

# Accounting for Professional Accountants' Dysfunctional Knowledge Sharing: A Self-Determination Theory Perspective

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**ABSTRACT:** Investigating how and why accounting professionals share useless and harmful knowledge challenges designers of accounting systems and organizational leaders. In this paper, we extend self-determination theory (SDT) to investigate the influence of financial incentives on (1) harmful, and (2) masked, i.e., organizationally useless, knowledge sharing (KS) among accounting professionals ( $n = 428$ ) by adapting measures from SDT to the professional accounting context. Although self-disclosed dysfunctional KS is infrequent in our sample, the results indicate that, consistent with the predictions of our extension of SDT, accountants with higher controlled (higher autonomous) motivation are more (less) influenced by financial incentives and engage in more (less) dysfunctional KS.

**Keywords:** incentives; motivation; knowledge sharing; self-determination theory; accounting systems design.

**Data Availability:** Contact the authors.

## I. INTRODUCTION

Insight into how and why accounting professionals share useless and harmful knowledge is important to organizations and designers of accounting and “knowledge sharing” (hereafter, KS) systems. In contrast to much of the literature on KS, which argues the desirability of KS, we posit that the effects of KS depend on context. Specifically, the desirability of KS depends on what is actually known (versus feigned and masked as known), what is shared, and its organizational implications. Hence, KS has two faces; sharing useful knowledge contributes to success by multiplying the stock of organizational knowledge, whereas sharing “masked” or “harmful” knowledge impedes organizational success. Financial incentive influences on KS may be similarly Janus faced. That is, although financial incentives may increase useful KS, the results herein provide evidence of a second face to financial incentives—such incentives may increase both functional *and* dysfunctional KS.

Recent research has begun to explore problems of dysfunctional behavior in organizations, including negative workplace deviance, which is “voluntary employee behavior that violates organizational norms and, in so doing, threatens the well-being of the organization or its members” (Jelinek 2012, 475; Robinson and Bennett 1995). For example, R. Jelinek and K. Jelinek (2008) and Jelinek (2012) present evidence that external auditors engage in negative workplace deviance, including

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dysfunctional KS. Observed behaviors included taking credit for work performed by a coworker, cyber-loafing, and sharing complaints about the firm and firm professionals with the client. In addition, some corporate codes of conduct explicitly prohibit some KS (e.g., [The Boeing Company 2012](#)).

A related problem, which is central to accounting systems design (cf. [Taylor 2006](#); [Wolfe and Loraas 2008](#)), is the possibility that financial incentives may motivate dysfunctional KS that impairs achieving organizational goals. Incentives can “work too well” ([Baker, Jensen, and Murphy 1988](#)) and lead to dysfunctional outcomes, because of the difficulty of precisely specifying rewarded behaviors. As a consequence, incentives may motivate dysfunctional “gaming,” which is behavior intended to obtain the incentive without fulfilling the objective of the incentive. For example, Infosys Limited incented employees to contribute to an electronic knowledge repository ([Garud and Kumaraswamy 2005](#)); however, instead of increasing organizationally valuable knowledge contributions, the repository received more contributions than could be reviewed. Much of the contributed “knowledge” was useless pseudo-knowledge provided to gain (and game) the financial incentives for repository contributions. The possibility that organizational KS may include useless and harmful contributions, and that these “contributions” may be made by accounting professionals and stored in accounting systems, partially motivates the present investigation.

This study contributes to the literature by extending “self-determination theory” (hereafter, SDT) as a theoretical lens to investigate whether and how financial incentives may increase (1) harmful, or (2) masked, i.e., organizationally useless, KS among accounting professionals. KS, including dysfunctional KS, in organizations is a social activity that may be enhanced or inhibited by technology, including accounting systems ([Wolfe and Loraas 2008](#); [Taylor 2006](#)). We investigate an antecedent to the creation and implementation of effective KS systems. That is, we seek to understand the effects of incentives on the quality of users’ motivations, and therefore users’ contributions, to KS systems. Hence, this study is a precursor to understanding when and why accounting professionals may make dysfunctional contributions to organizational knowledge systems.

To investigate these issues, we surveyed 428 certified management accountants (CMAs) about their firm’s incentives for KS, their own KS behaviors, and their SDT-based motivations for KS. CMAs are bound by a statement of ethical professional conduct that requires that they (1) “keep [organizational] information confidential except when disclosure is authorized or legally required,” and (2) “refrain from using confidential information for unethical or illegal advantage” ([Institute of Management Accountants \[IMA\] n.d. Statement of Ethical Professional Practice](#)). This study investigates the extent to which perceived financial incentives for KS can increase two forms of dysfunctional KS among CMAs. Because of self-presentation concerns (e.g., [Goffman 1959](#)) and the IMA code of conduct prohibiting such behavior, our participants are likely to understate the true frequency of their dysfunctional KS. Accordingly, we expect the disclosed frequency of dysfunctional KS among accounting professionals to be low. Nonetheless, consistent with predictions derived from extending SDT, we find that controlled (i.e., more extrinsic) forms of motivation lead to more dysfunctional KS, whereas autonomous (i.e., more intrinsic) forms of motivation lead to less dysfunctional KS. We also find evidence that offering financial incentives for KS can “crowd out” autonomous motivation with controlled motivation, which increases dysfunctional KS.

One contribution of this paper is to posit and measure dysfunctional KS among accounting professionals; another is to advance the discussion on incentives to include consideration of dysfunctional sharing and its antecedents. The results of this study indicate that “incenting” KS may be interpreted as an opportunity to engage in self-interested behavior at the expense of the firm. Next, we discuss knowledge, knowledge management, and KS, followed by hypotheses regarding the potential effects of financial incentives on two mediating variables that may influence KS. The research method, results, and conclusion, which includes implications, and limitations, follow.

## II. LITERATURE REVIEW AND HYPOTHESES

### Knowledge Management and Knowledge Sharing (KS)

Within a systems view, knowledge is information that is stored in individual or organizational memory and is among the most important intangible organizational assets ([Lev 2001](#)). What differentiates knowledge from information is that information is data with meaning, whereas knowledge is the collection of information that can be acted upon (e.g., best practices, lessons learned, solutions to problems). At a minimum, sharing knowledge requires a dyad, i.e., a sharer and recipient, with typically at least one human participant. We conceptualize the sharer as a human with existing, or feigned, organizationally relevant knowledge. The knowledge recipient may be an individual, a group, or an organizational knowledge repository. Hence, KS may be *direct*, between two humans, or *indirect*, through contribution to, or extraction from, an electronic knowledge repository ([Holsapple and Joshi 2002a](#); [Lin and Fan 2011](#)). In addition, KS may be required and formal, as in publishing documents to repositories or websites, or informal and interactive, as in a person-to-person conversation. We consider both formal and informal KS and contributions to individuals or to electronic knowledge repositories. We also examine rewards for sharing by or to either individuals or teams (cf. [Kelly 2010](#)).

Knowledge management attempts to “ensure that the right knowledge is available to the right processors, in the right representations and at the right times, for performing their knowledge activities (and to accomplish this for the right cost)” (Holsapple and Joshi 2002b, 91; Holsapple 2003). Technological advances, including knowledge management systems, increasingly enhance an organization’s ability to capture, store, and disseminate knowledge that enhances accounting control system effectiveness (Leech and Sutton 2002; Lin and Fan 2011; McCall, Arnold, and Sutton 2008; O’Leary 2002; Vera-Muñoz, Ho, and Chow 2006; Wickramasinghe and Mills 2002). The design and implementation of knowledge management systems and related incentives to motivate organizational KS are increasingly common in organizations (McCampbell, Clare, and Gitters 1999; Coult 2000; Hall and Goody 2007). But might such systems increase the sharing of dysfunctional knowledge?

### Dysfunctional KS

A knowledge sharer must possess or feign (1) knowledge that the recipient deems useful, and (2) the motivation to share real or feigned “knowledge.” Many taxonomies of knowledge content exist, including tacit versus explicit (e.g., Lin 2007a), procedural versus declarative (e.g., Handzic 2001), and episodic versus semantic (e.g., O’Donnell 2003). We posit two forms of dysfunctional KS, classified by the extent of harm of the sharing to the sharer’s organization: (1) harmful, and (2) masked knowledge. Harmful KS directly detracts from the ability of the sharer’s organization to achieve its goals. Examples of harmful KS include leaking trade secrets to online bloggers for personal gain (Wingfield 2005) and stealing company information such as social security numbers (Geisel 2006). Sharing harmful knowledge may also violate ethical and legal restrictions. For example, disclosing client-specific information, trade secrets, and firm strategies may violate professional codes of conduct and organizational policies. Hence, sharing overtly harmful knowledge may also constitute fraud, i.e., an intentional misrepresentation with an intention to deceive another (US Legal, Inc. 2011).

