The Impact of Financial Literacy on Negotiation Behavior

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Broad research question

How does financial literacy impact negotiations?

Responsibility for own long-term financial well-being

→ development and training

→ financial choices

→ understanding and interpretation of business contexts, e.g.,

- ❑ financial disclosures, including non-quantitative issues (Krische, *Contemporary Accounting Research*, forthcoming)
- ❑ management of interpersonal communications and interactions in common business contexts

Research Approach

- **Individual employment-related negotiations**
- **Participants**
  - students recruited from undergraduate business courses
  - adults recruited from an online crowdsourcing service
- **Negotiation behaviors in an employment situation**
  - Willingness to initiate a negotiation
  - Likelihood of achieving a favorable outcome, if initiated
- **Financial literacy**
  - Studies 1 and 2: **Measured** financial knowledge and confidence, with statistical controls
  - Studies 3 and 4: **Manipulated** financial knowledge via feedback with learning opportunities

So, what?

- **IF financial literacy improves the likelihood of initiation and likelihood of achieving a favorable outcome from a negotiation…**
- **THEN there are likely important implications for career advancement and compensation:**
  - Financial literacy may impact career advancement even for fields not traditionally considered as financial or quantitative.
  - Lower levels of financial literacy have been documented for certain demographic groups, on average, suggesting:
    - Even higher hurdles to career advancement
    - Proactive intervention

Hypothesis

Participants' financial literacy improves their

a. willingness to engage in negotiation and
b. likelihood of achieving a favorable outcome

from a negotiation.

Financial literacy

1. **Fundamental *financial knowledge* or understanding**
   - Lusardi and Mitchell
     - Research
       - e.g., Almenberg and Widmark (2011), Li et al. (2011), many others
     - Nationwide surveys
       - e.g., FINRA Foundation (2009a, 2009b, 2012)

2. ***Financial confidence***
   as perceived or subjective financial knowledge
   - Less consistency in measurement
     - Research
       - e.g., Tokar (2015), Allgood and Walstad (2016), Tang and Baker (2016)
     - Nationwide surveys
       - e.g., FINRA Foundation (2009a, 2009b, 2012)

Financial knowledge (Appendix A, panel A)

- **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?** (More than/Less than/Exactly $102)
- **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?** (More than/Less than/Same as today)
- **If the interest rate falls, what should happen to bond prices?** (Rise/Fall/Stay the same)
- **Buying a single company's stock usually provides a safer return than a stock mutual fund.** (True/False)
- **A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.** (True/False)

Financial confidence (Appendix A, Panel B)

- **How strongly do you agree or disagree with the following statements?**
  Seven-point scale from "Strongly Disagree" to "Strongly Agree"
  - I am good at dealing with day-to-day financial matters, such as checking accounts, credit and debit cards, and tracking expenses
  - I am pretty good at math
  - I regularly keep up with economic and financial news.
- **On a scale from 1 to 7, where 1 means "Very Low" and 7 means "Very High," how would you assess your overall financial knowledge?**

Financial Literacy → Negotiations

a. Willingness to negotiate

- Lower confidence in negotiation ability
  - e.g., Bandura (2001), Huppertz (2003)
- Lower clarity of purpose from potential negotiation
  - e.g., Volkema (2009)

b. Negotiation performance

- Lower ability leads to higher test anxiety, with anxious negotiators lowering aspirations and first offers
  - e.g., Brooks and Schweitzer (2011)
- Lower first offers lead to worse negotiation outcomes
  - e.g., Liebert et al. (1968), Yukl (1974), Neale and Bazerman (1991), Galinsky et al. (2002)
- Lower awareness of broader implications (e.g., opportunity cost)

Studies 1 and 2: Measured Knowledge and Confidence

	Study 1	Study 2
Participants	Students at U.S. university (n=236)	
Negotiation context	Financial bonus / Vacation days (Appendix C)	
Pre-negotiation as Employee		
	Likelihood of initiating negotiation	
	First offer, drop down menu	
Negotiating dyads (assigned role as Manager or Employee)		
	Agreement reached	
	Value of agreement (standardized by context)	
Demographics	(including financial knowledge, financial confidence, and sensitivity variables: *numeracy, analytical reasoning, risk preferences*)	

