The Balanced Scorecard (BSC): Some Evidence and Plenty of Questions

Alan Webb
Associate Professor
School of Accountancy
University of Waterloo

The BSC: Background & Claims

- Nature of the BSC and its use:
  - Mix of ***lead and lag performance measures*** organized into categories or ***perspectives*** (financial, customer, internal business process, learning & growth)
  - ***Causal links*** among measures (e.g., customer satisfaction leads to repeat sales)
  - Measures should be derived from organization's strategy
  - Commonly employed at the ***division/strategic business unit*** level
  - 40% of Fortune 1000 companies use some form of BSC (Frigo and Krumwiede 2000)
  - "among the most significant developments in management accounting" (Atkinson et al. 1997)

The BSC: Background & Claims

- Claims (e.g., Kaplan and Norton 1996, 2000, 2001, 2004, 2005, 2006……)
  - Provides a framework for implementing, communicating & monitoring strategy
  - Leads to *better* decision making than with financial measures alone
  - Improved performance at the individual and firm-level (AICPA: #1 reason for adopting)

RQ's being addressed by accounting BSC researchers

- How is BSC used to ***evaluate performance*** of business unit managers (Lipe and Salterio 2000)?
- How does BSC affect judgments and decisions of individuals using it to ***manage their business units*** (Malina and Selto 2001; McWhorter 2003)?
- Is there an association between BSC use and ***financial performance*** (Hoque and James 2000, Ittner et al. 2003)?

STUDY 1

The Balanced Scorecard: The Effects of Assurance and Process Accountability on Managerial Judgment

Theresa Libby
Wilfrid Laurier University
Steven Salterio
Queens University
and
Alan Webb
University of Waterloo

Lipe and Salterio (2000) (LS): The Evidence

- Subjects rate the performance of two managers of two divisions of a clothing retailer using BSCs that include both common and unique measures
- Performance relative to target provided for all measures
- Results indicate judgments were affected by common measures but **not** unique measures
- Findings consistent with “common measures bias” originally documented by Slovic and MacPhillamy (1974)

Lipe and Salterio (2000) (LS): Problematic for BSC Users?

- Yes - from a theoretical and practical perspective
  - Theory: informativeness criterion (Holmstrom 1979; Banker and Datar 1989; Feltham and Xie 1994; Hemmer 1996; Datar et al. 2001); ignore measures in ex post performance evaluations, will they be attended to ex ante by managers? (Holmstrom and Milgrom 1991)
  - Practical: BSC proponents claim that unique measures represent key drivers of performance. If ignored, a key BSC benefit lost?

Debiasing the BSC Common Measures Bias

- Kennedy (1995) debiasing framework
- What causes the common measures bias?
  - **Effort driven**: Comparison of relative performance using only common measures cognitively "easier." (Heneman 1986; Zhang and Markman 2001).
  - **External data driven**: managers may doubt quality of the unique measures (Ittner and Larcker 1998).
  - **Internal data driven**: managers may lack the necessary knowledge to enable processing of the unique measures.

How to reduce the bias and why it will work: H1: Effort Hypothesis

- More effortful processing can be invoked by establishing ***process accountability*** (Lerner and Tetlock 1999; Siegel-Jacobs and Yates 1996; Cloyd 1997)
- BSC Context: justify performance evaluation decisions to a superior
- ***Why*** will this work? LS (2000): weight on unique = 0; so any increased usage will increase relative weighting

H1: Managers who are *only* required to **justify** their performance evaluation judgments will be more likely to use unique performance measures in their performance evaluation judgments than managers who are not so required.

How to reduce the bias and why it will work: H2: Assurance Hypothesis

- ***Assurance provision*** can increase reliability of information for decision making (Libby 1979; Blackwell et al. 1998; Pany and Smith 1982)
- BSC Context: give assurance report on relevance and reliability of BSC performance measures
- ***Why*** will this work? any increased perception of unique relevance/reliability will increase relative weighting

H2: Managers receiving *only* third party **assurance** about the relevance and reliability of the BSC performance measures more likely to use unique performance measures in performance evaluation judgments than managers not receiving such assurance.

Research question:

- What will ***combination*** of justification and assurance report do to performance evaluation judgments?

  Are managers who are required to **justify** their performance evaluation judgments **and** who also receive **assurance** about the relevance and reliability of the BSC performance measures more likely to utilize the unique performance measures in their performance evaluation judgments than managers who are **neither** required to justify their performance evaluation judgments nor receive relevance and reliability assurance?

The Experiment

- Participants
  - 227 MBA students; avg 5.8 years of work experience; 22% with accounting and finance experience; 65% male
- Factors manipulated (2 X 2 design):
    - Assurance report: present/absent (between Ss)
    - Justification memo: present/absent (between Ss)
    - Two divisions evaluated (repeated measure.)
- Measured control variables:
    - Accounting and finance work experience
    - Individual differences in importance of fairness in performance evaluation

Experimental Task

- Task
  - Partial replication of LS (2000): two managers of two divisions with different strategies were evaluated by the participants
  - RadWear performed better on common measures while unique measures favor WorkWear; ***sum of excess performance*** (common & unique) versus target is the ***same*** for each division
  - Dependent variable: RadWear - WorkWear performance evaluation (scale 0-100, same as LS 2000)
  - ***Positive*** difference indicates common measures bias

Manipulation & other key checks:

- Recognized ***different performance measures*** were being used in the two divisions
- Recognized the two divisions ***sold to different markets*** and agreed that it was ***appropriate to use different performance measures***
- Those with an assurance report thought all measures were more ***relevant and reliable*** than those that did not receive the report
- Perceptions of ***fairness*** were important to evaluations
- ***Bias*** was replicated in no assurance report/no justify condition and of similar magnitude to LS 2000 bias.

Mean differences (standard error) between performance evaluations

	Written Justification	
Assurance Report	Absent	Present
Absent	6.22 (1.47) N = 52 *"base case"*	1.96 (1.40) N = 58
Present	2.04 (1.40) N = 58	3.60 (1.43) N = 55

- Larger positive differences represent larger common measures bias
- Means adjusted for experience and fairness control variables

Bias reduction planned contrast tests: Differences between cell means

H1: Managers required to justify their evaluations versus base case	$\mu_{1,1} - \mu_{1,2} = 4.26\ (2.03)$	$p < 0.05$
H2: Managers receiving an assurance report versus base case	$\mu_{1,1} - \mu_{2,1} = 4.18\ (2.03)$	$p < 0.05$
Research question: Managers required to justify their evaluation *and* receiving an assurance report versus base case	$\mu_{1,1} - \mu_{2,2} = 2.62\ (2.05)$	$p = 0.10$

- Probabilities calculated using one-tailed tests
- All methods reduce bias although individual methods better than combination

Paradoxical result: Assurance + Justification

Assurance Report

- Reanalysis of "relevance and reliability" measure indicates subjects considered BSC measures highly relevant and reliable ***only*** in Assurance condition (Base = Justify = Assurance + Justify)

Justification Memos

- Analysis of justification memos indicate subjects in ***justification only*** condition mentioned using all performance measures significantly more often than in ***assurance + justify*** condition

