



**WHY WE ARE  
HARD-WIRED**

**TO MAKE**

**BAD DECISIONS**

**ABOUT MONEY**

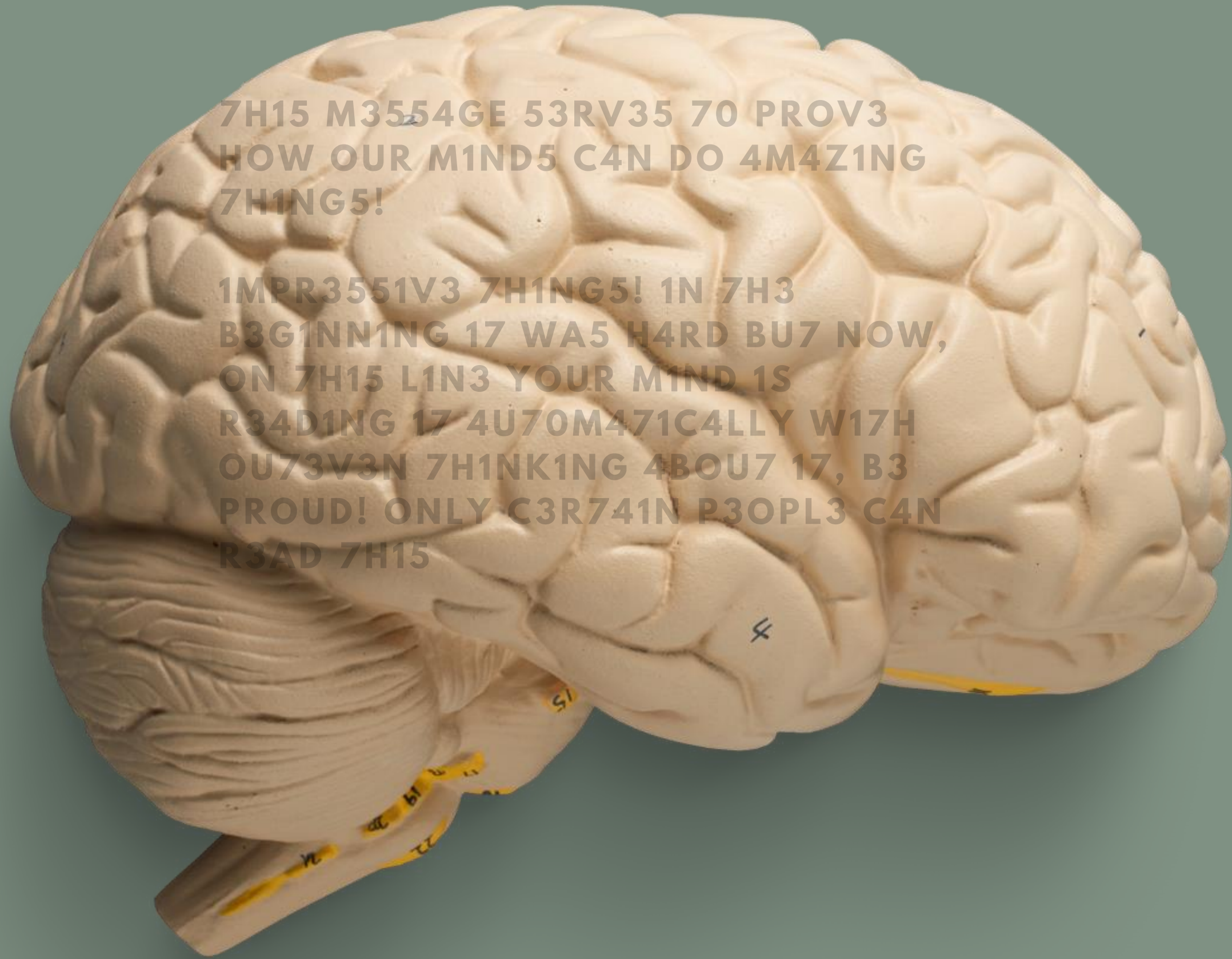












7H15 M3554GE 53RV35 70 PROV3  
HOW OUR M1ND5 C4N DO 4M4Z1NG  
7H1NG5!