Alternatively, sharing masked knowledge is a deception in which useless knowledge is masked as useful, often for personal financial gain (cf. Bell and Whaley 1982, 1991). Examples of masked KS deceptions include:

- Submitting an inefficient solution where the sharer knows a superior solution exists, i.e., “wheel reinvention” (Fickel 2001). For example, copying and distributing commonly known advice on managing the risks related to information systems development or for managing a project.
- Sharing “more than you know” (e.g., Garud and Kumaraswamy 2005); for example, copying and sharing a colleague’s spreadsheet template with another work group when the sharer knows the spreadsheet to be tangential or unrelated to the current problem (e.g., Garud and Kumaraswamy 2005), or sharing rumors about colleagues, clients, or supervisors (e.g., Jelinek 2012; Jelinek and Jelinek 2008).

Neither form of dysfunctional KS is in the best interest of the firm. We next consider the possible influence of incentives as an antecedent that may entice some employees to engage in dysfunctional KS.

### Incentives and Dysfunctional KS

In this study, financial incentives for KS mean any offer of payment by an organization to promote KS behaviors, whether through person-to-person exchange, between or among groups, or through technology-aided means such as a knowledge repository. While studies have examined the problem of individuals withholding useful knowledge in the context of incentives (e.g., Tsay, Lin, Yoon, and Huang 2014), our study is unique in its focus on the problem of “mis-sharing” or “oversharing,” i.e., sharing useless and harmful knowledge. As discussed, economic incentive theories provide a basis for modeling this problem. For example, Baker et al. (1988) argue that incentives can work “too well.” Specifically, incentives can “generate unintended and sometimes counterproductive results because it is difficult to adequately specify exactly what people should do and therefore how their performance should be measured” (Baker et al. (1988, 597). Similarly, “transactional” interactions in relationship marketing, as applied to audit professional and client relations, yield similar inferences and outcomes (Fontaine and Pilote 2012, 2011). Viewing interactions as one-time, impersonal exchanges leads to self-interested behavior that may be organizationally costly and dysfunctional.

An incentive designed to increase useful KS contributions may also increase undesirable KS behaviors. If organizations provide incentives for employees to share useful knowledge, then employees should be motivated to share more useful knowledge than in the absence of incentives. However, when it is costly for the firm to monitor knowledge quality, then employees can act opportunistically by masking dysfunctional KS “contributions” as useful. Evidence exists that useless KS occurs in practice. For example, Garud and Kumaraswamy (2005) document a large number of useless KS contributions made to a repository that resulted from the gaming of incentives. Although the implementation of a monetary incentive may intend to encourage useful KS, there are economically rational reasons to believe that counterproductive behavior (e.g., deception) will likely also occur from incenting KS.

## Extending Self-Determination Theory (SDT) to Dysfunctional KS

SDT defines types, i.e., the quality, of human motivation and investigates how social, cultural, and organizational influences facilitate or impede performance, well-being, and individual development (Ryan and Deci 2000a). In SDT, more autonomous (controlled) motivation is considered to be of higher (lower) quality. Central to SDT is attention to the conditions that support a sense of individual autonomy, competence, and relatedness, since these conditions correlate with stronger individual well-being, higher-quality motivation, and generally superior performance (Stone, Deci, and Ryan 2009). Alternatively, conditions that thwart or diminish these perceptions are associated with inferior well-being, lower-quality motivation, and poorer task performance. Several applications of SDT exist in accounting research. For example, Stone, Bryant, and Wier (2010) provide evidence that SDT-based constructs can help explain the inconsistency of financial incentives in improving accounting-related task performance. In addition, the results of Wong-On-Wing, Guo, and Lui (2010) support the predictions of SDT that bank managers with higher autonomous motivation outperform those with higher controlled motivation.<sup>1</sup>

SDT posits that individuals internalize motivation to varying degrees (Ryan and Deci 2000a). According to SDT, motivation exists on a continuum that ranges from an absence of motivation (i.e., amotivation) to intrinsic motivation, which is fully internalized. The two forms of “controlled” motivation, i.e., extrinsic and introjected, are less internalized and associated with poorer performance. Because of these effects, controlled motivation is considered to be of lower quality than is autonomous motivation. Externally motivated individuals perceive that they do not *want* to act, but are compelled to do so by outside forces (e.g., a boss) driving their actions. Introjected motivation is a weaker form of controlled motivation than extrinsic and manifests as guilt or shame in relation to actions demanded by controlled motivation.

Autonomous motivation, which includes intrinsic and identified, is associated with higher levels of task performance and evidences a more complete synthesis and integration of motivation into the self (Ryan and Deci 2000a). Identified motivation arises from strongly valuing a goal or objective that is personally important, i.e., that is fully integrated into one’s self concept. Intrinsic motivations are those that are undertaken because they bring joy or pleasure to the self as a result of curiosity or care for others. Because of its beneficial effects on task performance, SDT considers autonomous motivation to be of higher quality than controlled motivation.

These types of motivations are neither mutually exclusive nor independent. For example, an accounting student’s motivation for an accounting information systems (hereafter, AIS) course may include (1) interest in the subject (autonomous), (2) fulfilling a graduation requirement (potentially controlled), or (3) both reasons 1 and 2. Controlled motivation is not inherently bad, since it is generally superior to amotivation. But evidence suggests that as motivation moves from autonomous to controlled, the likelihood of dysfunctional behaviors (e.g., cheating) increases. Hence the *quality* (i.e., autonomous versus controlled) of motivation influences behavior.

SDT argues, and evidence supports (Kasser and Ryan 1993; Kasser 2002; Kasser, Ryan, Couchman, and Sheldon 2004), that financial incentives operate primarily through controlled motivation. Adapted to motivating accountants’ KS, SDT predicts that offering financial incentives to accountants for KS should increase the desire to obtain extrinsic rewards through their effect on controlled motivation.

**H1a:** Financial incentives for KS will be positively associated with controlled KS motivation.

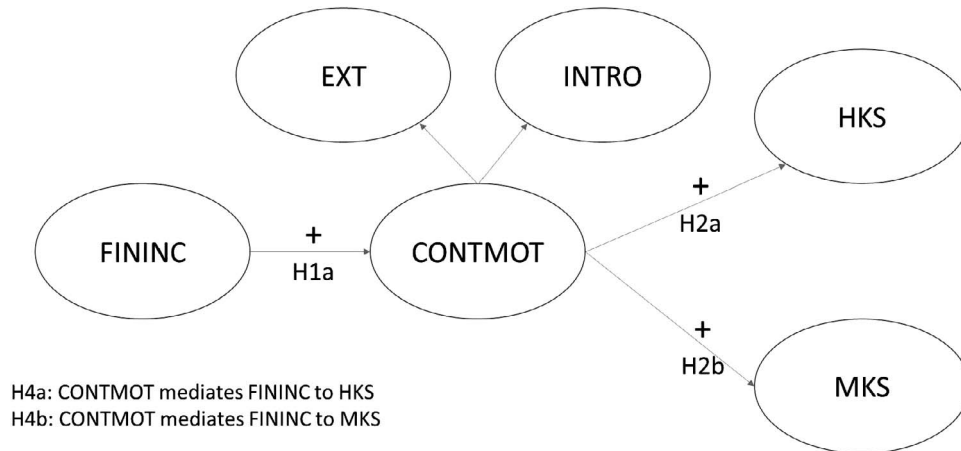
Multiple theories (e.g., self-perception theory, cognitive evaluation theory, Yerkes-Dodson law), including labor economics (Bénabou and Tirole 2006; Frey and Oberholzer-Gee 1997; Prendergast 2008) and SDT (Gagné and Deci 2005; Deci and Ryan 2002; Ryan and Deci 2000a, 2000b; Deci and Flaste 1995), posit motivational “crowding out” in which offering a financial reward reduces, or “crowds out,” autonomous motivation relative to controlled motivation. Consistent with SDT, crowding-out research finds that controlled motivation is a less reliable and effective motivator than is autonomous motivation (Cameron and Pierce 2002; Frey and Osterloh 2002; Prendergast 2008; Deci and Ryan 2002; Stone et al. 2010). In addition, recent accounting research also finds evidence of crowding out (Lourenço 2016). Consistent with the extension of SDT to the domain of KS, offering financial incentives for KS is likely to increase the relative proportion of controlled motivation relative to autonomous motivation (Murphy 2004). Accordingly:

**H1b:** Financial incentives for KS will decrease the relative proportion of autonomous motivation relative to controlled motivation.

