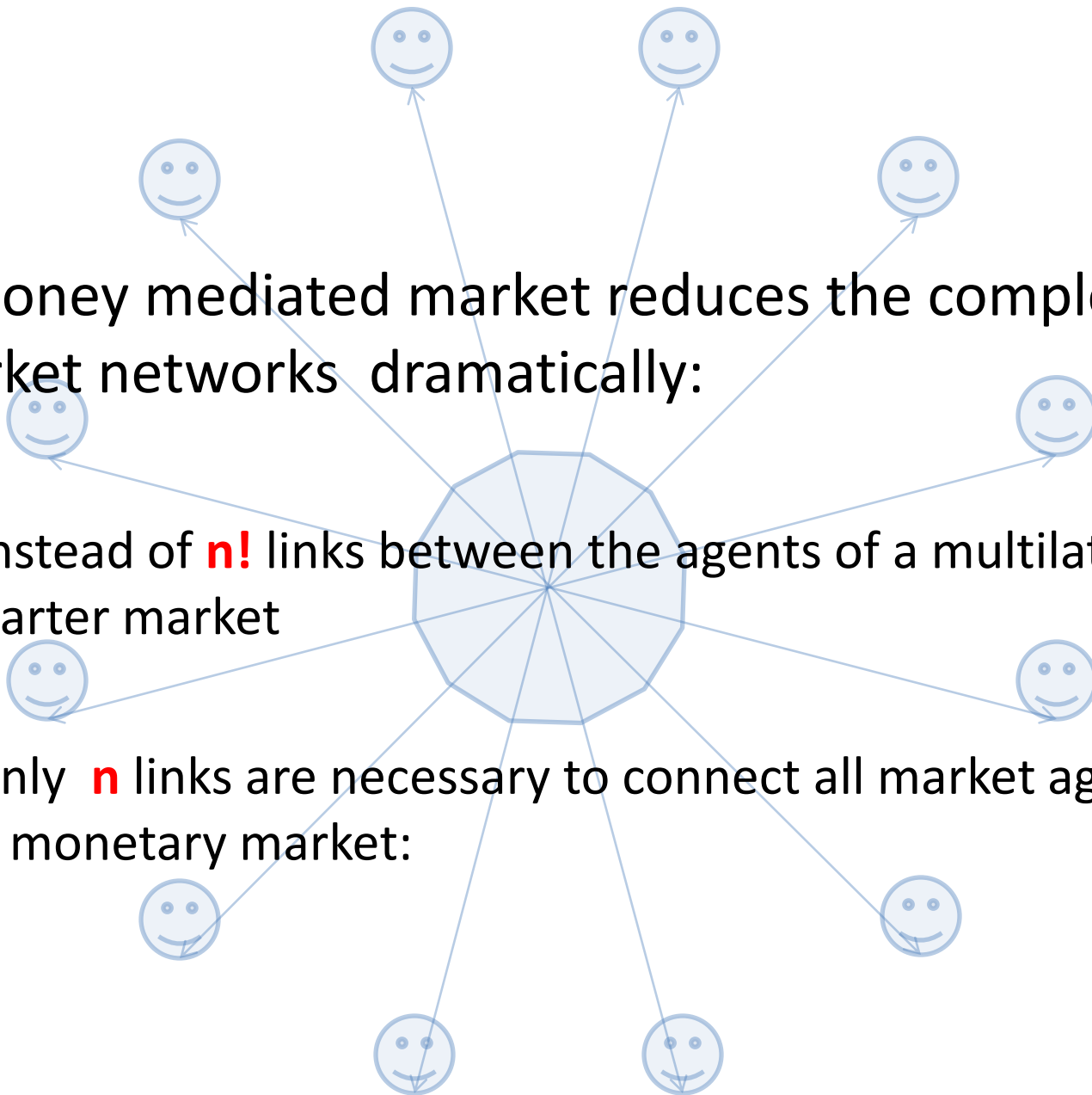
**into a n-
dimensional
spoke-hub
structure**



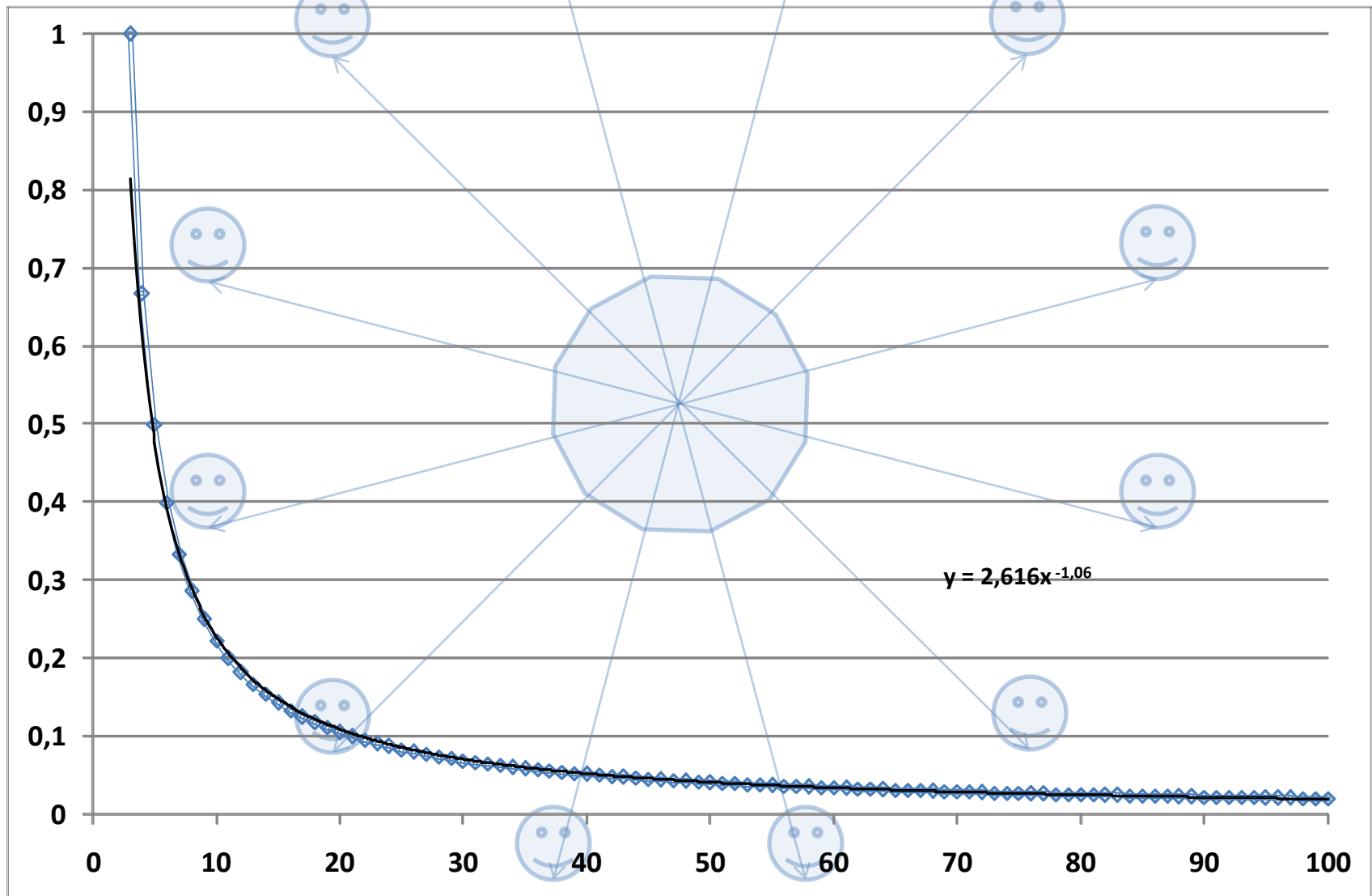
- A money mediated market reduces the complexity of market networks dramatically:

- Instead of $n!$ links between the agents of a multilateral barter market

- only n links are necessary to connect all market agents in a monetary market:



The Difference of Network Links between Barter and Monetary Markets per Number of Market Agents



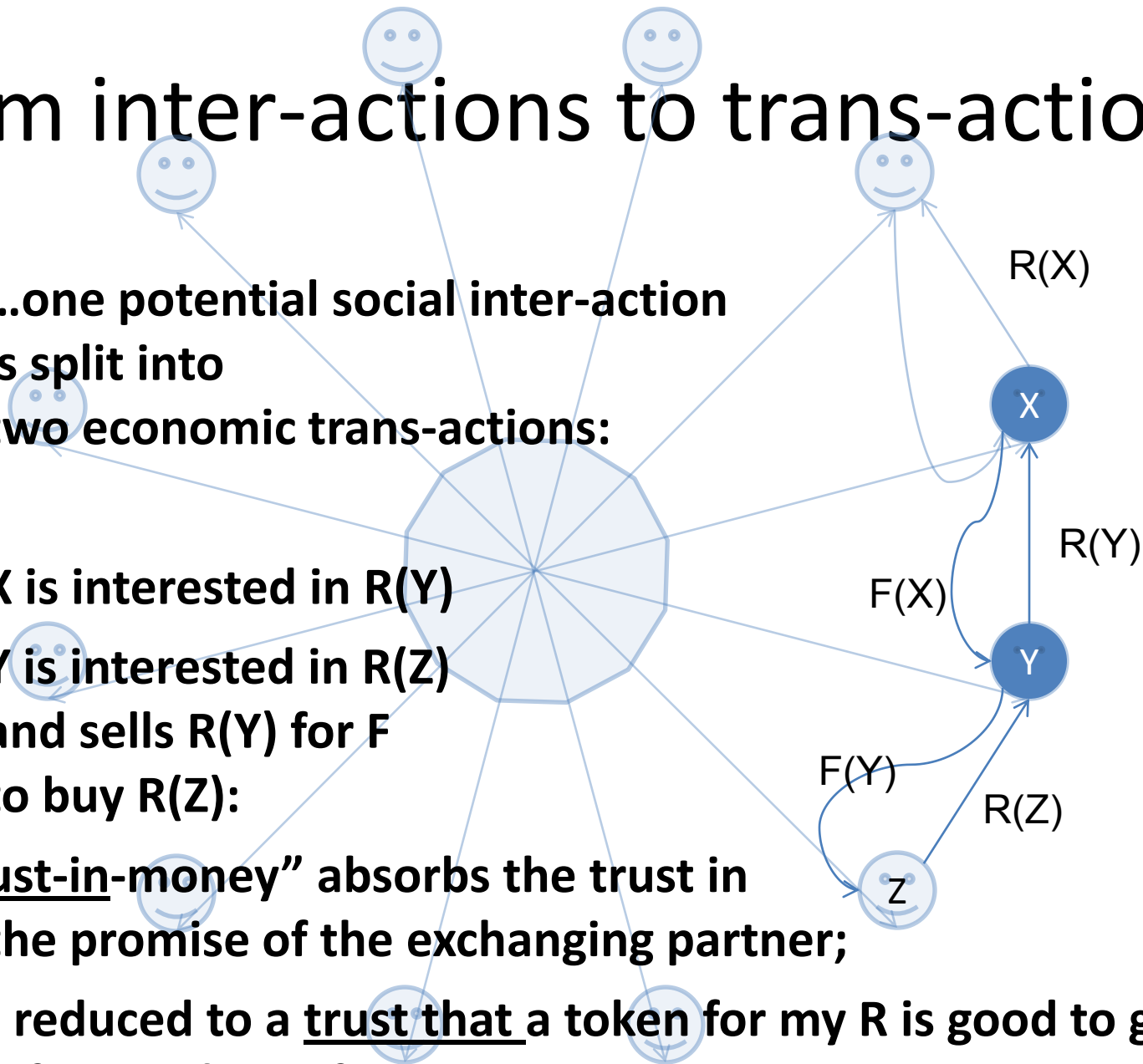
From inter-actions to trans-actions

- ...one potential social inter-action is split into two economic trans-actions:

- X is interested in R(Y)
- Y is interested in R(Z) and sells R(Y) for F to buy R(Z):

“trust-in-money” absorbs the trust in the promise of the exchanging partner;

it is reduced to a trust that a token for my R is good to get R from Z thereafter:



Trans-Action Trust

- Money exchange requires **two different trust disposition beliefs**:
 - **Buyer** The agent which gives money for good has the same trust reasoning as a barter agent.
 - **Seller** The agent which gives good for money the good has a different trust reasoning:

Trans-Action Trust

- **Buyer's Mind (X)**

Like in barter, in order to buy Y's good, X has to trust:

- 1) Y's Willingness, Motivation Belief, Skills and Competence
- 1) Y's goods: not only is Y reliable but the quality of the good has to be good

caveat emptor!