Additional Experiment

- Original assurance report covered both assurance and reliability of BSC measures
- Which of the two drives the results?
- 54 participants (27 base; 27 assurance only: all references to relevance dropped, reliability only)
- Similar reduction in bias ($p < .08$)
- Appears concern was reliability of measures

Contributions

- Identifies ***practical methods*** of increasing the information set managers use when evaluating divisional performance using a menu of BSC-type performance measures
- Provides insight into potential effectiveness of ***assurance reports*** over performance measures

STUDY 2
Managerial Commitment to the Multiple Goals Contained in a Strategic Performance Measurement System

Alan Webb
School of Accountancy
University of Waterloo

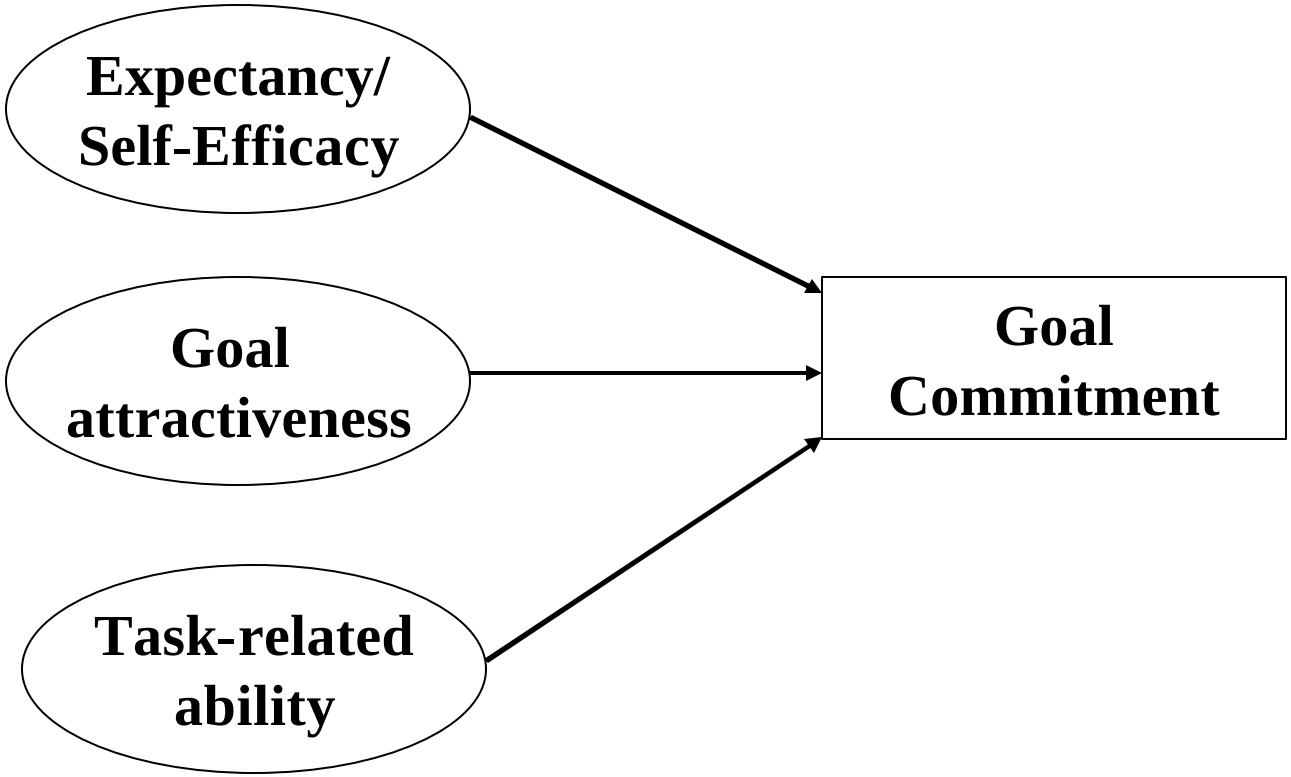
Motivation & Research Question

- Why the goal commitment focus?
  - Common reason for SPMS adoption: performance improvement
  - Use of multiple, non-financial and financial goals in a SPMS (Ittner et al. 2003; Malina and Selto 2001)
  - Goal commitment essential when difficult goals are employed
    - Psychology literature (Klein et al. 1999; Locke and Latham 1990)
    - Accounting literature (Kren 1990; Wentzel 2002)
  - Limited study of goal commitment in multi-goal settings

- *What features unique to a SPMS might affect managers commitment to non-financial and financial goals?*

Goal Commitment & its Determinants

- Goal commitment is "*the determination to try for a goal and the persistence in pursuing it over time*" (Hollenbeck and Klein 1987)



Determinants of Goal Commitment

- **Self-efficacy**:
  - *"beliefs in one's capabilities to mobilize the motivation, cognitive resources and courses of action needed to meet given situational demands"* (Wood and Bandura 1989)
  - Positive association with goal commitment (Brown et al. 1998; Earley 1986)
  - Not simply a personality trait; situational factors matter (e.g., performance feedback, training, etc.)

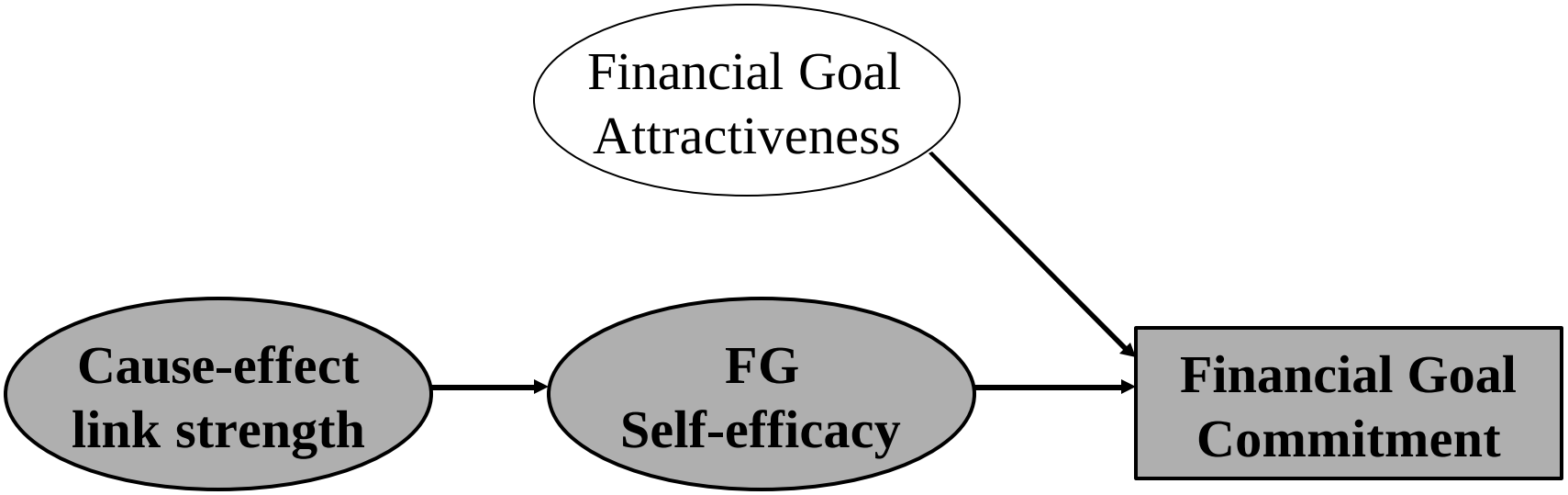
- **Goal attractiveness**:
  - "*the anticipated satisfaction from goal attainment*" (Klein 1991)
  - Positive association with goal commitment (Klein and Wright 1994; Kren 1990; Riedel et al. 1988)
  - Incentives affect goal attractiveness (Wright 1992)