Also at issue in this study is the degree to which individuals will share masked and dysfunctional knowledge as a function of their levels of controlled versus autonomous motivation. Individuals whose motivation is primarily controlled are pulled by

<sup>1</sup> Some accounting studies apply predecessor theories to SDT (e.g., Becker 1997; Whitecotton and Butler 1998). In addition, Kunz and Pfaff (2002) critique one of four forms of motivation constructs (i.e., intrinsic) that are present in SDT.

**FIGURE 1**  
**Theoretical Controlled Motivation Model**



*FININC* = financial incentives for KS;  
*CONTMOT* = controlled motivation;  
*EXT* = external motivation;  
*INTRO* = introjected motivation;  
*HKS* = harmful knowledge sharing; and  
*MKS* = masked knowledge sharing.

incentives toward their goal of obtaining a financial payoff and are less motivated by the intermediary processes (e.g., the altruistic benefits of sharing knowledge with others). For example, in educational settings, studies have shown that large grade incentives increase cheating (cf. Covey, Saladin, and Killen 1989; Kanat-Maymon, Benjamin, Stavsky, Shoshani, and Roth 2015) and decrease learning. Accordingly, individuals with higher controlled motivation should share more masked and harmful knowledge as they attempt to gain the rewards offered for KS.

**H2a:** Controlled KS motivation will be positively associated with harmful KS.

**H2b:** Controlled KS motivation will be positively associated with masked KS.

In contrast, individuals with high autonomous motivation believe that KS is valuable and important and commit to sharing useful knowledge, but not to sharing worthless or harmful knowledge. Because autonomously motivated individuals are less motivated by the rewards linked to KS, they are less likely to share masked and harmful knowledge.

**H3a:** Autonomous KS motivation will be negatively associated with harmful KS.

**H3b:** Autonomous KS motivation will be negatively associated with masked KS.

Consistent with recent calls for more accounting research investigating causal processes (e.g., Gow, Larcker, and Reiss 2016), we also explore why financial incentives can increase dysfunctional KS. Specifically, we predict that controlled KS motivation will mediate the effect of financial incentives on dysfunctional KS. Principles of SDT can be adapted to argue that controlled motivation, which research indicates has dysfunctional effects in multiple domains (e.g., see Kasser 2002; Kasser, Cohn, Kanner, and Ryan 2007; Kasser and Kanner 2004; Kasser and Ryan 1993; Stone et al. 2010), will be the mediating process whereby financial incentives increase dysfunctional KS. Hence, our mediating predictions are:

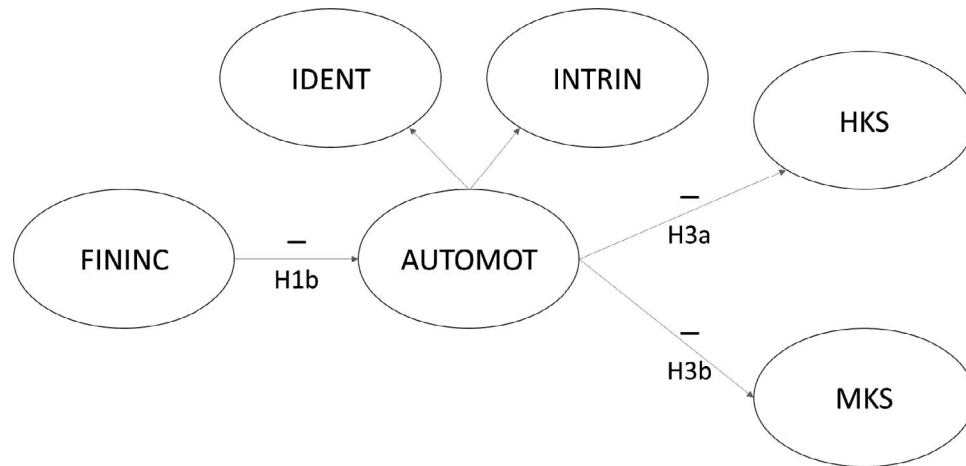
**H4a:** Controlled KS motivation will mediate the effect of financial incentives for KS on harmful KS.

**H4b:** Controlled KS motivation will mediate the effect of financial incentives for KS on masked KS.

### The Research Model: Figures 1 and 2

To summarize the theoretical model and predictions presented in Figure 1, financial incentives for KS (*FININC*) will increase controlled KS motivation (*CONTMOT*) (H1a). In turn, controlled KS motivation (*CONTMOT*) will increase both types

**FIGURE 2**  
**Theoretical Autonomous Motivation Model**



*FININC* = financial incentives for KS;  
*AUTOMOT* = autonomous motivation;  
*IDENT* = identified motivation;  
*INTRIN* = intrinsic motivation;  
*HKS* = harmful knowledge sharing; and  
*MKS* = masked knowledge sharing.

of dysfunctional KS—harmful (*HKS*) (H2a) and masked (*MKS*) (H2b) KS. Finally, controlled KS motivation (*CONTMOT*) will mediate the effect of financial incentives for KS on both harmful KS (*HKS*) (H4a) and masked KS (*MKS*) (H4b). Hence, financial incentives for KS (*FININC*) will decrease the relative amount of autonomous motivation relative to controlled KS motivation (*AUTOMOT/CONTMOT*) (H1b). In turn, as shown in Figure 2, autonomous KS motivation (*AUTOMOT*) will decrease both forms of dysfunctional KS—harmful (*HKS*) (H3a) and masked (*MKS*) (H3b).

One aspect of Figure 1 is non-intuitive and deserving of explanation. Specifically, the model posits that financial incentives for KS will influence participants' controlled but *nonfinancial* KS motivation. We remove extrinsic, *financial* KS motivation from the operational construct of controlled KS motivation because of the potential confounding of financial incentives with controlled motivation.

The inclusion of both financial and nonfinancial controlled KS motivation in this construct would likely result in a confounding of the constructs of (1) financial incentives for KS with (2) controlled forms of KS motivation. Such confounding would prevent testing these relationships in a mediation model. Autonomous and controlled forms of motivation are both internal states. Explicit rewards, such as monetary incentives, are introduced externally to the individual, and may effect a response in an individual's quantity or quality of motivation. By measuring controlled and autonomous motivation separately from financial incentives, we avoid conflating these variables, and are able to test for relations among these constructs.

### III. METHOD

#### Sample and Participants

Participants ( $n = 428$ ) are CMAs who responded to an email solicitation from the Institute of Management Accountants (IMA).<sup>2</sup> All CMAs in the IMA database who had not opted out of email communication received this solicitation, which included a web link to the survey. The collection of survey responses occurred over a three-week window. Respondents have, on average, 8.2 years of work experience with their current employers and are between 24 to 70 years old (mean = 43.9). Given the sensitivity of the survey questions, we attempted to reduce the likelihood of social desirability bias (P. Podsakoff, MacKenzie, Lee, and N. Podsakoff 2003) in responses by accurately informing participants that their responses were

<sup>2</sup> We reviewed the sample to remove participants with less than six months of total work experience. Analysis of multiple variables (i.e., age and work experience with current employer) indicated no such cases in the dataset.

confidential. Every fifth CMA respondent received a \$25 Amazon gift certificate. Financial payments to participants equaled \$2,150.