- **Seller's Mind (Y)**

To sell his/her good,

Y does not need to trust X's Willingness, Motivation Belief, Skills and Competence

Because it is sufficient to trust that X's money is real money, useful for any future exchange

Trust in the Money Token ^(1/2)

- The Trust, which was before focused on the exchanging partner has changed into **trust in the money token**;
 - and **implicitly, trust in the institution** which issues the money, since it is the institution which creates money and not the exchanging partner.
- => a strange kind of **three party trust** emerges:

Trust in the Money Token ^(2/2)

- Three party trust:
 - 1) Y trusts X as for giving him/her what X promised (being reliable, willing and honest)
 - 2) Then y is trusting the money issuing authority, a trust which is not very explicit and conscious because
 - 3) Y trusts the money token per se as being good (money).

Two dimensions of trust:

Trust that money...

- ...will buy about the same value/utility in the future as was sold for it before:
 - stability
- ...will be accepted by everyone in the market:
 - acceptance
 - authority

Pragmatic or: systemic
(Luhmann) trust

Trust in money...

- ...for the **reputation** of the institution issuing money:
 - credibility
- trust in
 - the executive power of the institution:
 - control and guaranty
 - willingness, motivation

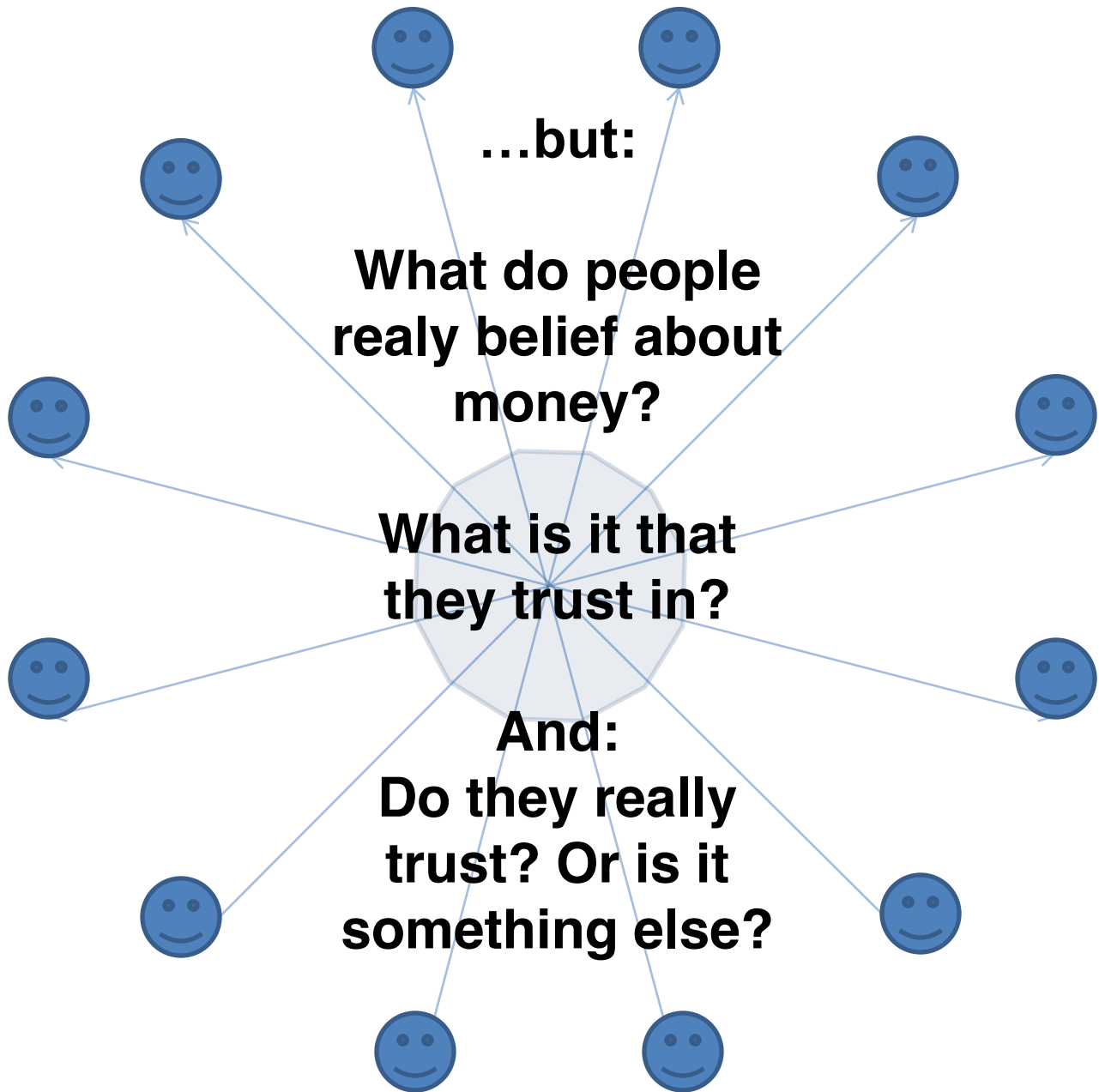
Symbolic trust: trust the **name**

- Money cancels almost one half of the trust required for direct exchange.
 - The trustworthiness of the buyer is reduced to the sole reliability of paying

The „eliminated“ trust is transferred to a powerful third party, which promises that its money is good for future transactions with all sellers

The promise of the institution is however based on the pure belief that **most sellers trust the institution's promise** (the reflexivity of trust: Parsons 1964; Luhmann 1968)

The trust loop from market agents to the institution back to the market agents leads to the reification of the complex trust scheme into an implicit operational trust in the money token per se...