Strength of SPMS Cause-Effect Links

Financial Goal Commitment

- SPMS cause-effect links: relations among outcomes on non-financial performance objectives and measures and outcomes on financial objectives and measures
  - Employee skills & motivation → internal business processes → customer satisfaction → financial performance
- Some evidence suggests SPMS cause-effect content can provide information relevant to achieving financial goals (Malina and Selto 2001; McWhorter 2002)
- Information relevant to task accomplishment increases self-efficacy

Impact of SPMS Cause-Effect Link Strength on Financial Goal Commitment



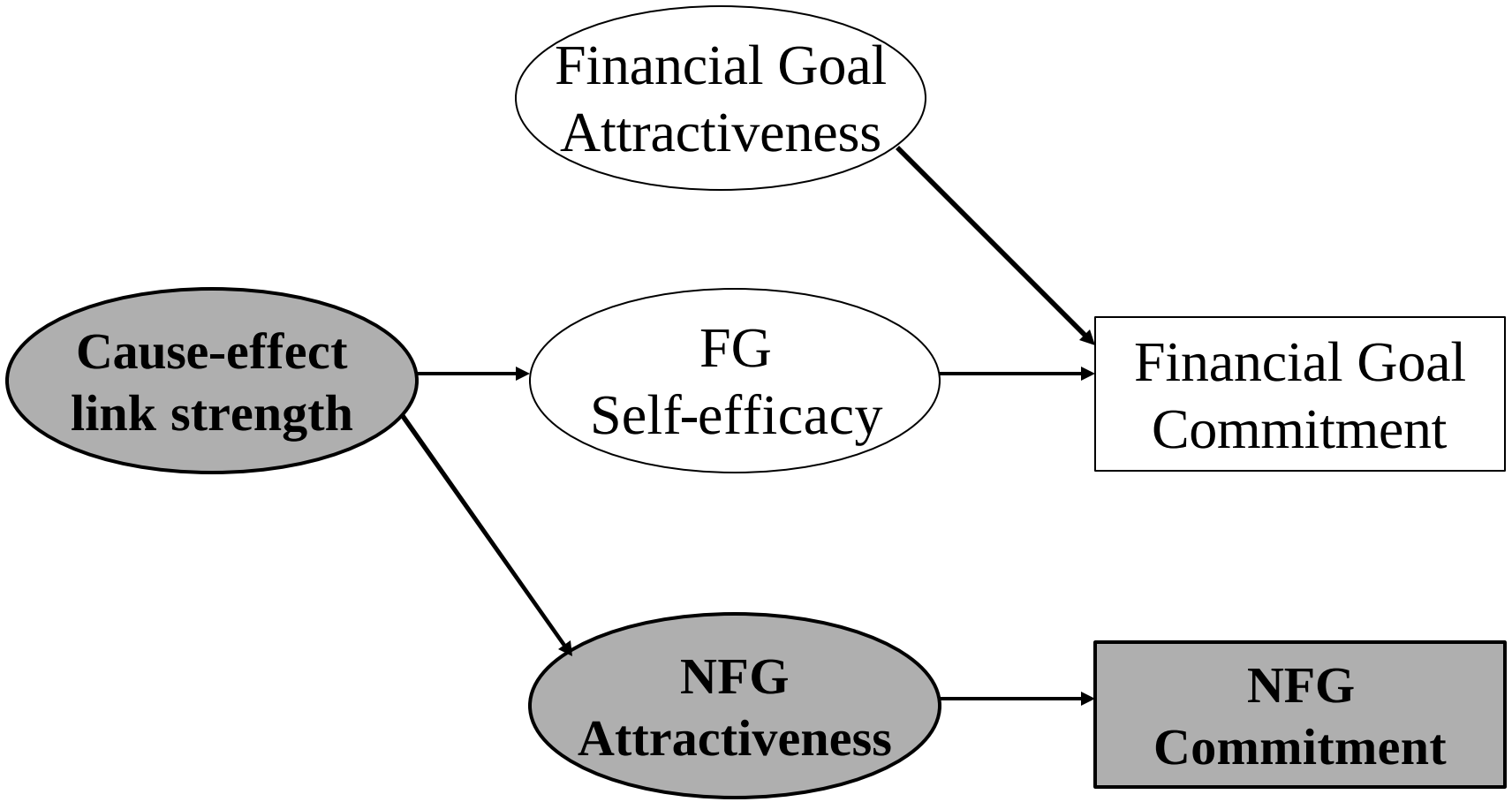
H1 & H2

Strength of SPMS Cause-Effect Links

Non-Financial Goal Commitment

- Cause-effect structure of a SPMS means achievement of non-financial goals may affect achievement of financial goals (Atkinson et al. 1997)
- If achieving financial goal is attractive, achieving non-financial goals that are causally linked will be too
- Evidence indicates financial performance is important in compensation schemes of SPMS users (Ittner and Larcker 1998; Ittner et al. 2003)