1MPR3551V3 7H1NG5! 1N 7H3  
B3G1NN1NG 17 WA5 H4RD BU7 NOW,  
ON 7H15 L1N3 YOUR M1ND 1S  
R34D1NG 17 4U70M471C4LLY W17H  
OU73V3N 7H1NK1NG 4BOU7 17, B3  
PROUD! ONLY C3R741N P3OPL3 C4N  
R3AD 7H15

**WE ARE LITERALLY  
HARD-WIRED TO  
MAKE BAD  
DECISIONS ABOUT  
MONEY**

**7H15 M3554GE 53RV35 70 PROV3  
HOW OUR M1ND5 C4N DO 4M4Z1NG  
7H1NG5!**

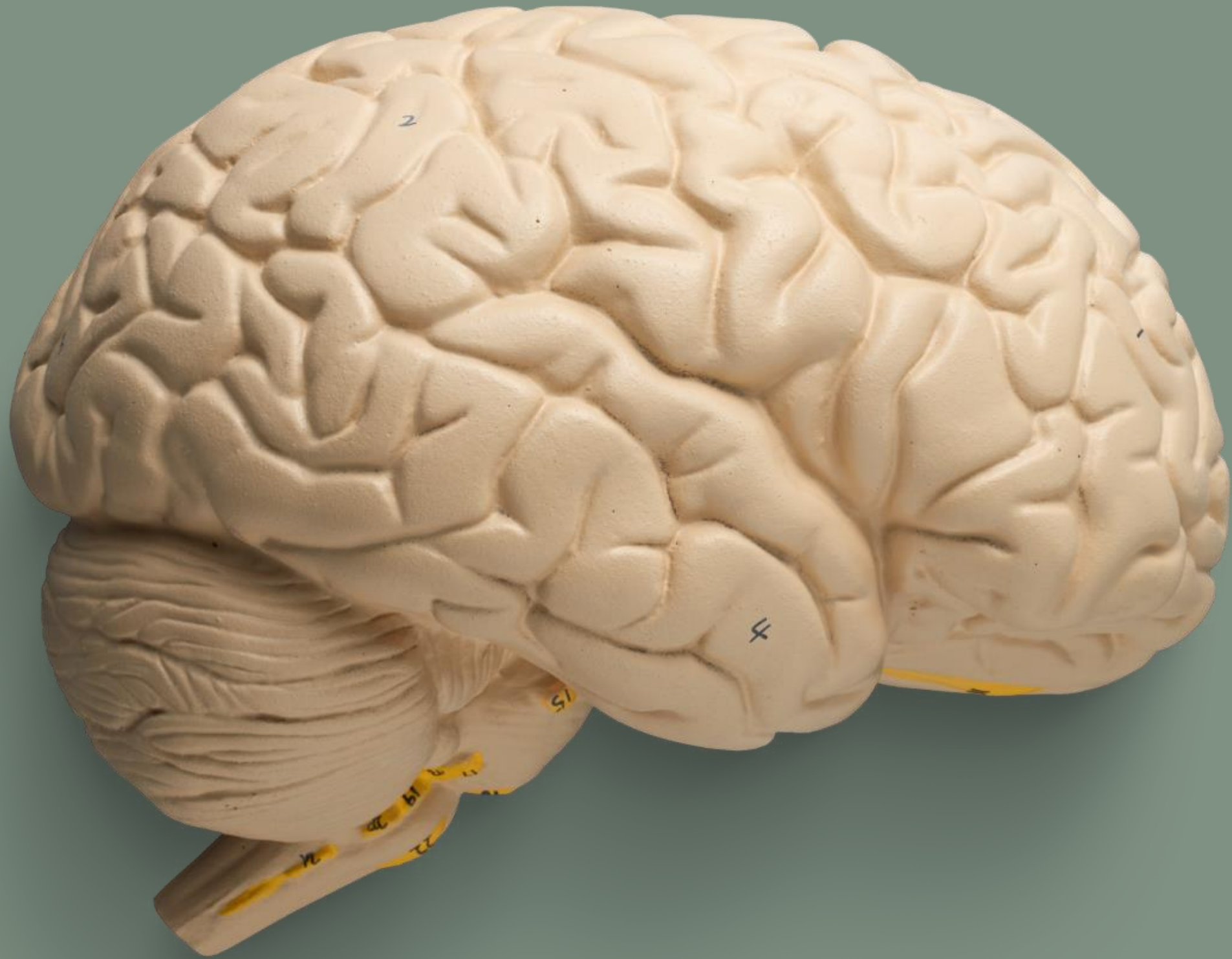
**1MPR3551V3 7H1NG5! 1N 7H3  
B3G1NN1NG 17 WA5 H4RD BU7 NOW,  
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OU73V3N 7H1NK1NG 4BOU7 17, B3  
PROUD! ONLY C3R741N P3OPL3 C4N  
R3AD 7H15**