### Construct and Variable Development, Definitions, and Validity

Two rounds of pilot testing informed instrument revisions. In round one, a panel of Ph.D. students, who were unaware of the hypotheses, assisted in assessing the face validity of the measures by completing a pilot instrument and providing comments on ambiguous or misleading questions. After revising such questions, a second pilot study ( $n = 24$ ) of participants with internship work experience further informed instrument revisions by helping to identify questions with poor construct loadings ( $< 0.40$ ) to be dropped. To increase validity and reliability, we followed the recommendations of the psychometric literature (e.g., Nunnally and Bernstein 1994) by measuring all variables using multi-item constructs. Constructs, variable definitions, and sources for items, are as follows.<sup>3</sup>

- Independent Variable Construct and Measure: Financial incentives (*FININC*) for KS: The extent to which the organization rewards KS financially, including rewards for sharing with other individuals and with KS repositories or electronic databases. Specifically, we adapted scale items from the constructs of “Anticipated Extrinsic Rewards” in Bock, Zmud, Kim, and Lee (2005), “Organizational Reward” in Kankanhalli, Tan, and Wei (2005), and “Expected Organizational Rewards” in Lin (2007b) and retained or discarded items based on pilot testing.
- Mediating Variable Constructs and Measures:
  - Controlled KS motivation (*CONTMOT*): The strength and extent of KS that is motivated by extrinsic rewards including supervisor praise, increased likeability of the respondent to others, and improved self-perceptions (cf. Gagné and Deci 2005; Ryan and Deci 2000a). Ryan and Deci (2000b) describe these types of motivation as external and introjected, i.e., not fully endorsed or embraced by the respondent. Item EXT3 (see Table 4) is from Foss, Minbaeva, Pedersen, and Reinholt (2009), while items EXT1 and EXT4 and all INTRO measures are from Ryan and Connell (1989).<sup>4</sup> Item EXT2 was developed for this study.
  - Autonomous KS motivation (*AUTOMOT*): The strength and extent of KS that is motivated by internal beliefs about the importance of KS activity. Examples include sharing knowledge because the respondent thinks that it is fun, important, enjoyable, and satisfying to do so (cf. Ryan and Connell 1989). Ryan and Deci (2000b) describe these types of motivators as identified and integrated, i.e., behaviors that are congruent with those of the respondent, without, or before, the external influence of pressure or incentives.
- Dependent Variable Constructs: No existing instrument, of which we are aware, measures dysfunctional KS. Accordingly, we developed the dysfunctional KS measures based upon case study evidence of harmful and useless employee KS that was motivated by a desire for rewards. Relevant case studies for developing these instruments included Garud and Kumaraswamy (2005), Michailova and Husted (2003), and Edmondson, Dittrich, and Beyersdorfer (2012). The developed dysfunctional KS instruments are:
  - Dysfunctional KS—Harmful (*HKS*): The extent to which respondents knowingly share knowledge that directly harms their organization or violates their personal sense of ethics and integrity. Because *HKS* violates social and organizational norms, some rules of professional conduct and, in some cases, law, we expect that only a small number of participants will admit to engaging in *HKS*.
  - Dysfunctional KS—Masked (*MKS*): The extent to which respondents share useless, masked “knowledge” in order to obtain personal gains or rewards.

### Internal or Convergent Validity

Table 1 presents the Cronbach’s alphas (CA), composite reliabilities (CR), average variance extracted (AVE), and highest inter-construct correlation for each of the constructs. These measures assess convergent reliability, which is the extent to which the indicators of a specific construct “converge” or share a high proportion of common variance. The independent (financial incentives for KS), and dependent variables (masked KS, and harmful KS), all demonstrate excellent convergent validity (CA and CR  $> 0.8$ , AVE  $> 0.5$ ). The mediating variables, i.e., external, introjected, identified, and intrinsic motivation, evidence generally good convergent validity. All of the Cronbach’s alpha and composite reliability measures are greater than 0.6. In addition, the average variance extracted for each of the constructs, except one (identified motivation), is greater than the related

<sup>3</sup> See Table 4 for the specific measures used in each construct.

<sup>4</sup> Although we use the same structure and wording in the two measures based on Ryan and Connell (1989), the stems of the questions differ because Ryan and Connell’s (1989) instrument asks students about their motivation to complete homework, whereas ours asks professionals about their motivation to engage in KS.

**TABLE 1**  
**Item Measures, Composite Reliability, and Average Variance Extracted**

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted	Highest Inter-Construct Correlation (See Table 2)
1. Financial Incentives for KS (IV)	0.907	0.912	0.726	0.060
2. External Motivation (Controlled) (M)	0.643	0.654	0.324	0.136
3. Introjected Motivation (Controlled) (M)	0.621	0.630	0.270	0.136
4. Identified Motivation (Autonomous) (M)	0.735	0.757	0.390	0.410
5. Intrinsic Motivation (Autonomous) (M)	0.789	0.801	0.451	0.410
6. Masked KS (DV)	0.868	0.874	0.583	0.136
7. Harmful KS (DV)	0.850	0.856	0.544	0.136

Abbreviations: IV = independent variable; M = mediator; DV = dependent variable.

squared inter-construct correlations. This indicates that the constructs are unique and distinct (Hair, Black, Babin, Anderson, and Tatham 2010). These results are consistent with previous SDT research, which suggests commonality in the controlled (i.e., external and introjected) and autonomous (i.e., identified and intrinsic) variables. Recall that SDT posits that the degree of internalization of external motivators is on a continuum and that external and introjected motivation are controlling forms of motivation, whereas identified and intrinsic motivation are more autonomous forms of motivation. The results evidence the expected “circumplex” pattern of correlations among SDT motivational constructs (Chemolli and Gagné 2014).<sup>5</sup>

Table 2 presents Pearson correlations and square roots of the AVEs (on the diagonal axes). Appendix A provides additional information on the convergent and divergent validity of the structural equation models. Appendix B describes the procedures used to account for, and reduce, the influence of common method and social desirability biases.

### Structural Equation Models

We used structural equation models (SEMs) and Multivariate Software, Inc.'s EQS (Version 6.1) software. Before modeling, we tested the assumption of multivariate normality in the data. Results indicated multivariate non-normality

**TABLE 2**  
**Pearson Correlations and Square Roots of AVEs**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Financial Incentives for KS	0.852	0.211**	0.244**	0.001	0.031	0.223**	0.097*	-0.126**	0.032	0.041
2. External Motivation		0.569	0.369**	0.055	-0.027	0.166**	0.125**	0.032	-0.004	0.084
3. Introjected Motivation			0.520	0.343**	0.362**	0.289**	0.055	0.034	-0.100*	0.043
4. Identified Motivation				0.625	0.640**	-0.136**	-0.152**	0.145**	0.091	0.064
5. Intrinsic Motivation					0.672	-0.092	-0.103*	0.030	0.109*	0.038
6. Masked KS						0.764	0.369**	-0.056	-0.165**	-0.058
7. Harmful KS							0.738	-0.078	-0.124*	-0.054
8. Female (1 = Yes)								NA	-0.033	-0.001
9. Age									NA	0.374**
10. Work Experience										NA

\*\* , \* Indicate  $p \leq 0.01$  and  $p \leq 0.05$ , respectively, two-tailed tests.

n = 428

KS = knowledge sharing. External motivation and introjected motivation are forms of controlled motivation. Identified motivation and intrinsic motivation are forms of autonomous motivation.

Square root of AVE is on the diagonal.

<sup>5</sup> Following Chemolli and Gagné (2014, Abstract), we do not adopt SDT's relative autonomy index “because the index is statistically problematic.”



**TABLE 3**  
**Descriptive Statistics**

**Panel A: Participant Demographics**

	<u>Min.</u>	<u>Max.</u>	<u>Mean</u>	<u>SD</u>
Financial Incentives for KS	4	20	5.91	3.08
External Motivation	4	14	7.77	2.25
Introjected Motivation	5	19	12.80	2.62
Identified Motivation	7	20	17.53	2.19
Intrinsic Motivation	6	20	16.38	2.67
Masked KS	5	23	8.84	4.12
Harmful KS	5	20	5.94	2.18
Age	24	70	43.94	9.68
Work Experience with Current Employer (Years)	0.75	37.5	8.17	7.73
Gender (Percent Female)			36.9%	NA
Percent with a Bachelor's Degree			31.4%	NA
Percent with a Master's Degree			56.8%	NA
Percent with a Ph.D. Degree			11.9%	NA

**Panel B: Industry of Respondents' Employer**

<u>Industry</u>	<u>n</u>	<u>Percent</u>
Manufacturing	122	28.5%
Finance, Insurance, Real Estate	52	12.1%
Education	50	11.7%
Business and Management Services	38	8.9%
Wholesale and Retail Trade	37	8.6%
Public and Other Accounting Services	30	7.0%
Transportation and Public Utilities	27	6.3%
Health, Public Administration, and Social Services	22	5.1%
Law and Legal Services	19	4.4%
Engineering, Research, and Miscellaneous Services	16	3.7%
Agriculture, Construction, Mining	15	3.5%
Total	428	100.0%