Impact of SPMS Cause-Effect Link Strength on Non-Financial Goal Commitment

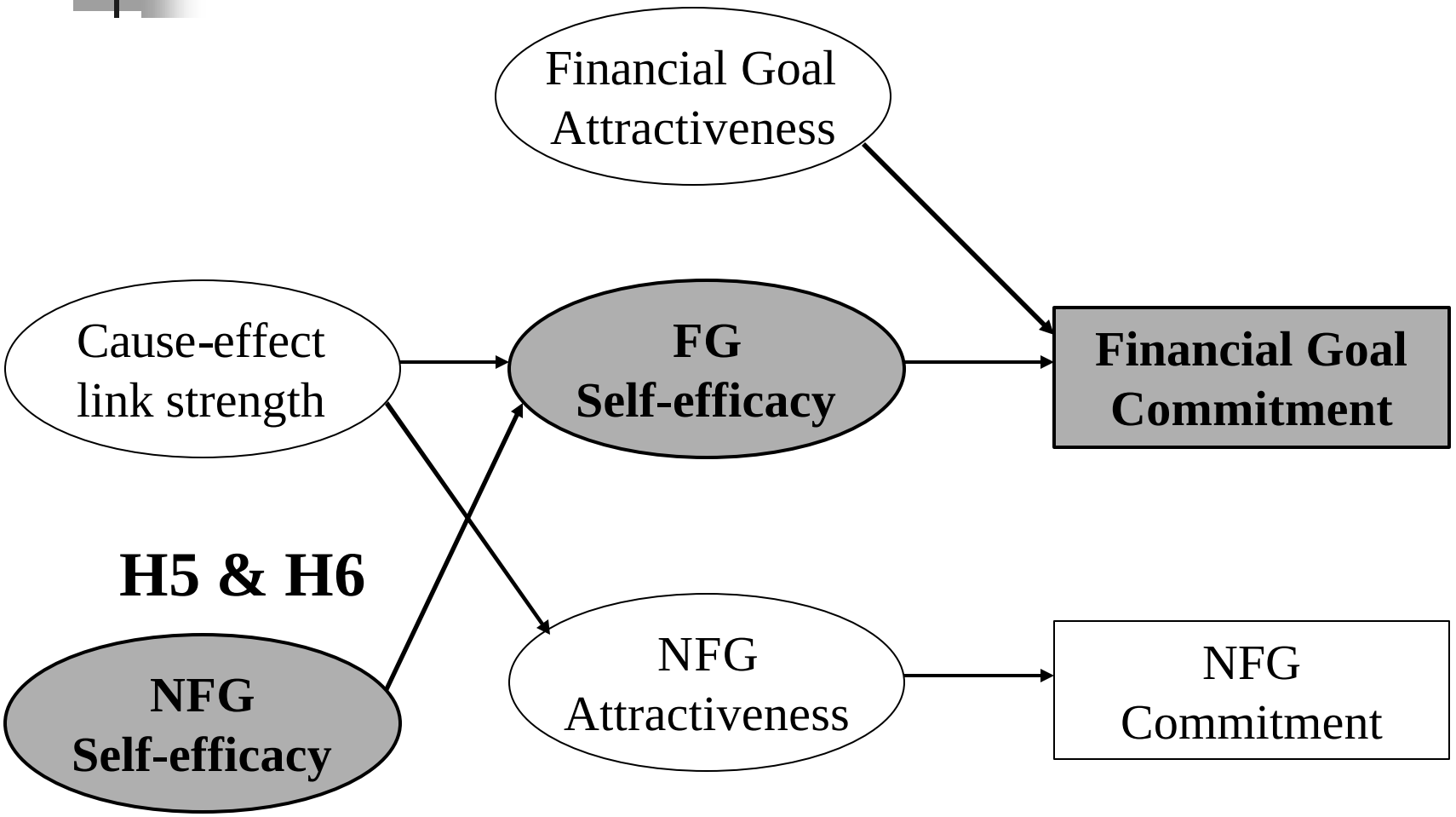


H3 & H4

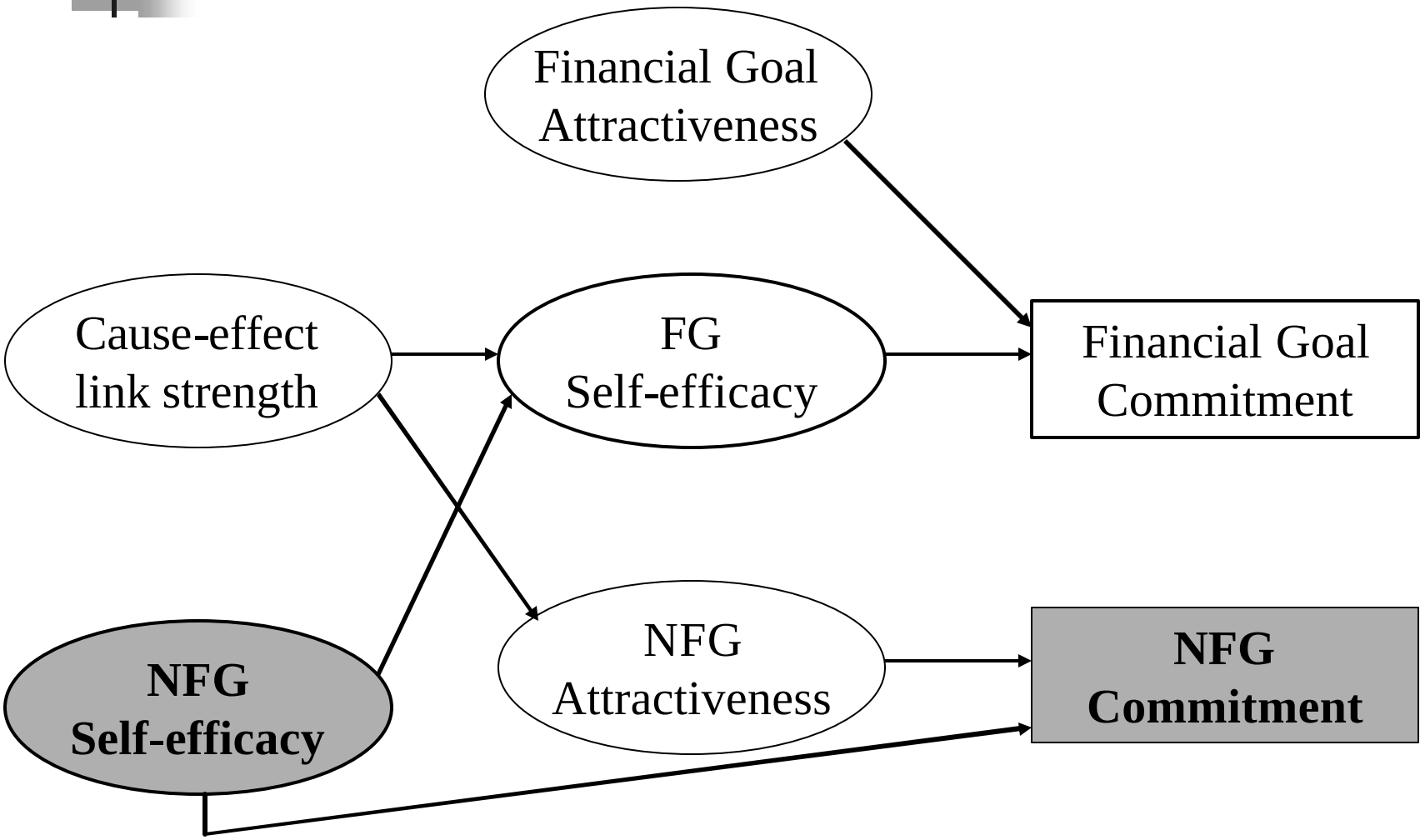
Self-Efficacy for Achieving Non-Financial Goals

- Given the cause-effect structure of a SPMS, beliefs about the achievability of non-financial goals will affect self-efficacy for financial goal achievement.
- Self-efficacy for financial goal achievement will in turn affect financial goal commitment.
- Beliefs about the achievability of the non-financial goals will also directly affect commitment to non-financial goals

Impact of Non-Financial Goal Achievability on Goal Commitment



Impact of Non-Financial Goal Achievability on Goal Commitment



H7

Method

- **Task & Procedures**:
  - Participants each worked through two goal-setting cases
  - Assumed role of a department head at a bank in each case (online banking; website development and maintenance)
  - Background information provided about bank and each department
  - Goals:
    - Revenue growth (75%) and non-financial goals assigned in the context of a SPMS
    - Financial goals were lagged by 1 year versus non-financial goals
    - Financial goals described as being directly rewarded by incentive scheme, non-financial goals were not
  - Dependent measures and manipulation checks collected for each case

Method

- **Participants**:
  - 56 managers with 19 years full-time managerial experience
  - From 7 industries (43% from banking & insurance)
  - Moderate familiarity with e-commerce settings described in the cases
  - Over 70% work for a company that uses a SPMS with similarities to those described in the cases