Studies 1 and 2: Measured Knowledge and Confidence

	Study 1	Study 2
Participants	Students at U.S. university (n=236)	U.S.-based MTurk workers (n=986)
Negotiation context	Financial bonus / Vacation days (Appendix C)	2 Financial / 2 Non-financial / Inequity / Complexity (Appendix D)
Pre-negotiation as Employee		
	Likelihood of initiating negotiation	Likelihood of initiating negotiation
	First offer, drop down menu	First offer, drop down menu
Negotiating dyads (assigned role as Manager or Employee)		
	Agreement reached	—
	Value of agreement (standardized by context)	—
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TABLE 1
Study 1 Descriptive Statistics

Panel A: Financial literacy

Variable	N	Mean	SD	Range		Correlation with Financial Knowledge		Correlation with Financial Confidence	
				Min	Max	r	p	r	p
Financial knowledge	236	0.697	0.253	0	1	—	—	0.510	<0.001
Financial confidence	236	4.660	1.320	1	7	0.510	<0.001	—	—

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Panel B: Pre-negotiation dependent variables

Variable	N	Mean	SD	Range		Correlation with Financial Knowledge		Correlation with Financial Confidence	
				Min	Max	r	p	r	p
Likelihood of engaging in negotiation	236	5.068	1.469	1	7	0.122	0.030	0.180	0.003
First-offer	236	6.017	1.870	1	8	0.117	0.036	0.020	0.380

TABLE 2
Study 1 Regression analyses

Panel A: Pre-negotiation dependent measures

	Likelihood of engaging in negotiation				First offer			
	Estimate	**Std Err**	**t**	**p**	**Estimate**	**Std Err**	**t**	**p**
Intercept	4.078	0.363	11.25	<0.001	5.626	0.466	12.07	<0.001
Financial Knowledge	0.240	0.435	0.55	0.291	1.070	0.559	1.91	0.028
Financial Confidence	0.177	0.083	2.12	0.018	-0.076	0.107	-0.71	0.478*

- Results suggest financial confidence drives participants' willingness to engage in negotiation, while financial knowledge influences the level of participants' first offer.

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TABLE 4
Study 2 Regression analyses

	Likelihood of engaging in negotiation				First offer			
	Estimate	**Std Err**	**t**	**p**	**Estimate**	**Std Err**	**t**	**p**
Intercept	3.940	0.233	16.910	<0.001	5.817	0.510	11.420	<0.001
Financial Knowledge	-0.205	0.216	-0.950	0.828	1.282	0.472	2.710	0.003
Financial Confidence	0.282	0.045	6.210	<0.001	0.162	0.099	1.640	0.051

- Results suggest financial confidence drives participants' willingness to engage in negotiation, while financial knowledge influences the level of participants' first offer.

Sensitivity Analyses

- **Financial knowledge and confidence generally ↑ with**
  - Gender (reported being male)
  - Numeracy skills
  - Analytical reasoning
  - Risk preferences
- **But, when each of these individual measures are added to the regression models:**
  - financial confidence remains significantly related to participants' willingness to engage in negotiation (all $p < 0.05$)
  - financial knowledge remains at least marginally related to the level of participants' first offer (all $p < 0.10$)

More Sensitivity Analyses

- **Financial knowledge and confidence unrelated to context manipulations**
  - Randomization, as expected
- **Some evidence of interactions when context manipulations are added to regressions:**
  - Study 1: no significant interactions with either financial knowledge or financial literacy.
  - Study 2: in initiation, only significant interaction between context and confidence

    - confidence remains significant in both contexts

    in first offer, only significant interaction between inequity and knowledge

    - higher knowledge significantly increases offer in higher inequity, and not lower inequity, conditions

Negotiating dyads (students only, Study 1)

- **Assigned roles in dyads take on opposite perspectives**

Negotiating dyads (students only, Study 1)

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TABLE 2
Study 1 Regression analyses
Panel B: Post-negotiation dependent measures

	Agreement				Negotiated Outcome			
	Estimate	**Std Err**	**t**	**p**	**Estimate**	**Std Err**	**t**	**p**
Intercept	1.405	0.319	4.41	<0.001	-0.038	0.833	-0.05	0.964
Financial Knowledge - Employee	-0.293	0.230	-1.28	0.205	0.788	0.582	1.35	0.092
Financial Knowledge - Manager	-0.199	0.250	-0.80	0.428	-1.522	0.650	-2.34	0.012
Financial Confidence - Employee	-0.093	0.044	-2.10	0.039	0.024	0.109	0.22	0.413
Financial Confidence - Manager	-0.027	0.047	-0.57	0.570	0.097	0.123	0.79	0.783