**IN THE ABSENCE OF  
INFORMATION OUR  
BRAINS OUR  
DESIGNED TO FILL IN  
THE GAPS**









# MENTAL SHORTCUTS



# ANCHORING





**LAST 3 DIGITS OF YOUR  
PHONE NUMBER + 400**



**LAST 3 DIGITS OF YOUR  
PHONE NUMBER + 400**

**WHAT YEAR WAS ATILLA THE  
HUN CONQUERED IN EUROPE?**

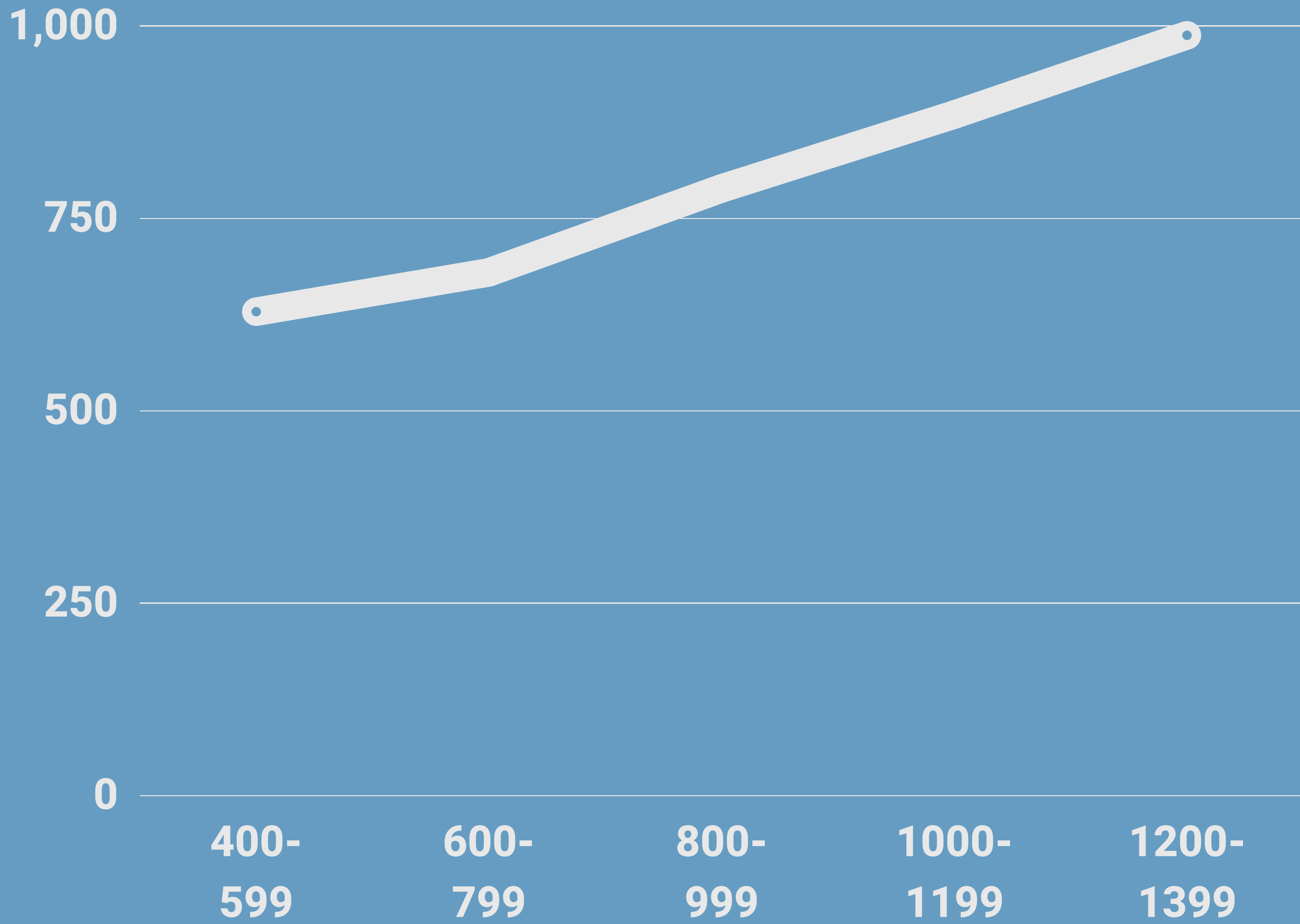


# PHONE NUMBER +400

# AVERAGE GUESS

<b>400 - 599</b>	<b>629 A.D.</b>
<b>600 - 799</b>	<b>680 A.D.</b>
<b>800 - 999</b>	<b>789 A.D.</b>
<b>1,000 - 1,199</b>	<b>885 A.D.</b>
<b>1,200 - 1,399</b>	<b>988 A.D.</b>







# CHALLENGES

**PARTICIPATION RATE**

**CONTRIBUTION RATE**

**ASSET ALLOCATION**



# FACTORS

FINANCIAL OVERLOAD

DISTRUST

PRESENT BIAS

**HOW MUCH DOES INCREASING  
THE MATCH RATE AFFECT THE  
PARTICIPATION RATE?**



# HOW MUCH DOES INCREASING THE MATCH RATE AFFECT THE PARTICIPATION RATE?

FOR EVERY 10 p.p. INCREASE IN MATCH RATE:

**2.5 p.p.**

Papke & Poterba (1995)

**6.3 p.p.**

Clark & Schieber (1998)

**3 p.p.**

Clark et al. (2000)

**2 p.p.**

Engelhardt & Kumar (2007)