Method

- **Design**:
  - 2 x 2 mixed design
  - SPMS cause-effect strength manipulated ***within Ss***
  - Beliefs about achievability of SPMS non-financial goals manipulated ***between Ss***

- **Independent variable manipulations**:
  - ***SPMS cause-effect strength***: correspondence (strong or weak) between SPMS objectives & measures and identified customer values and employee skill requirements needed to achieve strategic goals
  - ***Beliefs about achievability of SPMS non-financial goals***: subjects provided with estimates about likelihood of achieving the set of non-financial goals (60% and 15%)

Method

- **Dependent variables**:
  - Goal commitment: financial goal and set of non-financial goals
    - 5-item self-report measure (DeShon and Landis 1997)
    - Self-set financial goal (Tubbs 1994)
  - Self-efficacy for goal achievement:
    - Financial goal: probability of achieving each of 5 financial performance goals (Bandura 1997)
    - Non-financial goals: probability of achieving the set of non-financial goals
  - Financial and Non-financial goal attractiveness
    - Ratings of attractiveness of achieving the financial goal and the set of non-financial goals (Klein 1997)

Method

- **Administration of materials**:
  - Database (delivered by email) or Internet version
    - Order of materials controlled
    - Prompts if questions were unanswered
    - Changes to responses prevented

Key Manipulation and Other Checks

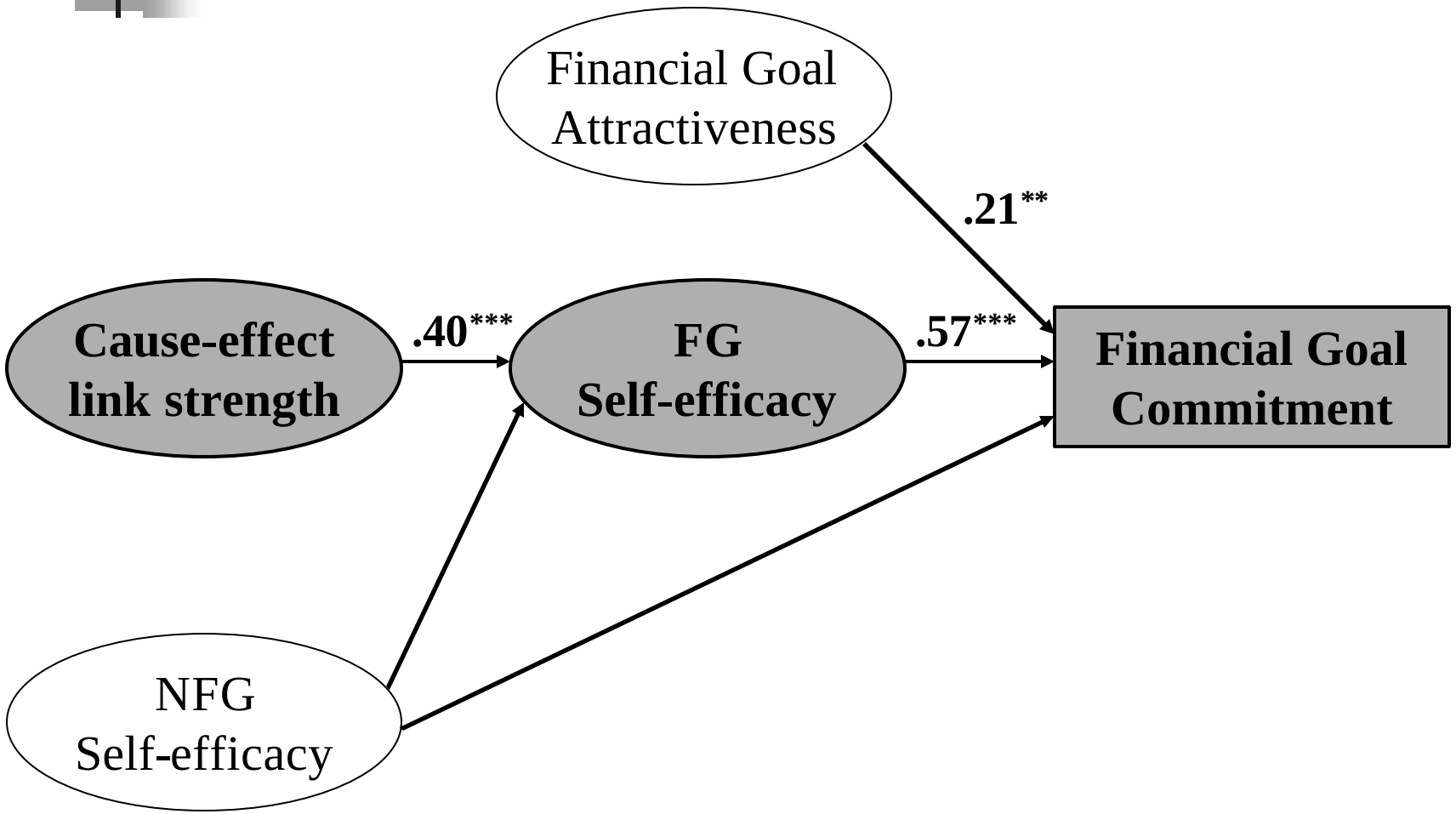
- **Characteristics of the goals and measures**:
  - No differences within or between Ss in assessments of:
    - financial and non-financial goal difficulty
    - attractiveness of financial goals
    - controllability of outcomes on non-financial performance measures.
- **Manipulation checks**:
  - *SPMS cause-effect strength*:
    - plausibility of individual links
    - overall strength of links between performance on non-financial measures and revenue growth