El Sehity, Kirchler, Beurle, Fischanger (in Preparation)

MONEY BELIEF SYSTEMS

- A VIENNESE SURVEY 2009 - 2010

Historic Background of the study

- In 2008 – one year after the bankruptcy of Lehman Brother the full dimension of the damage to the financial system and the economy was still not part of the public awareness (media, public opinion surveys)
- A pilot study was prepared to investigate the development of the development of trust in money in the public arena.
 - First data collection started in summer 2009
 - second in summer 2010

Sample

| Year | Viennese | Psychology Students | MBA Students |
|-------|----------|---------------------|--------------|
| 2009 | 224 | 136 | 120 |
| 2010 | 194 | 99 | 99 |
| Total | 418 | 236 | 219 |

In the Viennese sample age and sex were controlled for representativeness in both years. Significant variations occurred in education where **persons with a university degree were overrepresented in 2009** (52%; 2010: 28%; $\chi^2 = 24.74 (3), p < .05$).

The samples of students was collected for the purpose of cross-checking the findings from the Viennese sample.

Measurements

1. Eleven items on money beliefs (MB)

- Money Belief items from education material provided on the homepages of the Austrian and German central banks were extracted; other items were extracted from focus groups discussing money
 - Participants were asked to judge items right / wrong and to indicate how sure they were about their judgments.

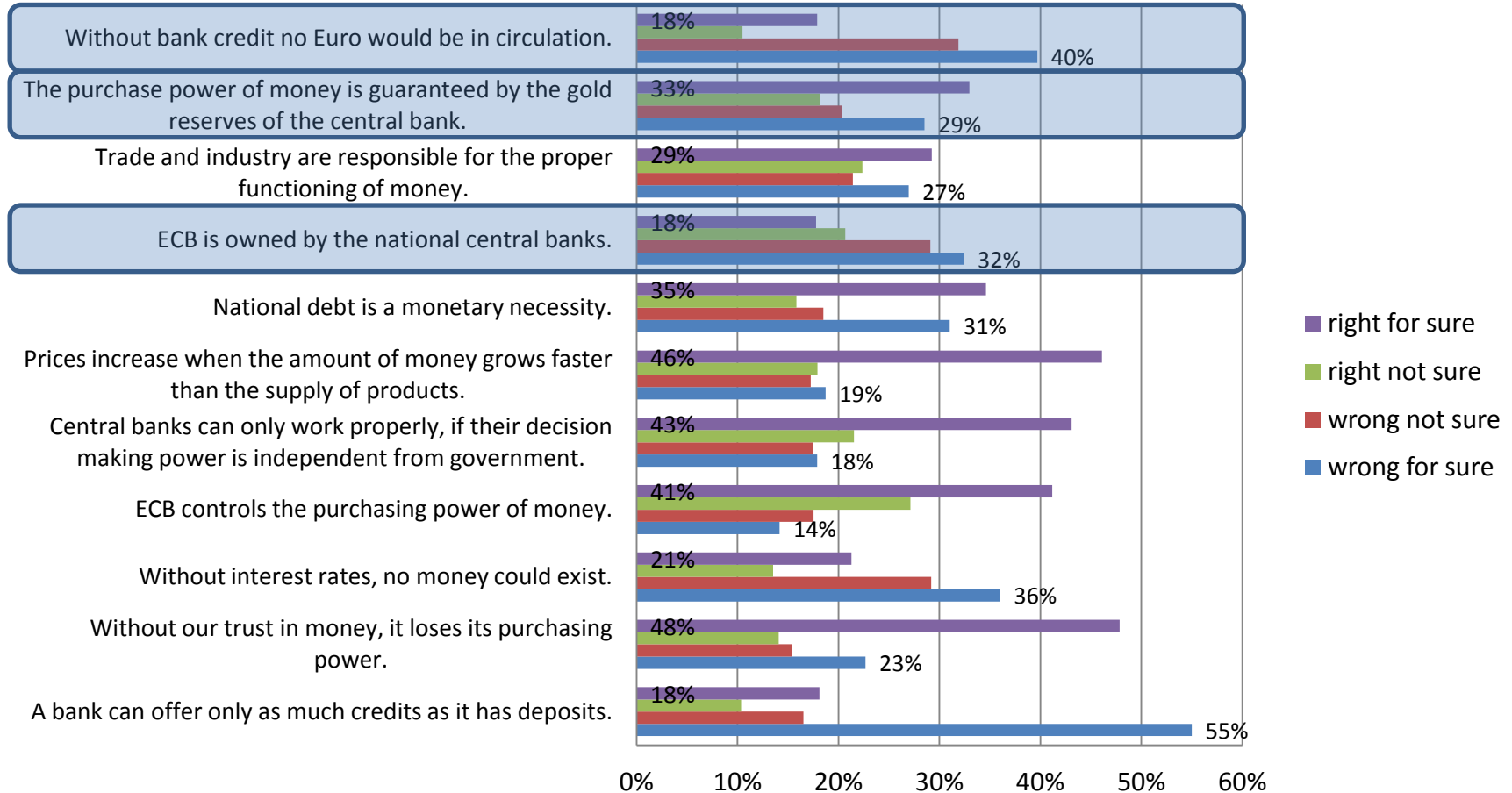
2. Trust measures for money

- Participants were asked to evaluate three stakeholders of the financial system (Central Bank, National Government and the Economy) concerning their trustworthiness in maintaining the euro stable
 - Three dimensions of trust according to the cognitive trust model from Castelfranchi and Falcone (2010) were analyzed: willingness/motivation; power/ability; external condition

3. Attitude measures toward the euro

- Opinions about the euro 5-point Likert-scales; Semantic differential of the euro (from Mueller-Peters et. al 1998)

