Financial behaviour

Three categories of financial behaviour:

1. Day-to-day money management:
   - Paying in stores, paying bills on time, paying cash or with bank/credit card.
   - Saving/reservations for transactions.
   - Revolving credit.
   - Budgeting and mental accounting.
   - ‘Making ends meet.’

2. Decisions about (complex) financial products:
   - Product/brand comparisons, product choice.
   - Non-impulsivity.

3. Financial planning:
   - Long-term perspective, saving for pension/retirement.
   - Optimization of finances over the life-cycle: life planning and financial planning.
Financial education:

1. Transfer of financial knowledge (economics and/or rules of thumb).
2. Teaching and training financial skills (digital skills, budgeting).
3. Teaching (and training) of responsible financial behaviour.

Bruhn et al (2013): Financial education at Brazilian high schools with topics:

1. Saving rather than credit when buying products.
2. Comparison shopping; price/quality trade-offs.
4. Negotiation with seller about price.
Model 1

Financial education
Improving financial literacy and behavior

Financial literacy
knowledge, skills

B2

B1

Financial behaviour
Day-to-day money management, decision making, financial planning

Effect sizes
Effects of B1 and B2 are small.
A1 > B1: Financial literacy has a stronger effect on financial behaviour than financial education.
(Fernandes, Lynch, & Netemeyer 2014)
Effect of A1 may be too academic and not useful/practical.
Effect sizes of financial education and financial literacy on financial behaviour (partial correlations).

Fernandes, Lynch, & Netemeyer, 2014
Effect sizes of B1 and A1 on financial behaviours

Figure 3: Effect size Partial $r$ of Manipulated versus Measured Financial Literacy as a Function of Financial Behavior Studied

Effect sizes of financial education and financial literacy on financial behaviours (partial correlations).

Sample-Weighted Average partial $r$(financial literacy, financial behavior) and 95% CI

- Save: 0.03 (0.03, 0.16)
- Plan: 0.06 (0.06, 0.13)
- Debt: 0.04 (0.04, 0.04)
- Cash Flow: 0.05 (0.05, 0.05)
- Invest: 0.04 (0.04, 0.04)
- Plan Active: 0.02 (0.02, 0.02)
- Inertia: 0.05 (0.05, 0.05)

Tilburg University

Fernandes, Lynch, & Netemeyer, 2014
Effect duration of financial education

Fernandes, Lynch, & Netemeyer, 2014

Figure 4: Partial Correlation of Financial Education Interventions with Financial Behavior as a Function of Number of Hours of Intervention and Number of Months since Intervention

Declining effect sizes over time after interventions (partial correlations).

- 24 hours of intervention
- 18 hours of intervention
- 12 hours of intervention
- 6 hours of intervention
- 1 hour of intervention

Significance marker
Financial knowledge

Financial literacy consists of knowledge and skills.

Financial knowledge is generally low, especially for complex financial products, except for people with a high level of education in economics, accountancy, or management.

Need for cognition and financial motivation are generally low. ‘There are more interesting topics to think about.’


Bernard & Taffesse (2014): Effects of watching a motivational video on a person (businessman) from the same region in Ethiopia as the audience; how this person started a business and improved his financial situation.

Basic and advanced financial literacy tests to assess financial knowledge (Van Rooij, Lusardi & Alessie, 2011).
Basic financial literacy questions (Lusardi)

(1) **Numeracy:** Suppose you had €100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow? (i) More than €102; (ii) Exactly €102; (iii) Less than €102; (iv) Do not know; (v) Refusal.

(2) **Interest compounding:** Suppose you had €100 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After 5 years, how much would you have on this account in total? (i) More than €200; (ii) Exactly €200; (iii) Less than €200; (iv) Do not know; (v) Refusal.

(3) **Inflation:** Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account? (i) More than today; (ii) Exactly the same; (iii) Less than today; (iv) Do not know; (v) Refusal.

(4) **Time value of money:** Assume a friend inherits €10,000 today and his sibling inherits €10,000 3 years from now. Who is richer because of the inheritance? (i) My friend; (ii) His sibling; (iii) They are equally rich; (iv) Do not know; (v) Refusal.

(5) **Money illusion:** Suppose that in the year 2010, your income has doubled and prices of all goods have doubled too. In 2010, how much will you be able to buy with your income? (i) More than today; (ii) The same; (iii) Less than today; (iv) Do not know; (v) Refusal.
Financial skills include:

- Numeracy: understanding numbers and knowing to perform calculations.
- Keeping track of expenses; overview of bank accounts.
- Budgeting, mental accounting.
- Digital skills for online transactions and information.
- Pre-commitments and self-imposed restrictions on impulsivity, such as automatic saving, and paying credit card bills within grace period (without interest).
- Planning and time management: no/less procrastination.