Key Manipulation and Other Checks

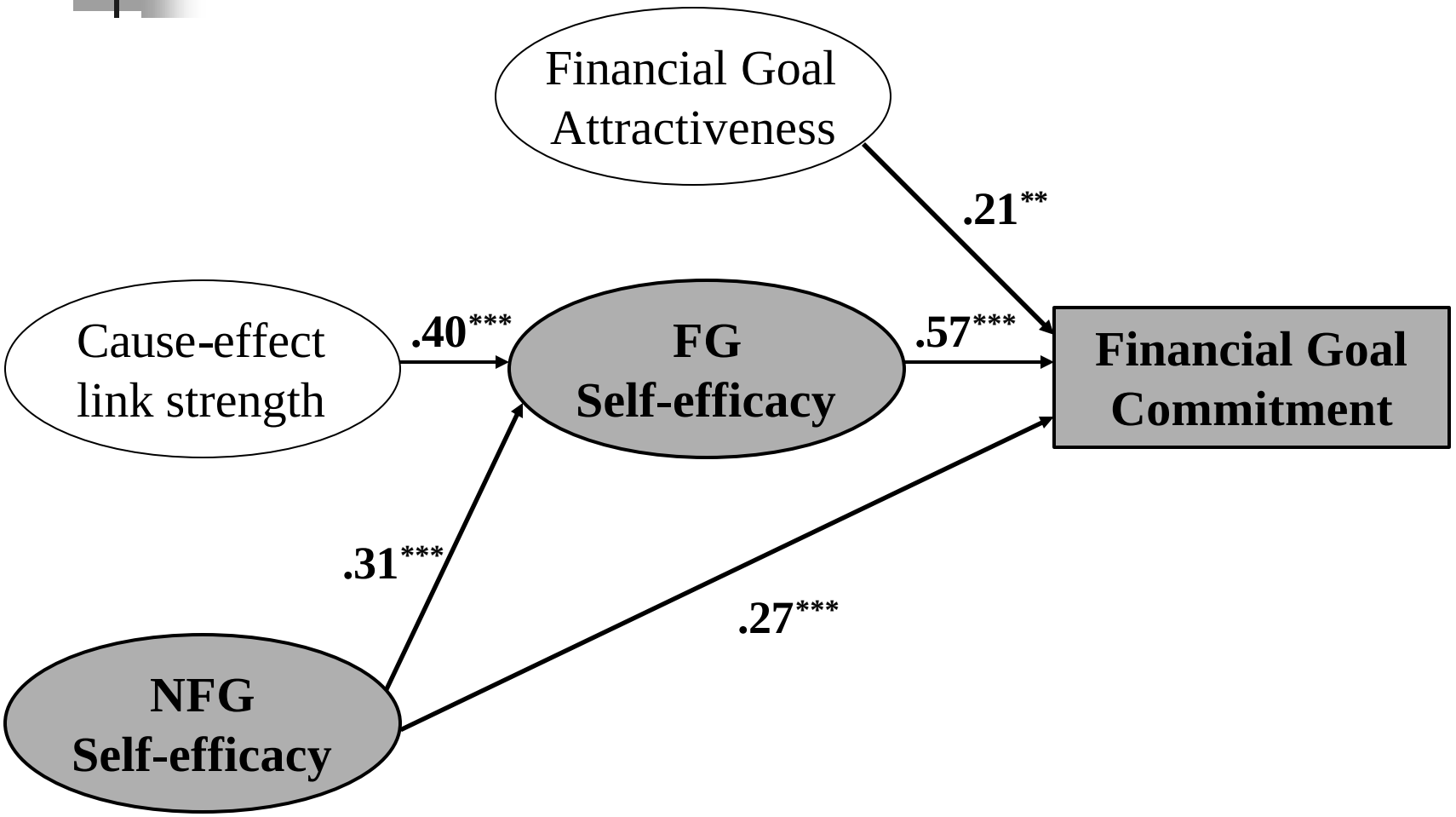
- **Between Ss conditions did not differ on**:
  - Ability (Mahoney et al. 1965; Brownell and McInnes 1986)
  - Years of managerial experience
  - Familiarity with e-commerce settings
  - Reactions to materials (understandability, difficulty, realism)
  - Time taken to complete the materials

- **Additional experiment**:
  - Department in which “strong” and “weak” SPMS included as an additional between Ss factor
  - No impact on results reported hereafter

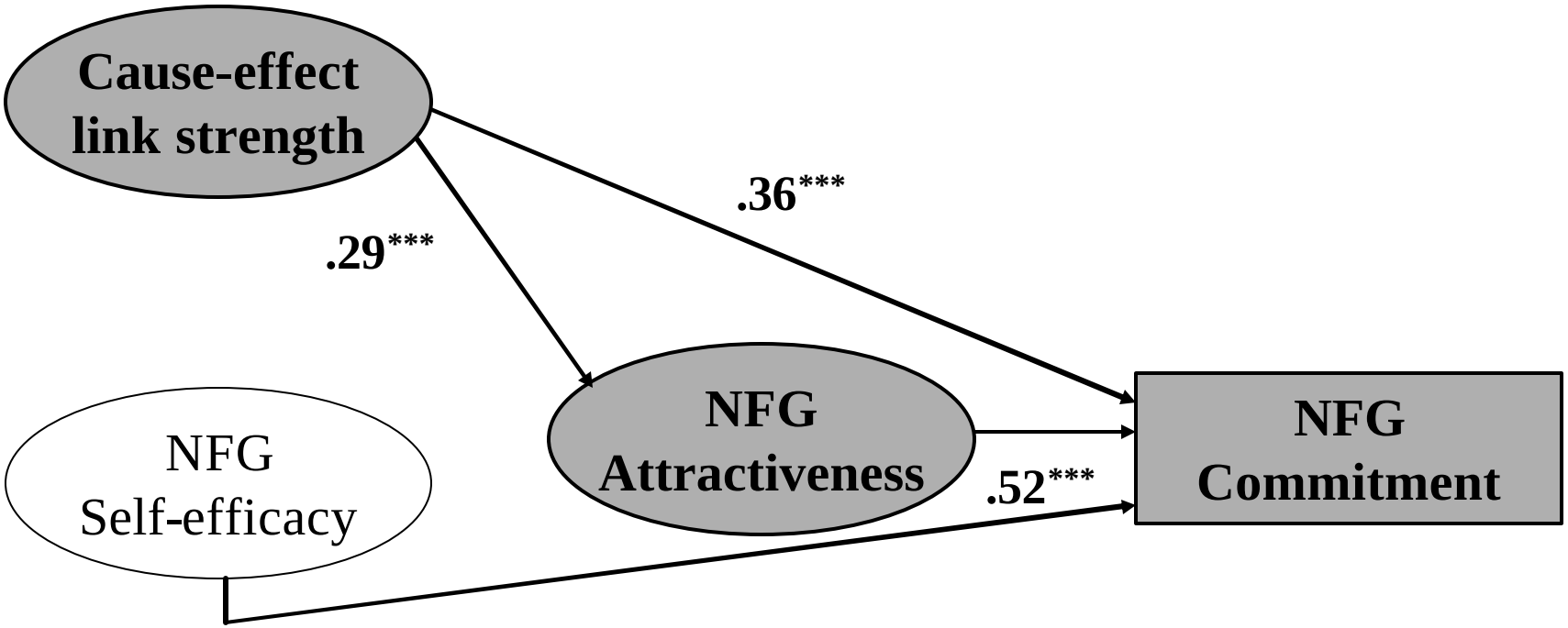
Impact of SPMS Features on Financial Goal Commitment: H1 & H2