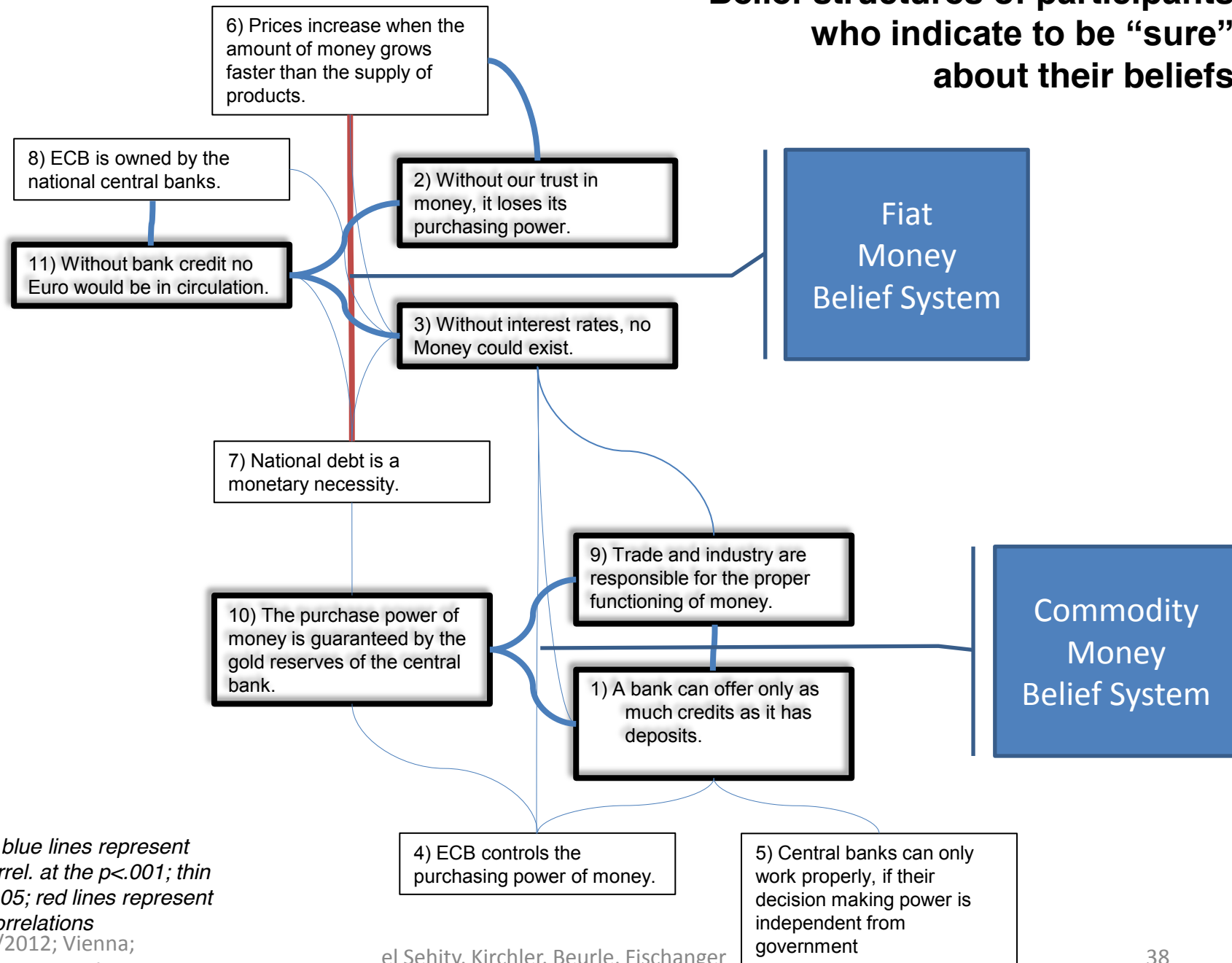
Money Beliefs



Money Belief Systems

- Exploring the money belief items for significant correlations the following structures emerged:

Belief structures of participants who indicate to be “sure” about their beliefs



Note: Bold blue lines represent positive correl. at the $p < .001$; thin lines at $p < .05$; red lines represent negative correlations

Two distinct MBS emerge

- The quantitative analysis shows two belief systems emerging:
 - “Fiat-MBS”:
 - our money is a debt based currency system (item11) bound to interest rates (i3) based on trust (i2)
 - “Commodity-MBS”:
 - Our money is backed by gold (i10) in a banking system with 100% deposits (i1) , where the market has full responsibility for the functioning of money.
 - The role of a strong independent central bank is slightly correlated ($p < .05$)

Approaching Money Belief Types

- Money belief items were subjected to a exploratory factor analysis (principal component, varimax rotated):

Principal Component Analysis – Rotated factor solution (VARIMAX)

A 4 factor solution emerged explaining 47.19% of Variance.

1. Factor: Fiat-MBS (2 items)
2. Factor: Commodity-MBS (3 items)
3. Factor: Strong ECB (2 items)
4. Factor: (2 items)

3 MBS - scales were constructed by the items of the first three factors:

1. Fiat-MBS scale: $\alpha = .47$
2. Commodity-MBS scale: $\alpha = .39$
3. Strong ECB-MBS scale: $\alpha = .18$

Low statistical values (fact. Var. & Rel. *alpha*) are due to the low redundancy of content in the MB-Items! More items certainly needed for future research...

| Rotated Component Matrix ^a | Component | | | |
|---|--------------------|--------------------|--------------------|---------------------|
| | 1 | 2 | 3 | 4 |
| 1) A bank can offer only as much credits as it has deposits. | -,010 | <u>,750</u> | ,056 | ,033 |
| 2) Without our trust in money, it loses its purchasing power. | ,359 | -,266 | ,382 | ,305 |
| 3) Without interest rates, no money could exist. | <u>,735</u> | ,065 | -,082 | -,047 |
| 4) ECB controls the purchasing power of money. | ,042 | ,046 | <u>,714</u> | -,187 |
| 5) Central banks can only work properly, if their decision making power is independent from government. | -,129 | ,064 | <u>,643</u> | ,139 |
| 6) Prices increase when the amount of money grows faster than the supply of products. | ,192 | ,002 | ,054 | <u>,698</u> |
| 7) National debt is a monetary necessity. | ,243 | ,012 | ,070 | <u>-,657</u> |
| 8) ECB is owned by the national central banks. | ,363 | ,100 | -,005 | ,101 |
| 9) Trade and industry are responsible for the proper functioning of money. | ,227 | <u>,602</u> | -,235 | ,136 |
| 10) The purchase power of money is guaranteed by the gold reserves of the central bank. | ,010 | <u>,584</u> | ,205 | -,182 |
| 11) Without bank credit no Euro would be in circulation. | <u>,728</u> | -,040 | ,013 | -,134 |