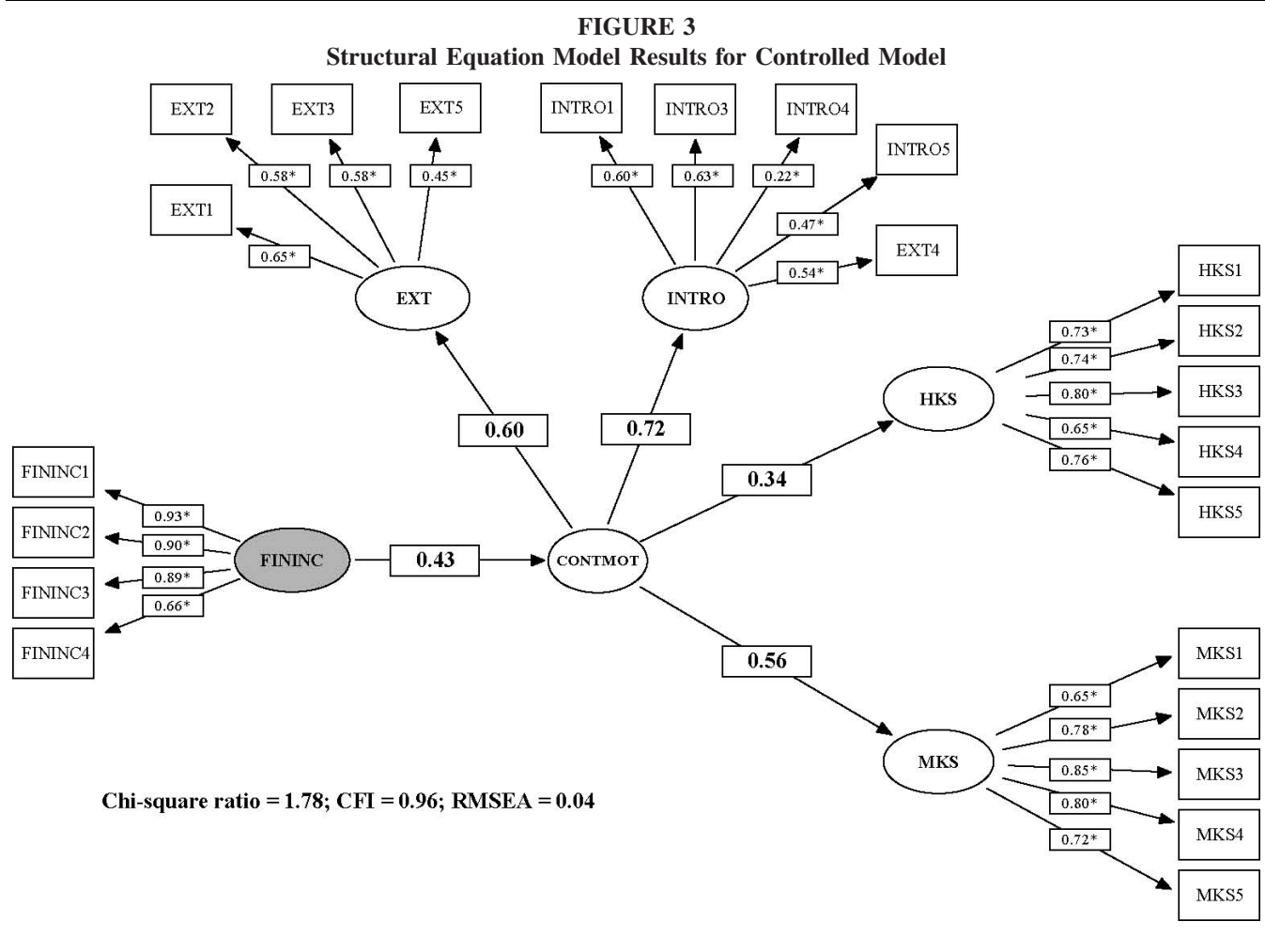
(Mardia's [1970] coefficient = 306.08) in the overt harmful KS measure; it is positively (right) skewed. Therefore, we ran both maximum likelihood, which assumes multivariate normality, and elliptical SEMs that are robust to violations of non-normality (Satorra, Bentler, Von Eye, and Clogg 1994). Model fit statistics varied slightly between the maximum likelihood and elliptical SEMs, but were very similar. We report the more conservative elliptical SEM results. We added significant, and removed insignificant, paths to improve model fit. We tested the significance of the hypotheses and all possible links among the variables following recommended procedures for model-generating SEMs (e.g., Kline 2005).

## IV. RESULTS

### Participant Demographics, Correlations, and Discriminant Validity

Participant demographics appear in Table 3, Panel A. Participants are experienced—averaging 8.2 years of work experience—and educated, with almost 70 percent of participants holding a master's or Ph.D. degree. Table 3, Panel B presents data on the industry of the respondents' current employer. The respondents are from diverse industries; about 50 percent of respondents are in manufacturing, finance, insurance, real estate, or education, and about 50 percent are in one of eight other industries.

Consistent with our expectation, and with research on responses related to socially undesirable behaviors (Randall and Fernandes 1991), 72 percent of the sample (i.e., 309/428) indicated that they do not engage in *HKS*, i.e., the lowest possible value on the measure of *HKS*. Hence, about 28 percent of the sample self-reports engaging in some *HKS*. About 39 percent of

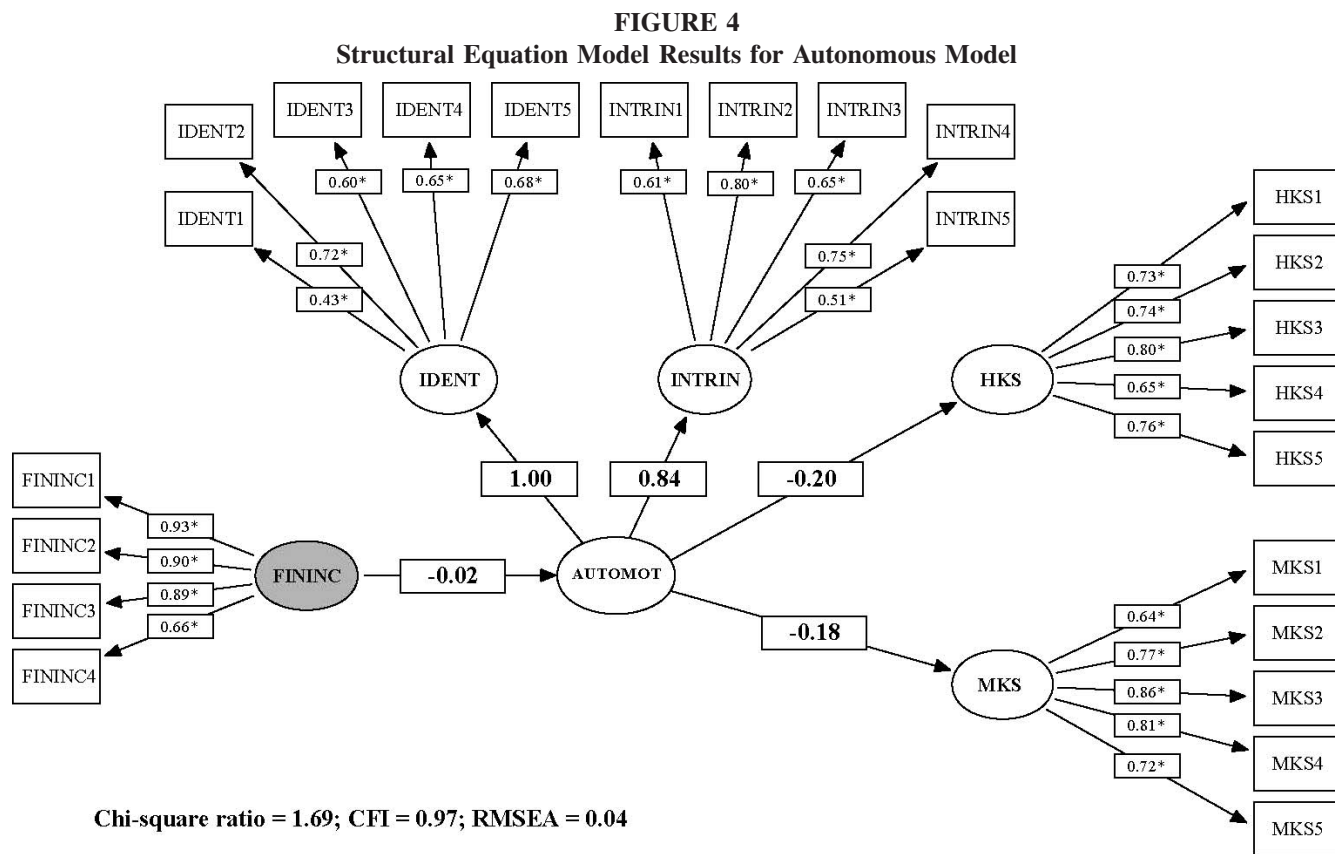


our sample indicated some form of financial incentives to share knowledge (i.e., greater than the minimum response on *FININC* questions; 165/428). Of those 165, about 35 percent indicated a marginal or stronger presence of financial incentives for KS within their organization (i.e., 10 or higher score on the *FININC* measure; 57/165).