# MATCH RATES

0%

20%

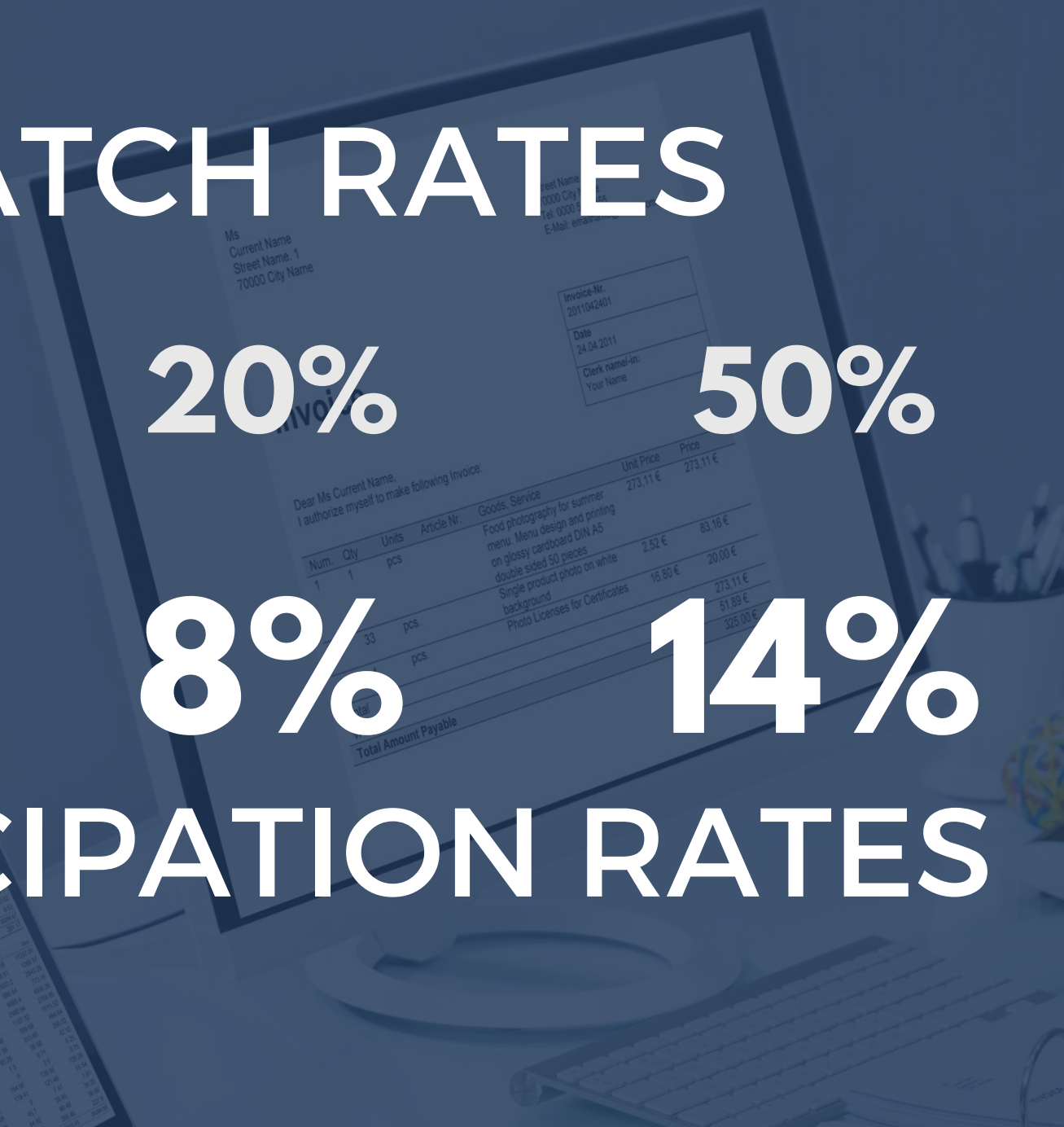
50%

3%

8%

14%

# PARTICIPATION RATES



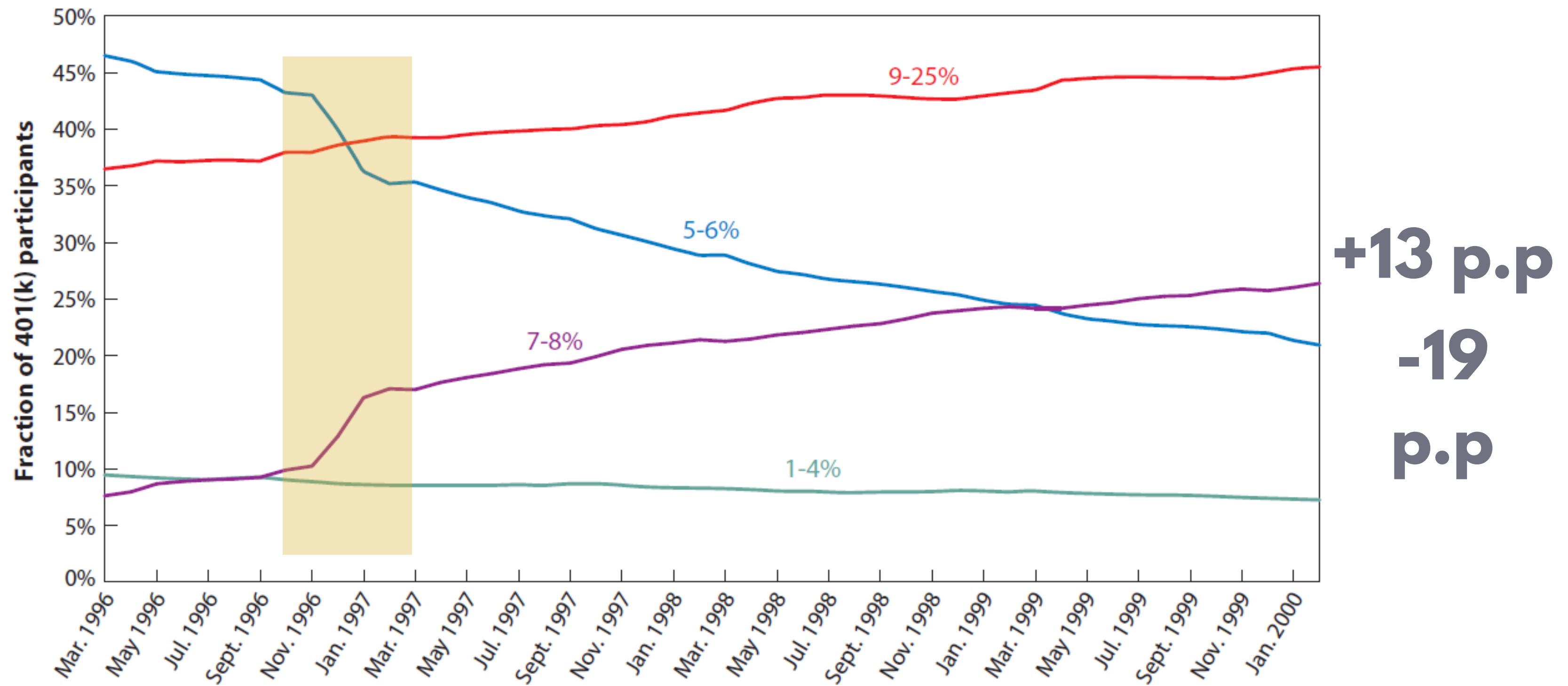


# CONTRIBUTION RATES

MATCH RATES

MATCH THRESHOLDS

VESTING SCHEDULES



**Figure 1**

Distribution of 401(k) participant contribution rates at one company following a match threshold increase from 5% to 7% of income for union employees and from 6% to 8% of income for management employees. Lines correspond to the percent of their income participants contributed to the 401(k) plan: (red) 9–25% of income, (purple) 7–8% of income, (blue) 5–6% of income, and (light green) 1–4% of income. Figure reproduced from Choi et al. (2002).

Choi, J. J. (2015). Contributions to defined contribution pension plans. Annual Review of Financial Economics, 7, 161-178.