Designing the Money Belief Types

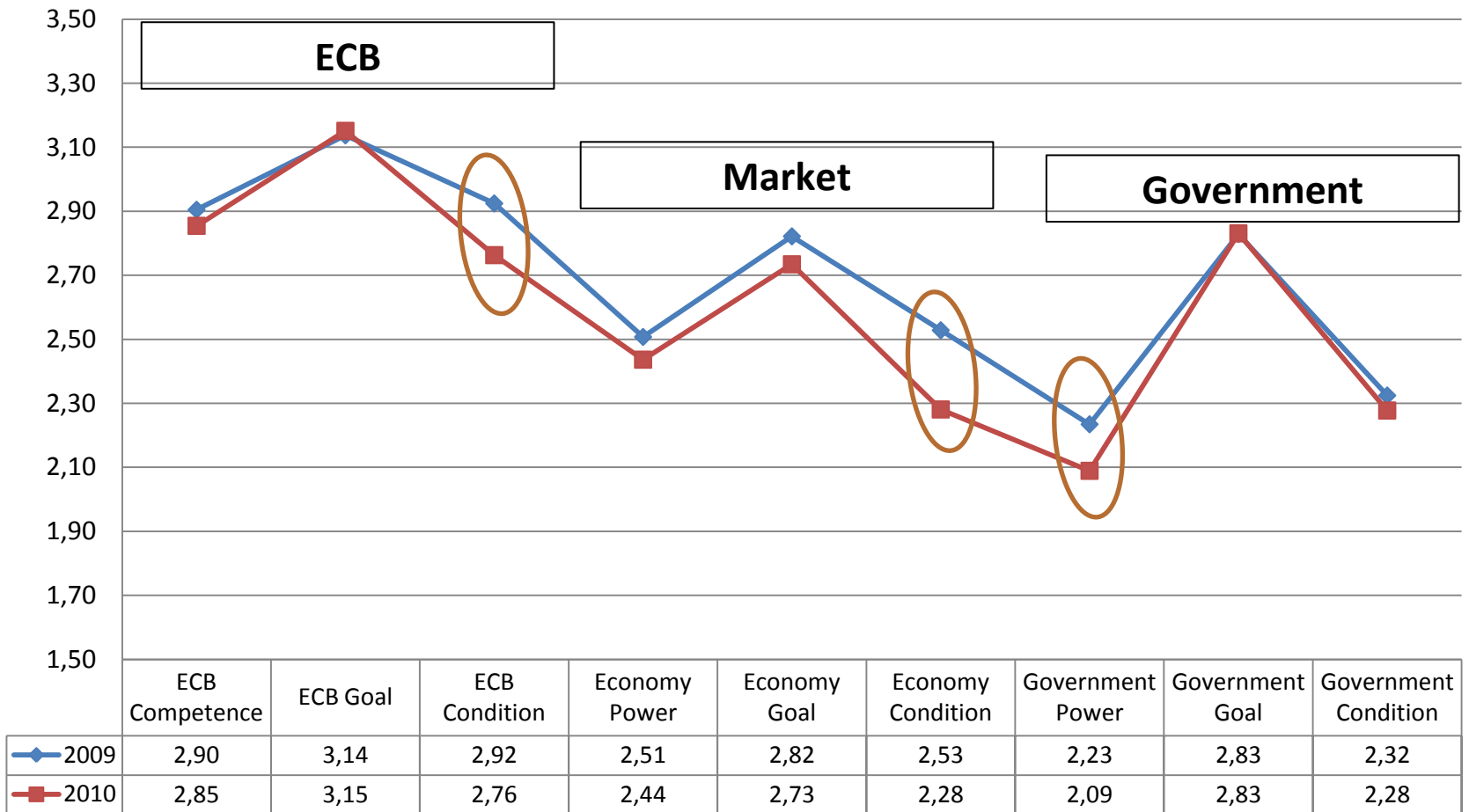
- The sample was grouped according to their scores on the three MB-scales
- Consequently eight (2x2x2) MB-groups resulted:

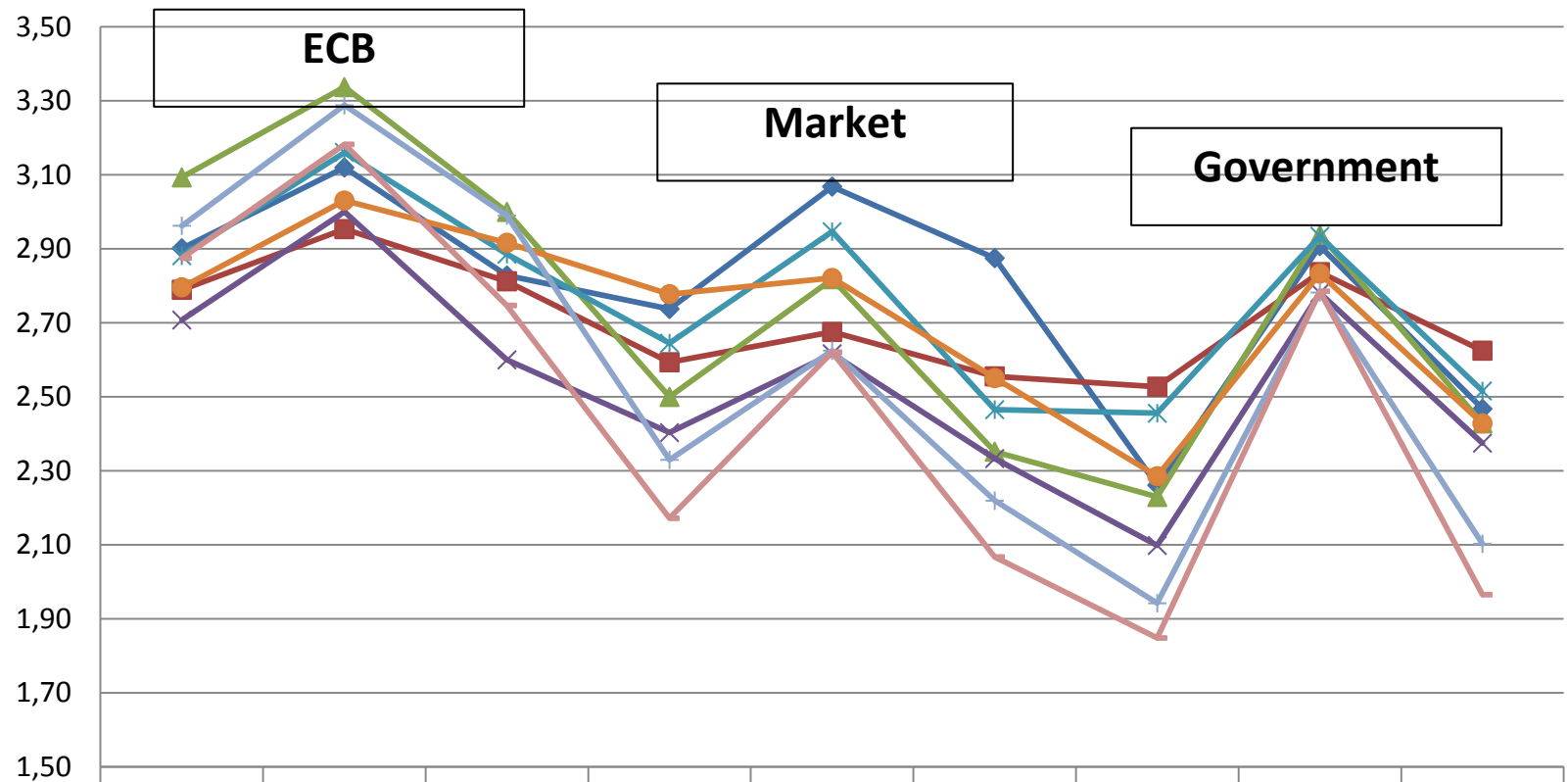
| Systems | Money Beliefs Typs | | | | | | | |
|----------------------------|--|--------------------------|-------------------------------|---------------------------|------------------------------------|--------------------------|----------------------------|----------------------------|
| Fiat Money (F) | Yes (+) | | | | No (-) | | | |
| Commodity Money (C) | Yes (+) | | No (-) | | Yes (+) | | No (-) | |
| ECB (E) | Strong (+) | Weak (-) | Strong (+) | Weak (-) | Strong (+) | Weak (-) | Strong (+) | Weak (-) |
| Typs | I F+C+E+ | II F+C+E- | III F+C-E+ | IV F+C-E- | V F-C+E+ | VI F-C+E- | VII F-C-E+ | VIII F-C-E- |
| | Fiat & Commodity (CONTRADICTIONS) | | FIAT MONEY BELIEF TYPE | | COMMODITY MONEY BELIEF TYPE | | NEITHER NOR ??? | |
| N % | 86 11,4% | 54 7,2% | 94 12,5% | 84 11,1% | 96 12,7% | 72 9,5% | 133 17,6% | 135 17,9% |
| Euro | Pro Euro (Sceptic) | | Pro Euro | Euro Critic | | | | |
| Trust | | | Trust ECB & State | | Trust the Market | | | |

Trust Items

- Three possible monetary stakeholders were analyzed for participants trust:
 - European Central Bank (ECB)
 - Market
 - Government
- For each stakeholder three dimensions of trust were surveyed:
 - Goal: Willingness to maintain the euro stable
 - Power: Capability to control the stability of the euro
 - Condition: External (Legal) condition to control the value of the euro

Trust changes in monetary Stakeholders 2009-2010





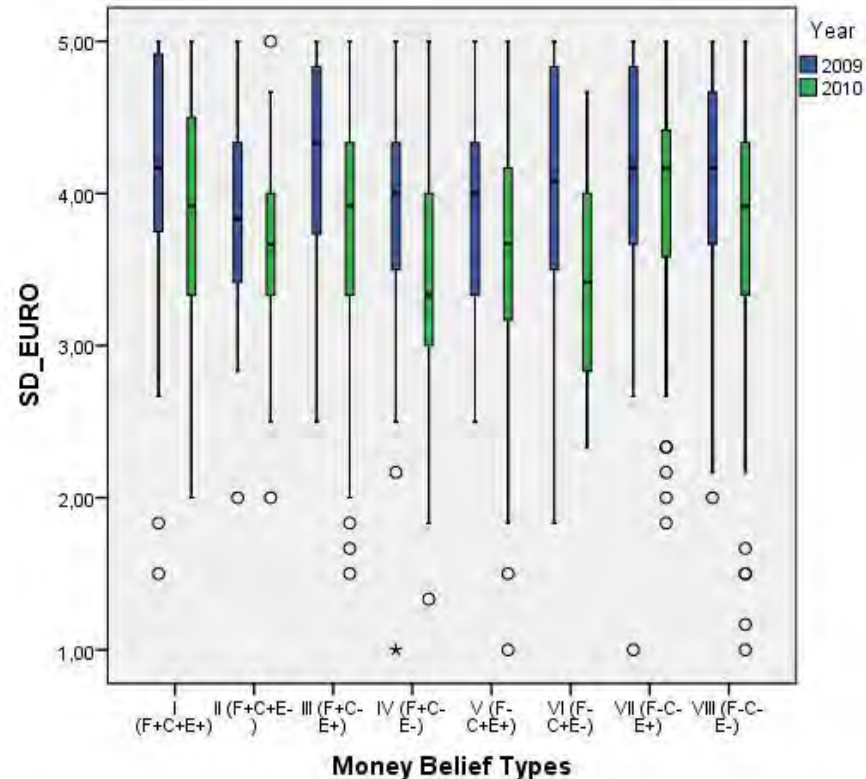
| | ECB Competence | ECB Goal | ECB Condition | Economy Power | Economy Goal | Economy Condition | Government Power | Government Goal | Government Condition |
|----------|----------------|----------|---------------|---------------|--------------|-------------------|------------------|-----------------|----------------------|
| ◆ F+C+E+ | 2,90 | 3,12 | 2,83 | 2,74 | 3,07 | 2,88 | 2,26 | 2,91 | 2,47 |
| ■ F+C+E- | 2,79 | 2,95 | 2,81 | 2,59 | 2,68 | 2,56 | 2,53 | 2,84 | 2,63 |
| ▲ F+C-E+ | 3,09 | 3,34 | 3,00 | 2,50 | 2,82 | 2,35 | 2,23 | 2,94 | 2,43 |
| × F+C-E- | 2,71 | 3,00 | 2,60 | 2,40 | 2,62 | 2,33 | 2,10 | 2,78 | 2,38 |
| ✱ F-C+E+ | 2,88 | 3,16 | 2,89 | 2,65 | 2,95 | 2,47 | 2,46 | 2,93 | 2,52 |
| ● F-C+E- | 2,80 | 3,03 | 2,92 | 2,78 | 2,82 | 2,55 | 2,29 | 2,83 | 2,43 |
| + F-C-E+ | 2,96 | 3,29 | 2,99 | 2,33 | 2,63 | 2,22 | 1,94 | 2,78 | 2,10 |
| — F-C-E- | 2,88 | 3,18 | 2,75 | 2,17 | 2,62 | 2,07 | 1,85 | 2,79 | 1,97 |