**SEM Model Fit**

Following the recommendations of the SEM literature (e.g., [Esposito 2010](#); [Kline 2005](#); [Smith and Langfield-Smith 2004](#); [Anderson and Gerbing 1988](#)), we first tested the fit of the measurement models. Figures 3 and 4 present the best-fitting SEMs with controlled (Figure 3) and autonomous (Figure 4) motivation mediation. Model fit evaluation included incremental and absolute goodness-of-fit indices. We considered two measures of incremental (relative) fit, which compare the proposed models to a baseline model ([Kline 2005](#)). The comparative fit index ( $0 \leq CFI \leq 1$ ) is less sensitive to sample size and sampling error than other incremental fit indices ([Hu and Bentler 1999](#)). A CFI index greater than 0.90 indicates good incremental fit. The other reported incremental fit index is the Bentler-Bonett non-normed fit index (NNFI), which is more sensitive to sampling error but less sensitive to sample size. A score greater than 0.90 indicates good fit (observed NNFI  $\geq 0.95$ ).

We considered three measures of absolute model fit. The root mean square error of approximation (RMSEA) is a parsimony-adjusted index that corrects for model complexity. RMSEA values less than 0.05 indicate excellent fit, whereas values between 0.05 and 0.10 suggest adequate fit ([Browne and Cudeck 1993](#)). The observed RMSEA for both models is 0.04. The average absolute standardized residuals (AASR) indicates the level of unexplained variance in the model ([Bentler 1980](#)), with a value less than  $\sim 0.05$  indicating a good level of unexplained variability. The AASR values for both models are 0.035.



The standardized root mean square residual (SRMR) equals the average difference between the predicted and observed matrices, but is based on the correlation, not the covariance, matrices (Brown, Cober, Kane, Levy, and Shalhoop 2006). The SRMR corrects many of the interpretational problems associated with the RMR; for example, its values range from 0 to 1.0 (Kline 2005). SRMR values less than 0.10 indicate adequate fit and less than 0.05 indicate excellent fit. The observed SRMR is 0.077 and 0.092 for the controlled and autonomous models, respectively. In short, our analyses indicate that both models exhibit adequate to good model fit.

**SEM Results: Tests of Hypotheses**

The results support all hypotheses for the controlled model (see Figure 3). A significant path coefficient exists between financial incentives and controlled KS motivation (H1a) ( $r = 0.43$ ;  $p \leq 0.05$ ). In addition, we observe significant path coefficients between controlled KS motivation and both forms of dysfunctional KS ( $r = 0.34$ ;  $p \leq 0.001$  and  $r = 0.56$ ;  $p \leq 0.001$  for harmful KS [H2a] and masked KS [H2b], respectively). Hence, consistent with H1, financial incentives correlate with higher controlled KS motivation, and consistent with H2, controlled KS motivation correlates with higher dysfunctional KS. Finally, adding a direct path between financial incentives and either form of dysfunctional KS does not improve model fit. Hence, the results also support H4a and H4b; controlled KS motivation mediates the effect of financial incentives on dysfunctional KS.

Likewise, the results support all hypotheses for the autonomous model (see Figure 4). A significant negative path coefficient exists between financial incentives and autonomous KS motivation (H1b) ( $r = -0.02$ ;  $p = 0.05$ ). Accordingly, the results offer evidence of financial incentives “crowding out” the autonomous motivation of accounting professionals. We also observe significant, negative path coefficients between autonomous KS motivation and both forms of dysfunctional KS ( $r = -0.20$ ;  $p \leq 0.001$  and  $r = -0.18$ ;  $p = 0.02$  for harmful KS [H3a] and masked KS [H3b], respectively). As with the controlled motivation model, adding a direct path between financial incentives and either form of dysfunctional KS does not improve

model fit, thus supporting the notion that autonomous motivation also mediates the effect of financial incentives on dysfunctional KS.

### Supplemental Analyses

In additional analyses, we confirmed that model fit does not improve by including other variables, including measures of the KS culture (cf. Huerta, Salter, Lewis, and Yeow 2012). In addition, perceptions of the financial incentives offered for KS may differ because of individual or organizational differences (cf. Taylor 2006). Accordingly, we test for these differences using a multivariate regression with seven predictor variables (gender, age, public versus private organization, governmental versus non-governmental organization, private versus non-private organization, consulting versus non-consulting job, accounting versus non-accounting job) and financial incentives as the dependent variable. The resulting regression was marginally significant ( $F(7, 404) = 1.74$ ;  $p = 0.098$ ). Multicollinearity (highest condition index = 14.48) was insufficiently high to indicate unreliable predictor estimates (Belsley 1991). The regression approached significance because of a marginally significant gender effect: specifically, men perceived greater financial incentives for KS than did women ( $\beta = -0.132$ ;  $p = 0.008$ , where Female = 1, Male = 0).

We also explored whether having a formal KS repository in place had an effect on outcomes. Isolating incentives for knowledge shared through a repository, relative to informal face-to-face interactions, led to similar outcomes with *FININC* (largest variance in correlation = 0.025). However, one difference did emerge in this analysis: the relationship between financial incentives for sharing knowledge through a repository and *HKS* was not significant (0.074;  $p = 0.127$ , two-tailed). This differs from our results with the full *FININC* construct and *HKS* (0.097;  $p < 0.045$ ). One interpretation of this result may be that individuals are less likely to share harmful knowledge through formal systems due to the possibility of leaving digital fingerprints, whereas in face-to-face settings, they may believe they will have plausible deniability. Alternatively, this result may obtain because single measures of constructs (i.e., asking exclusively about knowledge repositories) are usually psychometrically weaker (i.e., have lower statistical power) than are multiple measures (Gardner, Cummings, Dunham, and Pierce 1998).

Finally, the crowding-out effect (H1b) may occur in multiple ways. For example, introducing financial incentives may (1) reduce autonomous motivation, (2) increase controlled motivation, or (3) both. Because the data in the present study are correlational (and not from a controlled experiment) we can (weakly) test for these effects by examining, across participants, the relations of financial incentives with the types and overall quantity of motivation. The evidence supports explanation (3) above, with effects on both autonomous and controlled motivation. Specifically, the structural equation model indicates that higher levels of financial incentives are associated with an increase in controlled (see Figure 3), and a decrease in autonomous, motivation (see Figure 4). In addition, correlational results (untabulated) indicate that the overall quantity of motivation (i.e., controlled plus autonomous) increases with financial incentives. Accordingly, our data indicate that introducing financial incentives increases the *quantity* and decreases the *quality* of motivation.

## V. CONCLUSION

### Synopsis

The results support the proposed extension of SDT to the context of dysfunctional KS among accounting professionals. Specifically, consistent with SDT, controlled forms of motivation lead to more dysfunctional KS, while autonomous forms of motivation lead to less dysfunctional KS. Further, we find evidence that offering financial incentives for KS can “crowd out” autonomous motivation and replace it with controlled motivation, which increases dysfunctional KS. Also, although it does not serve participants’ self-interest to admit that they will lie and, in some cases, commit fraud, in order to obtain financial rewards for KS, such admissions are present in our data and results.

### Implications for Research

This paper contributes to AIS research by (1) adapting SDT to predict the effect of financial incentives on dysfunctional KS, (2) measuring two forms of dysfunctional KS, (3) identifying mediating processes, i.e., controlled and autonomous motivation, that explain these effects, and (4) demonstrating measurable, dysfunctional outcomes from offering financial rewards to accounting professionals. Technology advances increasingly attach to changes in incentive systems to create opportunities for the creation and distribution of knowledge and to decrease the withholding of useful knowledge (Wolfe and Loraas 2008; Taylor 2006). However, the results of this study suggest that such systems may, if implemented without regard to the effects on the quality of users’ motivations, increase the sharing of useless or harmful knowledge. Hence, our results support the argument that “incentives can work too well” (Baker et al. 1988) by motivating dysfunctional behavior to game an

incentive system to gain personal rewards. Further, we find evidence of incentives crowding out autonomous motivation in favor of controlled motivation, thus leading to more dysfunctional KS outcomes. Hence, our results support the arguments of some organizations that choose not to offer financial incentives for KS (e.g., [Edmondson et al. 2012](#)).