Drexler et al (2014): Full-fledged financial education versus simple rules of thumb. The latter is more effective for people without economic knowledge (Dominican Republic).

Berg & Zia (2013): Financial education in a soap opera; main character makes severe financial mistakes; audience learns from these mistakes (South Africa).
**Model 2**

**Financial education**
improving financial literacy and financial behaviour

**Financial literacy**
Knowledge & skills

**Person characteristics**
Numeracy (computing)
Self-control & self-regulation
Conscientiousness
Time orientation
Need for cognition
Calculated risk

**Environmental factors**
Decision architecture
defaults, nudges
structure, comparison

**Social environment**
Social comparison

**Financial behaviour**
Money management
Decision making
Financial planning

**Effect sizes**
- A1 > B1: Financial literacy has a stronger effect on fin. behaviour than financial education.
- A2 > A1: Person characteristics have stronger effects on fin. behaviour than financial literacy.
- Strong effects of C1 and C2.
Numeracy or numerical ability is the ability, motivation, and enjoyment to work with numbers (calculation, computation).

Numeracy is related to financial knowledge, wealth, composition of asset portfolios, also after correction for level of education, and other dimensions of cognitive ability. ELSA questionnaire (Banks & Oldfield 2007; Banks, O’Dea & Oldfield 2010). Numerical ability predicts mortgage default (Gerardi, Goette & Meier 2013).

Box 1 Numeracy items in ELSA questionnaire

q1) If you buy a drink for 85 pence and pay with a one pound coin, how much change should you get?
q2) In a sale, a shop is selling all items at half price. Before the sale a sofa costs £300. How much will it cost in the sale?
q3) If the chance of getting a disease is 10 per cent, how many people out of 1,000 would be expect to get the disease?
q4) A second hand car dealer is selling a car for £6,000. This is two-thirds of what it cost new. How much did the car cost new?
q5) If 5 people all have the winning numbers in the lottery and the prize is £2 million, how much will each of them get?
q6) Let’s say you have £200 in a savings account. The account earns ten per cent interest per year. How much will you have in the account at the end of two years?
Conscientiousness

Conscientiousness is one of the “Big Five” personality variables. A dimension of conscientiousness *versus* chaotic and unorganized can be distinguished (Norman 1963; Costa & McCrae 1992).

- Self-disciplined and orderly ↔ Chaotic and disorderly
  - Dutiful and careful ↔ Careless
  - Responsible ↔ Irresponsible
  - Dependable ↔ Independable
- Striving and achieving ↔ Complacent
  - Persevering ↔ Quitting and fickle
  - Deliberative ↔ Impulsive
  - Scrupulous ↔ Unscrupulous
  - High willpower ↔ Low willpower (akrasia)
- High self-efficacy ↔ Low self-efficacy
- High self-control ↔ Low self-control

Conscientious people keep records, plan ahead, are less likely to give up and to postpone tasks.
Information architecture

Information environment consists of:

- Online information; trustworthy sources?
- Structure of information (alternatives x attributes): table or separate cases.
- Information (over)load.
- Order of information: primacy or recency effects.
- Format of information: unit/money illusion effect (72 months / 6 years guarantee).
- Product comparisons, calculation of preferred alternative.
- Recommendation systems: coaching, smart agents, VGAs
- Default options and opt-out (e.g., health insurance).
- Nudges, suggestions.
- Choosing the middle option.

Giné, Martinez Cuellar & Mazer (2014): How to find the best 10,000 peso loan?
Random list (39%) versus systematic list (68%).
Procrastination

Procrastination is postponing a task, starting too late, or working too slowly to complete a task on time (Steel, 2007). Reasons?

1. **Task aversiveness**: unattractive tasks are postponed (Blunt & Pychyl, 2000).

2. **Task difficulty**:

3. **Task importance**: Important tasks have to be done well and thus take effort and time (e.g., your pension plan) and are delayed till enough time is available.

4. **Task size**: finishing a number of small tasks is more satisfying than finishing one large task.

5. **Task uncertainty**: how long will it take to finish the task? Planning fallacy.

6. **Lack of conscientiousness, self-control, self-efficacy**.

Is procrastination always bad?
Self-regulation

Internal versus external control/attribution:

- Internal attribution related to self-control: perceiving that the future is in your own hands.
- External attribution is fatalistic: perceiving that the future is determined by others, task difficulty or (bad) luck.