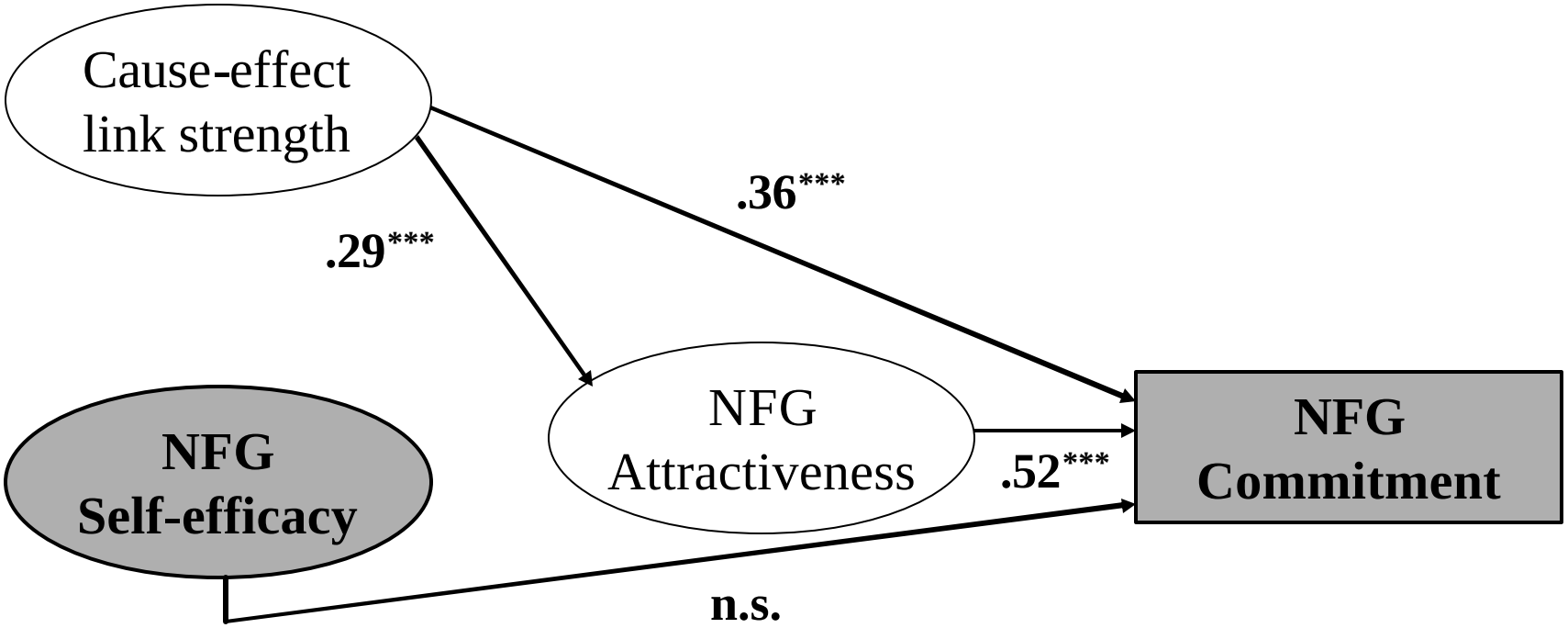
Impact of SPMS Features on Financial Goal Commitment: H5 & H6