Money belief systems and their attitudes toward euro

A significant change in the attitude toward the euro (as measured by a semantic differential; scale 1-5) occurred for Type III ($F(1, 93)=8,056$, $p<.001$), IV ($F(1, 82)=5,671$, $p=.008$), V ($F(1, 95)=3,481$, $p=.026$), VI ($F(1, 71)=7,098$, $p=.010$) and VIII ($F(1, 134)=5,093$, $p=.005$)

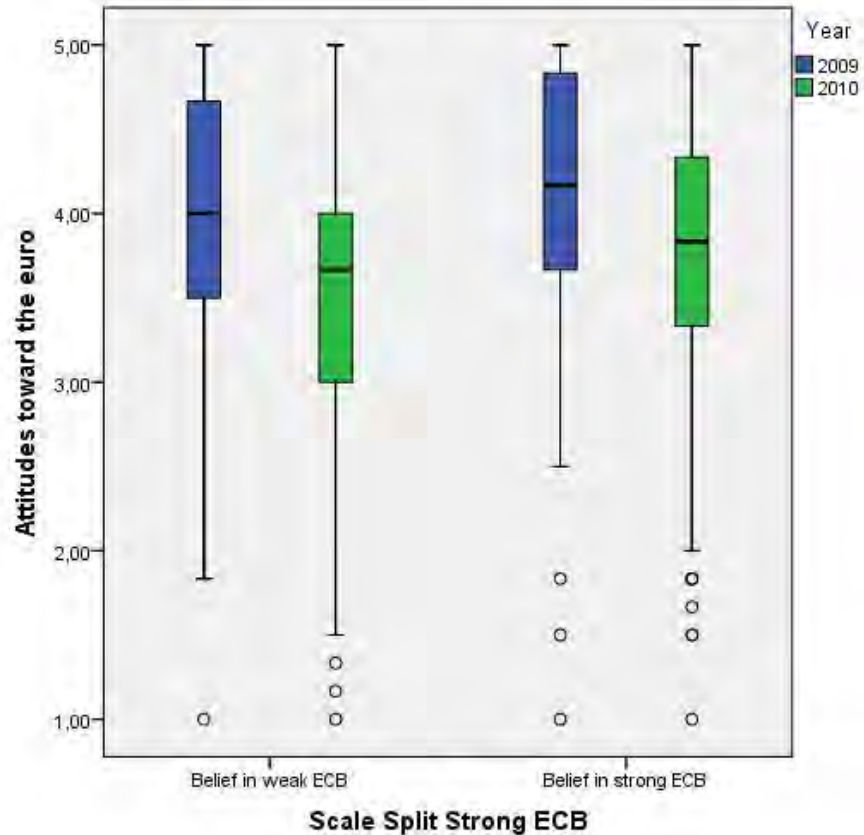
Note that depending on the belief in a strong ECB the attitude towards the euro varies systematically:

More positive attitude toward the Euro correlates significantly positive with the belief in a strong ECB ($r=.164$; $p<.001$):



Belief in a strong ECB and attitudes toward the euro

$F(3, 763)=17,242$, $p<.001$, Adjusted r square= .060



Open issues for future research on money made of trust...

WHAT'S NEXT?

- Probably the most surprising result is that of about 50 % of our sample believing that our money is commodity money
 - for these participants banks represent a central vault in which to store money;
 - their expectation is that of banks as a safe place for money;
 - their trust in the stability of money lies in the market since the ECB can only safeguard our money...

- The different naïve theories of money have to be understood better, investigating it qualitatively
- However for the question of trust in money a strange conclusion may be drawn:
 - The contradictory mixture of beliefs about money indicates that there is probably less trust than FAITH in money

The Psychology of Faith in Money?

- Faith is a powerful near-religious feeling by which the uncertain is taken for granted; its power lies in the premise which similar to hope (Miceli & Castelfranchi, 2010) may not be falsified
 - As such money –what ever monetary system– may for the majority of people not even be a meaningful token of exchange, but an unexplainable force which brings (real) good when sacrificed (worked) for it.

What is the money (hub)?

- Does it matter
 - if money is
 - currency (e.g. Aristoteles, Smith, Menger, Mises) or
 - credit (e.g. Innes, Schumpeter, Ingham)?
 - if money is
 - a social convention (e.g. Searl) or
 - a social function (Menger, Mises)?

*Minutes of Session V: How Does Monetary Policy
Affect the Economy? (A Shakespearean Sonnet,
As Written by Swinburne and W. S. Gilbert)*

*We must have a good definition of Money,
For if we do not, then what have we got,
But a Quantity Theory of no-one-knows-what,
And this would be almost too true to be funny.
Now, Banks secrete something, as bees secrete honey;
(It sticks to their fingers some, even when hot!)
But what things are liquid and what things are not,
Rests on whether the climate of business is sunny.
For both Stores of Value and Means of Exchange
Include, among Assets, a very wide range,
So your definition's no better than mine.
Still, with credit-ca d-clever computers, it's clear
That money as such will one day disappear;
Then, what isn't there we won't have to define.*

Boulding, K. (1969). [Poem]: Minutes of Session V: How Does Monetary Policy Affect the Economy? (A Shakespearean Sonnet, As Written by Swinburne and W. S. Gilbert). *Journal of Money, Credit and Banking* , 1, p.3.

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