A second, pragmatic, contribution is the development of instruments to measure the extent and type of harmful and masked organizational KS. Knowledge is among the most important intangible assets ([Kelly 2010](#); [Lev 2001](#); [Lin and Fan 2011](#)). Our instruments and metrics may provide a useful starting point for measuring the movement of organizationally unhelpful and harmful "knowledge" flows. A third, methodological, contribution is the adaptation of a measure from SDT to operationalize the construction of "extrinsic incentives." This adaptation reflects a further conceptual contribution of the present manuscript: the integration of conceptual aspects of incentive theories, which concerns the nature or quality of motivation, with operational measures derived from SDT. Although the relations of incentive theories (specifically agency) and SDT are discussed in literature (e.g., [Gagné and Forest 2008](#)), we are unaware of efforts to reconcile or integrate these theories.

SDT holds promise for other aspects of accounting systems design, beyond the problem of harmful KS. For example, [Whitcotton and Butler \(1998\)](#) found that students relied more on a decision aid when they chose its information content. Hence, students who were offered greater autonomy in the construction of an accounting decision aid relied more on the aid. Similarly, [Becker \(1997\)](#) found that auditors ( $n = 41$ ) who were offered greater autonomy, i.e., who chose information for use, evidenced higher intrinsic motivation and made more accurate bankruptcy predictions. Accordingly, investigating the effects of system users' choices of accounting systems attributes, framed within SDT's theory of the value of autonomy to success, holds promise as a topic of interface design in accounting systems research. While speculative, it is possible that "participative" knowledge tools, i.e., offering users choices in the nature and availability of knowledge-supporting tools, may yield similar benefits of user engagement.

### Implications for Practice

The results suggest that offering financial incentives can increase dysfunctional KS and controlled motivation, and decrease autonomous motivation, among those incented. This result accords with some managers' intuition (e.g., [Edmondson et al. 2012](#)) and theory (see [Stone et al. 2009](#)). Such results confirm the complexity of the influences of financial incentives ([Bonner and Sprinkle 2002](#)) and a need for caution, but not disdain, when offering financial incentives for KS. It may be possible, although not tested herein, for well-designed financial incentives for KS to create synergies that increase functional KS and, through the creation of, commitment to, and trust in, the organizational culture (cf. [Amabile 1993, 1998](#)), avoid the dysfunctional side effects of incentives found in this study (cf. [Deci, Connell, and Ryan 1989](#)).

No incentive is implemented with the intent to spur dysfunctional KS. Our results indicate a need for alignment between an ethical firm culture and incentives. Such alignment requires careful thought and planning. Training employees on the importance of an open and sharing firm culture, of the misuse of KS, and how to leverage technology to build and maintain a functional organizational culture may be crucial. The above activities can help instill a sense that KS is an important and noble objective, and help shift motivational form from relatively more controlled to relatively more autonomous. Yet another implication would be for managers to consider monitoring KS contributions after a financial incentive for KS is in place to make sure such contributions are useful and helpful to the organization and to monitor for misuses of the system (e.g., [Garud and Kumaraswamy 2005](#)).

### Limitations

The quasi-experimental research method employed herein, combined with cross-sectional data, provide a weaker means of testing causal relations than would a true experiment that included random assignment of participants to conditions (e.g., [Gow et al. 2016](#)). Absent random assignment of units to conditions, omitted correlated variables potentially threaten the validity of causal inferences more than would be the case in studies employing random assignment. Finally, all measures are participant self-reports; hence, they are subject to self-perception and self-reporting biases. Given the IMA code of professional behavior, it likely serves participants' self-interest to underreport their levels of dysfunctional KS. Hence, the actual rate of dysfunctional KS by professional accountants is likely higher than the 30 percent of respondents who admit to such behaviors in our sample.

An additional limitation of the study is that we do not investigate the characteristics of KS recipients to analyze, for example, their receptiveness to received knowledge ([Szulanski 2000](#)). Experienced and inexperienced professionals likely differ in their motivation and cognitive capacity to receive and implement received knowledge. Further, recipients of knowledge in incentivized environments may differ on how they filter, use, and reciprocate knowledge relative to those in non-incentivized environments, based on their differing experiences with encountering dysfunctional knowledge. For example, a recipient of useless knowledge, after coming to the realization that it was not helpful, might be inclined to reciprocate in kind, refuse to share their own knowledge, or leave the firm altogether. While an important issue, we leave its investigation of the influence of financial incentives on the recipients of knowledge to future investigations. Finally, our investigation does not

distinguish between incentives offered to individuals versus teams for KS, although existing research does investigate and provide important insight into this issue (e.g., see Kelly 2010).

### Summary

This is among the first large-sample investigations of the effects of financial incentives on dysfunctional KS among accounting professionals. It contributes to accounting research and practice by exploring the potential effects of financial incentives on organizational dysfunctional KS. It also investigates the potential dark side of KS and the risk of adding financial incentives to increase KS through knowledge management strategies and electronic knowledge repositories.

Most research posits KS as desirable. In contrast, we conceptualize the effects of KS as contextually embedded, where its desirability depends on the usefulness, to the organization, of the sharer's knowledge. Hence, KS has two faces; sharing useful knowledge multiplies the stock of organizational knowledge and accelerates organizational gains, but sharing masked or harmful knowledge is, at best, organizationally neutral and, at worst, harmful. The results suggest that financial incentives for KS are similarly "Janus faced." Financial incentives will likely increase useful KS, but there is evidence of a "second face" to financial incentives—of increased dysfunctional KS. Implementing KS incentives that motivate useful, but discourage dysfunctional, KS and integrating those incentives with emerging technologies largely remains a challenge for future research. In contrast to those who unequivocally laud (e.g., neo-classical economists) or lambast (e.g., some social psychologists) financial incentive, the incentives appear to be malleable. Wielded unwisely, they can cause dysfunction. In contrast, used wisely and carefully, they may be a productive tool to creating and building a functional organizational culture (cf. Amabile 1993, 1998). Our research, and related research, provides a starting point for designing organizational systems that recognize, and capitalize on, the complex "Janusian" nature of financial incentives and KS.

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## APPENDIX A

### Additional Evidence of Convergent and Divergent Validity in Structural Equation Models

Table 4, Panels A, B, C, D, and E present the indicator factor loadings for the financial incentives for KS (Panel A), controlling forms of motivation (Panel B), autonomous forms of motivation (Panel C), masked KS (Panel D), and harmful KS (Panel E); these measures provide additional indications of internal or convergent validity. Consistent with the Table 1, the factor loadings for the independent and dependent variable constructs evidence good to excellent convergent validity (all four measures > 0.65). The factor loadings for controlled and autonomous motivations, consistent with SDT, both reveal two factors, and some weaker factor loadings.

#### Discriminant Validity

With the exception of identified motivation, the AVEs (Table 1) exceed the highest inter-construct correlations (Table 5) which provide evidence of discriminant validity (Esposito 2010). Recall that according to SDT, identified and intrinsic motivation are forms of autonomous motivation and should be related. In addition, Table 2 presents Pearson correlations (in the off-diagonals) and the square roots of AVEs (on the diagonals). Pearson correlations indicate one case of high correlations among the measured constructs (highest  $r = 0.640$  between identified and intrinsic motivation; next highest  $r = 0.369$  between both masked and harmful KS, and introjected and external motivation). In addition, the Table 2 diagonal elements (i.e., square roots of the AVEs) are higher than are the off-diagonal elements (between-item correlations), with the exception of identified and intrinsic motivation, which are conceptually linked in SDT. Hence, these assessments provide evidence of adequate discriminant validity in the measured constructs (see Esposito 2010).