- Employees' financial confidence ↓ likelihood of agreement
  - *Perhaps demanding more with relatively little negotiation power?*
- But, if an agreement was reached, then as expected
  - Employees' financial knowledge ↑ negotiated outcome
  - Managers' financial knowledge ↓ negotiated outcome

Studies 3 and 4: Manipulated Financial Knowledge

	Study 3	Study 4
Participants		
Pre-test	*Financial knowledge questions* ***with/without feedback***	
Context		
Pre-negotiation as Employee		
Dyads (assigned role as Manager or Employee, with control/control or control/feedback)		
Post-test	*Financial knowledge questions (without feedback)*	
Demographics		

Studies 3 and 4:
Feedback example (Appendix E)

Question 1:

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?

- ❍ More than $102
- ❍ Exactly $102
- ❍ Less than $102

Studies 3 and 4:
Feedback example (Appendix E)

That's correct!
OR
Let's think through the answer to that question:

If you had $100 in a savings account and the interest rate was 2% per year, you would earn 2% each year.

- In the first year, you would earn $2.00, for a total of $102.00 at the end of the year.
- In the second year, you would earn $2.04, for a total of $104.04. *That's a little higher because of compounding -- you've earned interest on the extra $2 from the first year in addition to the original $100.*
- In the third year, you would earn $2.08, for a total of $106.12.
- In the fourth year, you would earn $2.12, for a total of $108.24.
- In the fifth year, you would earn $2.16, for a total of $110.40.

So, if you had $100 in a savings account and the interest rate was 2% per year, then you would have $110.40 after five years if you left the money to grow.

Please click on CONTINUE to proceed to the next question.
OR
Please click on CONTINUE to try this question again.

Studies 3 and 4: Manipulated Financial Knowledge

	Study 3	Study 4
Participants	Students at U.S. university (n=304)	
Pre-test	*Financial knowledge questions* ***with/without feedback***	
Context	Financial bonus	
Pre-negotiation as Employee		
	Likelihood of initiating negotiation	
	First offer, drop down menu	
Dyads (assigned role as Manager or Employee, with control/control or control/feedback)		
	Agreement reached	
	Value of agreement (standardized)	
Post-test	*Financial knowledge questions (without feedback)*	
Demographics (including financial confidence)		

Studies 3 and 4: Manipulated Financial Knowledge

	Study 3	Study 4
Participants	Students at U.S. university (n=304)	U.S.-based MTurk workers (n=404)
Pre-test	*Financial knowledge questions* ***with/without feedback***	*Financial knowledge questions* ***with/without feedback***
Context	Financial bonus	Financial bonus
Pre-negotiation as Employee		
	Likelihood of initiating negotiation	Likelihood of initiating negotiation
	First offer, drop down menu	First offer, drop down menu
Dyads (assigned role as Manager or Employee, with control/control or control/feedback)		
	Agreement reached	—
	Value of agreement (standardized)	—
Post-test	*Financial knowledge questions (without feedback)*	*Financial knowledge questions (without feedback)*
Demographics (including financial confidence)		

TABLE 5
Study 3 and Study 4 Descriptive Statistics

Panel A: Financial literacy

Variable	No feedback group (control) N	Mean	SD	Min	Max	Feedback group N	Mean	SD	Min	Max	*Feedback Difference*	*p*
STUDY 3:												
Knowledge (pre-test)	207	0.733	0.208	0	1	97	0.736	0.221	0	1	*0.003*	*0.458*
Knowledge (post-test)	207	0.729	0.224	0	1	97	0.930	0.139	0.4	1	*0.200*	*<.001*
Change in knowledge	*207*	*-0.004*	*0.141*	*-0.6*	*0.4*	*97*	*0.194*	*0.224*	*-0.4*	*0.8*	*0.198*	*<.001*
p		*0.693*					*<.001*					
Confidence (control)	207	4.191	1.083	1	6	97	4.428	0.994	2.25	6	*0.237*	*0.069*
STUDY 4:												
Knowledge (pre-test)	203	0.780	0.190	0.2	1	201	0.805	0.189	0	1	0.025	*0.096*
Knowledge (post-test)	203	0.759	0.197	0.2	1	201	0.953	0.131	0.2	1	0.195	*<.001*
Change in knowledge	*203*	*-0.022*	*0.107*	*-0.4*	*0.6*	*201*	*0.148*	*0.176*	*-0.2*	*0.8*	*0.170*	*<.001*
p		*0.004*					*<.001*					
Confidence (control)	203	4.776	1.046	2	7	201	4.905	1.067	1	7	0.130	*0.109*