# THE STATUS QUO BIAS

## ORGAN DONATION RATES

### OPT-IN REGIMES

4% - 28%

### OPT-OUT REGIMES

86% - 99.997%



# INERTIA

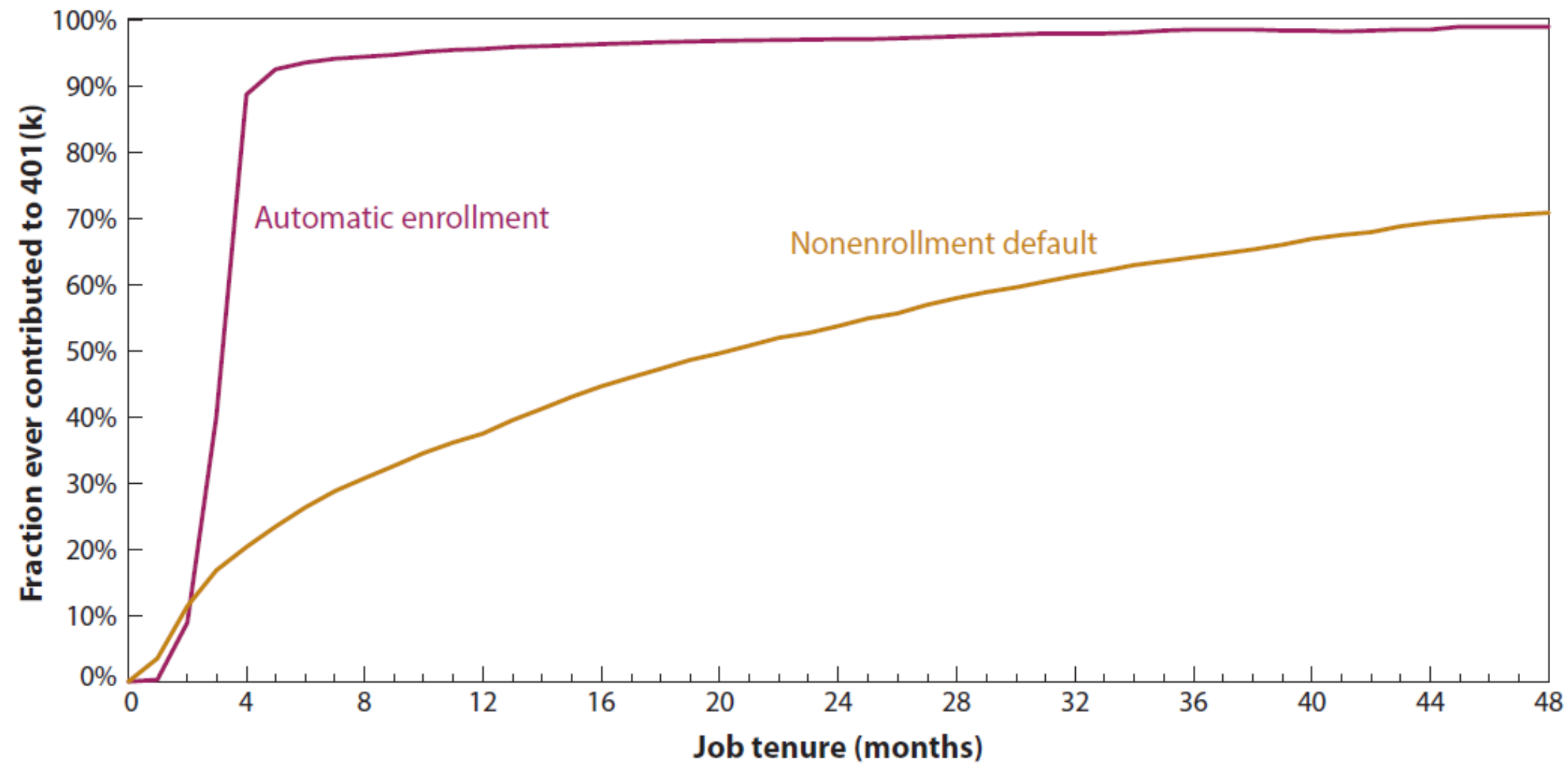


Figure 2

Fraction of employees at one company hired under automatic enrollment or a nonenrollment default who have ever contributed to the company's 401(k) plan, by job tenure. Figure reproduced from Choi et al. (2004).