Impact of SPMS Features on Non-Financial Goal Commitment: H3 & H4

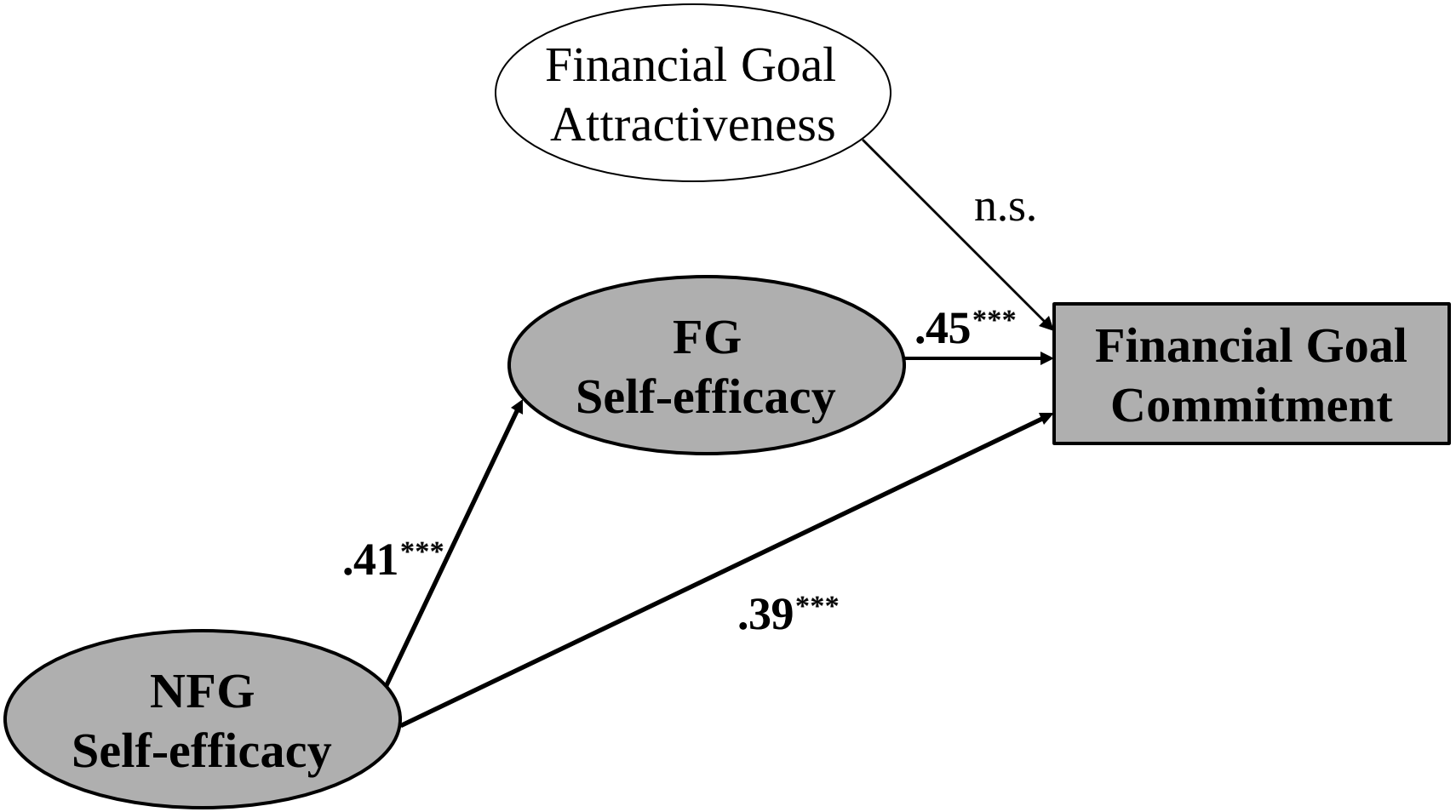


Impact of SPMS Features on Non-Financial Goal Commitment: H7



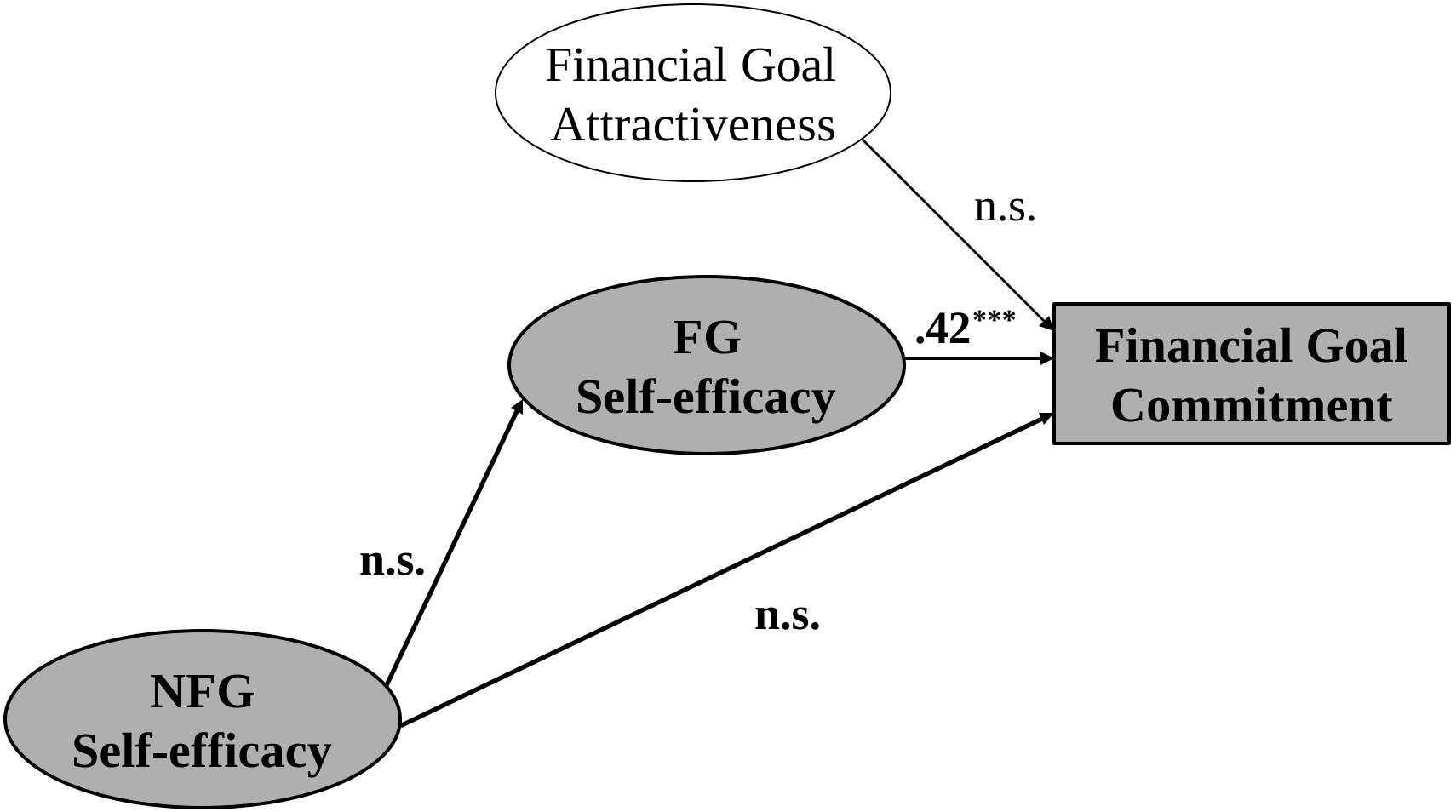
Impact of Non-Financial Goal Achievability on Financial Goal Commitment When Cause-Effect Links are Strong

Strong SPMS Cause-Effect Links



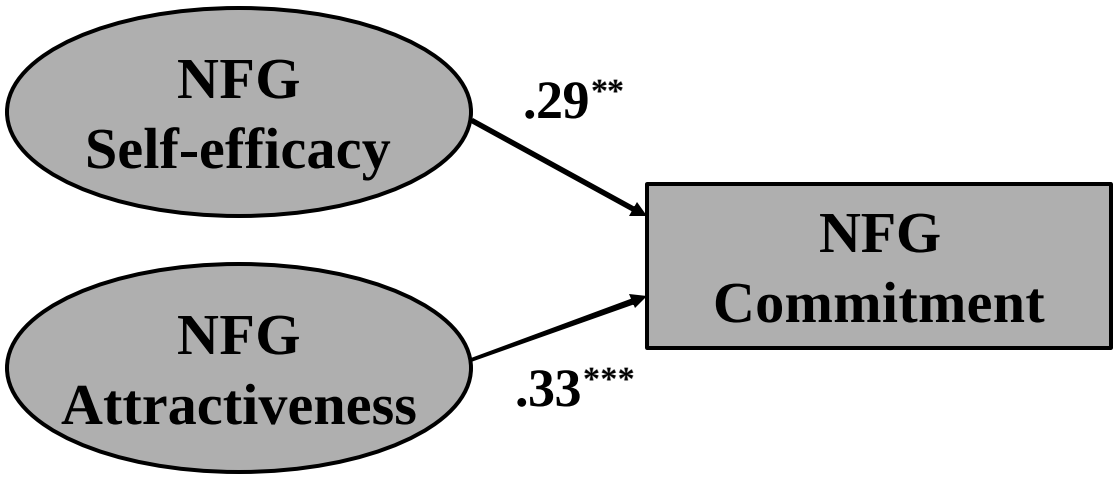
Impact of Non-Financial Goal Achievability on Financial Goal Commitment When Cause-Effect Links are Weak

Weak SPMS Cause-Effect Links



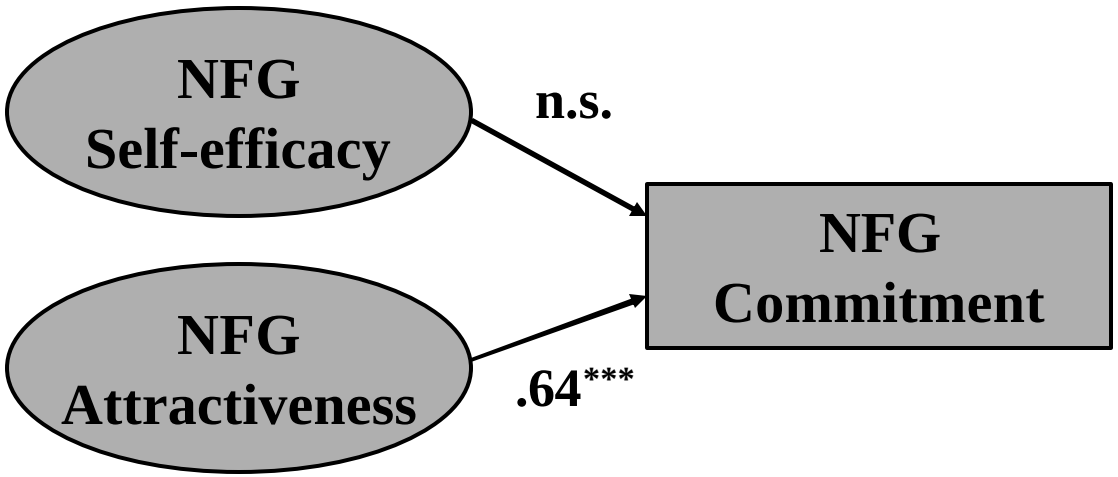
Impact of Non-Financial Goal Achievability on Non-Financial Commitment When Cause-Effect Links are Strong

Strong SPMS Cause-Effect Links



Impact of Non-Financial Goal Achievability on Non-Financial Commitment When Cause-Effect Links are Weak

Weak SPMS Cause-Effect Links



Contributions

- Examines potential impact of SPMS on managerial behaviour
- Cause-effect content of a SPMS creates a unique source of goal commitment not present in single goal settings
- Calibrating the difficulty level of the multiple inter-related goals in a SPMS is important
- Highlights the importance of goal attractiveness and self-efficacy as mediating variables in a SPMS setting

Plenty of Questions Remain

- How well do managers understand the multiple cause-effect links among measures contained in a BSC?
- Does provision of a BSC lead to better decision-making by managers when running their business units?
  - Webb et al. on-going
  - Business simulation: no BSC; BSC; BSC + strategy map
  - Resource allocation decisions
  - Compare financial performance; evaluate understanding of underlying business model
- How should use of BSC be linked to an organization's incentive system?