TABLE 6
Study 3 and Study 4 Regression analyses

Panel A: First offer (pre-negotiation from employee's perspective)

	Model 1: Initial knowledge, controlling for confidence			
	Estimate	**Std Err**	**t**	**p**
STUDY 3 (n=304)				
Intercept	6.153	0.458	13.440	<0.001
Financial Confidence	0.035	0.099	0.350	0.363
Financial Knowledge	1.109	0.498	2.230	0.013
Change in Knowledge				

TABLE 6
Study 3 and Study 4 Regression analyses

Panel A: First offer (pre-negotiation from employee's perspective)

	Model 1: Initial knowledge, controlling for confidence				Model 2: Initial and Change in knowledge, controlling for confidence			
	Estimate	**Std Err**	**t**	**p**	**Estimate**	**Std Err**	**t**	**p**
STUDY 3 (n=304)								
Intercept	6.153	0.458	13.440	<0.001	5.590	0.469	11.910	<0.001
Financial Confidence	0.035	0.099	0.350	0.363	-0.020	0.098	-0.210	0.582
Financial Knowledge	1.109	0.498	2.230	0.013	2.023	0.539	3.760	<0.001
Change in Knowledge					2.147	0.545	3.940	<0.001

No interaction with feedback manipulation.
Results are similar in the control and feedback conditions.

STUDY 4 (n=404)								
Intercept	5.668	0.405	14.000	<0.001	5.575	0.443	12.580	<0.001
Financial Confidence	0.112	0.074	1.510	0.066	0.113	0.074	1.520	0.064
Financial Knowledge	1.440	0.413	3.490	0.000	1.532	0.450	3.400	0.000
Change in Knowledge					0.249	0.485	0.510	0.304

Significant interaction with feedback manipulation.
Control: The (unpredicted) changes in knowledge have a *negative* impact on first offer.
Feedback: Change in financial knowledge has the *predicted positive* impact on first offer.

Negotiating dyads (students only, Study 3)

Table 6 (continued)

Panel B: Negotiated outcome (post-negotiation)

	Model 1: Initial knowledge, controlling for confidence				Model 2: Initial and Change in knowledge, controlling for confidence			
	Estimate	**Std Err**	**t**	**p**	**Estimate**	**Std Err**	**t**	**p**
STUDY 3 ONLY (n= 63 dyads)								
Intercept	0.799	0.917	0.870	0.387	1.119	0.902	1.240	0.220
Financial Confidence - Employee	-0.064	0.147	-0.430	0.667	-0.055	0.141	-0.390	0.651
Financial Confidence - Manager	-0.200	0.119	-1.690	0.048	-0.043	0.127	-0.340	0.367
Financial Knowledge - Employee	0.541	0.671	0.810	0.212	0.454	0.690	0.660	0.257
Financial Knowledge - Manager	-0.093	0.643	-0.150	0.443	-1.181	0.732	-1.610	0.056
Change in Knowledge - Employee					-0.034	0.749	-0.050	0.518
Change in Knowledge - Manager					-2.210	0.807	-2.740	0.004

Participants' financial knowledge and change in knowledge are significantly related to the negotiated outcome, at least for participants in the role of the manager.

Summary

- **Studies 1 and 2: Measured knowledge and confidence**
  - Financial confidence $\leftrightarrow$ willingness to engage in negotiation.
  - Financial knowledge $\leftrightarrow$ level of first offer.
  - Effects persist after statistically controlling for gender, alternative cognitive skill sets, and risk preferences.
- **Studies 3 and 4: Feedback with learning opportunities**
  - Feedback $\rightarrow$ higher financial literacy (at least in short term) which, in turn $\rightarrow$ increases level of first offer.
- **Negotiating dyads in Studies 1 and 3**
  - Supports increase in financial knowledge $\rightarrow$ level of first offer
    - Direction of impact determined by role in negotiation
    - Strength of impact may vary with role characteristics

So, what?

- **Financial literacy improves the likelihood of initiating and likelihood of achieving a favorable outcome from a negotiation.**
- **This highlights probable implications for career advancement and compensation:**
  - Financial literacy may impact career advancement even for fields not traditionally considered as financial or quantitative.
  - Lower levels of financial literacy have been documented for certain demographic groups, on average, suggesting:
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