99%

VS

71%

EVER MADE A  
CONTRIBUTION IN  
FIRST FOUR YEARS



# AUTOMATIC ENROLMENT

DEFAULTS ARE IMPORTANT

3% vs 6%

DEFAULT CONTRIBUTION RATE

NO CHANGE IN PARTICIPATION RATE

# ENDORSEMENT EFFECT

DEFAULTS ARE IMPORTANT

IF DEFAULT IS MONEY MARKET,  
SEASONED EMPLOYEES ALSO  
ALLOCATE MORE TO MONEY  
MARKET FUNDS





# THE TYRANNY OF JAM

**"FOR EVERY ADDITIONAL 10 FUNDS, THE PARTICIPATION RATE IS LOWER BY 1.5 - 2 p.p."**

Sethi-Iyengar S, Huberman G, Jiang W. 2004. How much choice is too much? Contributions to 401(k) retirement plans. In Pension Design and Structure: New Lessons from Behavioral Finance, ed. OS Mitchell, SP Utkus, pp. 83-95. Oxford, UK: Oxf. Univ. Press

**SOLUTION?: QUICK ENROLMENT  
(INCREASED PARTICIPATION RATES BY 10 TO 20 p.p.)**

Choi JJ, Laibson D, Madrian BC. 2011. Reducing the complexity costs of 401(k) participation through Quick Enrollment™. In Developments in the Economics of Aging, ed. DA Wise, pp. 57-82. Chicago, IL: Univ. Chic. Press



# DEFAULT ASSET ALLOCATION

**TIAA-CREF MEDIAN ASSET  
ALLOCATION CHANGES OVER A  
LIFETIME WAS ZERO!!**

**MONEY MARKET?  
BALANCED PORTFOLIO?  
TARGET DATE PORTFOLIO?**

# FINANCIAL EDUCATION IN THE WORKPLACE

**+ 12.1 p.p PARTICIPATION RATE**

**+ 1.1 p.p CONTRIBUTION RATE**

Bernheim BD, Garrett DM. 2003. The effects of financial education in the workplace: evidence from a survey of households. J. Public Econ. 87:1487–519



# LOSS AVERSION

**\$50k INCOME, 3% MATCH**  
**3% REAL RETURN, 40 YEARS**

**= GIVING UP 2.26 YEARS OF  
ANNUAL SALARY**

# **HYPERBOLIC DISCOUNTING**



**X**



**X + 1 WEEK**



**SAVE MORE FOR TOMORROW,  
TOMORROW**

**3.5% to 13.6%\***

AFTER FOURTH PAY INCREASE

# SAVE MORE FOR TOMORROW, TOMORROW

INCOME	25	35	45	55
\$25,000	57% to 108%	57% to 90%	56% to 75%	55% to 63%
\$50,000	51% to 98%	51% to 83%	51% to 70%	54% to 62%
\$75,000	48% to 90%	49% to 77%	46% to 63%	43% to 50%

MEDIAN INCOME REPLACEMENT RATIOS

# REWARD SUBSTITUTION



**PRESENT**

HURTS TO FOREGO  
CONSUMPTION

**FUTURE**

REWARD OF FUTURE  
CONSUMPTION



# REWARD SUBSTITUTION



**PRESENT**

HURTS TO FOREGO  
CONSUMPTION

**FUTURE**

REWARD OF FUTURE  
CONSUMPTION

# REWARD SUBSTITUTION



**PRESENT**

HURTS TO FOREGO  
CONSUMPTION

**FUTURE**

REWARD OF FUTURE  
CONSUMPTION

**AUTOMATIC ENROLLMENT**

**INCREASE MATCH RATE**

**INCREASE MATCH THRESHOLD**

**PROVIDE TARGETED FINANCIAL LITERACY**

**REWARD SUBSTITUTION**

**DEFAULT ASSET ALLOCATION**





**THANK YOU**