<table>
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<th>Stable cause</th>
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<td>Internal attribution</td>
<td>ability, intelligence</td>
<td>effort</td>
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<tr>
<td>External attribution</td>
<td>task difficulty</td>
<td>luck, chance</td>
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Self-regulation consists of three stages (Albert Bandura):

1. Self-monitoring of personal behaviour and distance to pre-set goal. Use feedback about reaching the goal.
2. Comparison of goal attainment with (personal and social) standards and reference points.
3. Self-reactions and self-gratification after reaching the goal.
Understanding Consumer Financial Behavior
in an Age of Financial Illiteracy
Positive time preference (present bias) versus negative time preference (future orientation).

Hyperbolic model of time discounting and present bias.

Acceptance of delay of gratification (marshmallow experiment with children).

Risk preference

High **risk preference** is related to sensation seeking and extraversion.

- Men take more risk than women.
- Young people take more risk than older people.

Prevention focus (avoiding negative outcomes) related to risk avoidance.
Promotion focus (striving for positive outcomes) related to risk taking.

Framing a problem in positive/negative terms affects risk:

- Risk seeking with a potential loss.
- Risk averse with a potential gain.

Taking calculated risk; no gambling.
Risk diversification for investors.
1. Decision architecture of information (alternatives x characteristics).
2. Order of information supply: decision tree.
3. Comparison sites with personal input; computation of preferred options.
4. Recommendation systems (coaching, smart agents, VGAs).
5. Nudges: Conscious or unconscious influence on choice and behavior.
6. Defaults: opt-outs, standard options that are ‘suitable’ for most consumers.

And the social environment of relatives, friends and neighbors (for advice and ‘second opinion’).
Social environment consists of: partner, relatives, friends, neighbours, advisors.

Relative income model (Duesenberry).

- Social comparisons with ‘similar’ people, but somewhat better-off.
- Reference shift (Van Praag), new comparison standard.
- Social imitation and modeling (Bandura).
- Conspicuous consumption to impress others.
- Consumption cascades (Frank).
- Financial deprivation, poverty.
- Loans and even mortgages from relatives (in a collectivistic culture).
- Advice and second opinion from relatives and friends.
Responsible financial behaviour

Desirable/responsible/sustainable financial behaviour (normative moral judgment):

- Expenditure based on 3-5 year (Friedman) or life-cycle (Modigliani) income.
- Borrowing only to invest in housing, education, a car for your job, etc.
- Making deliberate decisions; avoid impulsive decisions.
- Keeping a financial buffer for unforeseen expenses (resilience).
- Retain sufficient disposable income (for daily expenses).
- Pay credit-card bills within the grace period.
- Insuring unbearable risks.
- Taking only controllable/calculated risks.
- Taking future contingencies into account.
- Flexibility of ‘fixed expenditures’; scaling down when needed.
- Seeking help and advice, if personal knowledge is insufficient.
Well-being

Being in financial control creates satisfaction and happiness that problems can be avoided and goals can be reached.

Less cognitive resources have to be spent on how to finance purchases and how to pay off debt. More cognitive resources available for ‘interesting and important’ things in life.

Less marital conflicts about money.

Less worrying about money and more focus and success at work.

Higher level of well-being of individuals and households.

Contribution to society: less debt/mortgage defaults and other financial problems.
Customer segmentation (AFM)

**Controlled**
- Long decision making process.
- Want to do it themselves.
- Consider many alternatives.
- High education.
- Do tax declaration themselves.
- Do damage insurance themselves.
- High/average income.
- Digital advice.

**Individual**
- Short decision making process.
- Consider few alternatives.
- Prefer a simple product.
- Low education.
- Prefer ‘face to face’ advice.
- Score low on knowledge.
- Deterred by costs.

**Extensive**
- Low education.
- Prefer ‘face to face’ advice.
- Score low on knowledge.
- Deterred by costs.

**Intensive**
- Take risks.
- Want to be ‘wealthy’.
- Investors: ‘take a risk’.
- Try new products.
- High education.
- High income.
- Prefer ‘limited co-creation’ + digital advice.

**Advice sensitive**
- Prefer decision together.
- Influenced by adviser.
- Low education.
- Prefer ‘face to face’ advice.
- Score low on knowledge.
### AFM segmentation

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<th>2011</th>
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<td>35%</td>
<td>45%</td>
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<tr>
<td>Ambitious</td>
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<td>Advice sensitive</td>
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<td>25.5%</td>
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<tr>
<td>Convenience oriented</td>
<td>18%</td>
<td>10%</td>
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