**TABLE 4**  
**Factor Loadings Indicators**

**Panel A: Financial Incentives for KS Factor Loadings**

	<b>Item Measure Name</b>	<b>Factor Loadings</b>
The firm or company offers monetary incentives or other financial rewards:		
for sharing knowledge with the firm or other coworkers	FININC1	0.907
for sharing within groups and teams	FININC2	0.895
for sharing between groups and teams	FININC3	0.873
(e.g., raises or bonuses) for contributions made to a knowledge repository or electronic database	FININC4	0.746

**Panel B: Controlled (External and Introjected) Motivation Factor Loadings**

	<b>Item Measure Name</b>	<b>Factor Loadings</b>	
Please indicate how true each of these reasons are for why you engage in knowledge sharing with others at the job that you have chosen to tell us about.			
Because I could lose my job if I did not.	EXT1	0.774	-0.039
Because it is required by my job.	EXT2	0.691	0.133
Because it would harm my relationships if I did not share what I know with others.	EXT3	0.626	0.246
Because I feel like I must or I will be punished.	EXT5	0.603	0.041
Because I want people to like me.	INTRO2	0.080	0.792
Because it makes me feel more intelligent.	INTRO4	-0.086	0.717
Because I want my supervisor to think I am a good employee.	INTRO1	0.389	0.597
Because I know that I will get a reward for doing so.	EXT4	0.391	0.456
Because I want people to share their knowledge with me.	INTRO3	0.068	0.392

**Panel C: Autonomous (Identified and Intrinsic) Motivation Factor Loadings**

	<b>Item Measure Name</b>	<b>Factor Loadings</b>	
Please indicate how true each of these reasons is for why you engage in knowledge sharing with others at the job that you have chosen to tell us about.			
Because I think it is important to help others at work.	IDENT3	0.744	0.100
Because it is important to me to share knowledge.	IDENT2	0.685	0.326
Because I believe it is an important personal attribute to share what I know with others.	IDENT5	0.661	0.321
Because I want others to understand what I know.	IDENT1	0.606	0.079
Because it is satisfying to help others.	IDENT4	0.597	0.349
Because it is fun.	INTRIN1	0.080	0.811
Because of the happiness I feel when I share knowledge with others.	INTRIN3	0.174	0.784
Because I enjoy doing so.	INTRIN2	0.384	0.723
Because it is interesting and satisfying to share my professional knowledge.	INTRIN4	0.529	0.548
Because it is interesting to see how my ideas affect the people I share them with.	INTRIN5	0.371	0.465

(continued on next page)

TABLE 4 (continued)

## Panel D: Masked Knowledge Sharing Factor Loadings

	Item Measure Name	Factor Loadings
If others would evaluate my useless knowledge as useful, I would share information that has little value to others so that I could increase my job performance evaluation scores.	MKS1	0.856
If others would evaluate my useless knowledge as useful, I would share information that has little value to others so that I could improve my supervisors' perceptions of my job performance.	MKS2	0.840
I am willing to share information that has little value to others because I might still get credit for helping others on my job evaluation.	MKS3	0.807
I would share knowledge with little or no value if it meant I might get a bonus.	MKS4	0.752
I sometimes share information that has little value to others because I might still get a reward anyway.	MKS5	0.683

## Panel E: Harmful Knowledge Sharing Factor Loadings

	Item Measure Name	Factor Loadings
I sometimes share knowledge with other people within my group or team that could harm my organization by inappropriately disclosing client or customer information.	HKS1	0.784
I sometimes share knowledge with other people within the organization that inappropriately discloses client information.	HKS2	0.746
I sometimes share knowledge with other people outside of the organization that inappropriately discloses client information.	HKS3	0.722
I would share knowledge that violates my sense of ethics and integrity, and harms the organization that I work for, if I could earn a substantial financial reward for doing so.	HKS4	0.720
I would share knowledge that violates my sense of ethics and integrity, and harms the organization that I work for, if it would help convince others that I am doing an outstanding job at work.	HKS5	0.689

TABLE 5

## Squared Inter-Construct Correlations

	(2)	(3)	(4)	(5)	(6)	(7)
1. Financial Incentives for KS	0.045	0.060	0.000	0.001	0.050	0.009
2. External Motivation (Controlled Motivation)		0.136	0.003	0.001	0.028	0.016
3. Introjected Motivation (Controlled Motivation)			0.118	0.131	0.084	0.003
4. Identified Motivation (Autonomous Motivation)				0.410	0.011	0.023
5. Intrinsic Motivation (Autonomous Motivation)					0.136	0.011
6. Masked KS						0.136
7. Harmful KS						NA

## APPENDIX B

## Common Method and Social Desirability Bias Procedures

We attempted to reduce the influence of participants providing socially desirable responses by providing confidentiality (Podsakoff et al. 2003; Arnold, Benford, Hampton, and Sutton 2012). Consistent with Liang, Saraf, Hu, and Xue (2007), we assessed common method bias using two methods. First, we performed Harman's (1967) single factor test (see, also, Lin and Fan 2011), which evaluates the factor structure of all variables in the research in an exploratory, unrotated factor solution. The factor loadings in this analysis, which explain 61.3 percent of the variance, are consistent with the constructs previously

**TABLE 6**  
**Additional Test of Common Method Bias**  
**Controlled Model**

Indicator	Research Model		Common Method	
	Factor Loadings <sup>a</sup> (R)	R <sup>2</sup>	Factor Loadings (R)	R <sup>2</sup>
FININC1	0.915	0.837	0.032	0.001
FININC2	0.925	0.856	-0.001	0.000
FININC3	0.926	0.857	-0.038	0.001
FININC4	0.765	0.585	0.006	0.000
EXT1	0.758	0.575	0.007	0.000
EXT2	0.759	0.576	-0.088	0.008
EXT3	0.751	0.564	-0.077	0.006
EXT5	0.489	0.239	0.201 <sup>b</sup>	0.040
INTRO1	0.727	0.529	0.031	0.001
INTRO3	0.777	0.604	0.023	0.001
INTRO4	0.472	0.223	-0.185	0.034
INTRO5	0.652	0.425	0.050	0.003
EXT4	0.552	0.244	-0.017	0.006
HKS1	0.809	0.654	-0.028	0.001
HKS2	0.768	0.590	0.035	0.001
HKS3	0.832	0.692	0.002	0.000
HKS4	0.756	0.572	-0.029	0.001
HKS5	0.811	0.658	0.016	0.000
MKS1	0.490	0.240	0.304 <sup>b</sup>	0.092
MKS2	0.788	0.621	0.058	0.003
MKS3	0.930	0.865	-0.072	0.005
MKS4	0.966	0.933	-0.161	0.026
MKS5	0.865	0.748	-0.096	0.009
Average Variance Extracted		0.611		0.011

<sup>a</sup> All research model factor loadings are significant at  $p \leq 0.001$ .

<sup>b</sup> Common method factor loadings significant at  $p \leq 0.001$ .

identified (i.e., dysfunctional KS: harmful [30.5 percent variance explained]; dysfunctional KS: masked [13.0 percent variance explained]; financial incentives for KS [9.7 percent variance explained]; and extrinsic motivation for KS [8.1 percent variance explained]). Hence, the results of this analysis suggests that common method bias does not overly influence participants' responses.

Second, we added a latent, "common factor" construct to the research model where all of the measured variables were indicators of the common factor (Liang et al. 2007; Podsakoff et al. 2003) (see Tables 6 and 7). For the Figure 1 model (see Table 6), the average variance extracted is 0.611, while the average variance extracted using the single common factor method is 0.01. The ratio of the substantive to method variance is 56 to 1, and most of the factor loadings for the common method loadings are not significant. For the Figure 2 model (see Table 7), the average variance extracted is 0.723, while the average variance extracted using the single common factor method is 0.006. The ratio of the substantive to method variance is 121 to 1, and, again, most of the factor loadings for the common method loadings are not significant. Accordingly, the small common method variance extracted and the presence of few significant loadings suggest that common method variance is not an important threat to validity in the models (Liang et al. 2007).

**TABLE 7**  
**Additional Test of Common Method Bias**  
**Autonomous Model**

Indicator	Research Model		Common Method	
	Factor Loadings <sup>a</sup> (R)	R <sup>2</sup>	Factor Loadings (R)	R <sup>2</sup>
FININC1	0.924	0.854	0.026	0.001
FININC2	0.923	0.852	0.006	0.000
FININC3	0.916	0.839	-0.030	0.001
FININC4	0.768	0.590	-0.002	0.000
IDENT1	0.578	0.334	0.047	0.002
IDENT2	0.770	0.593	0.008	0.000
IDENT3	0.732	0.536	0.004	0.000
IDENT4	0.639	0.408	-0.140	0.020
IDENT5	0.824	0.679	0.105	0.011
INTRIN1	0.772	0.596	0.068	0.005
INTRIN2	0.788	0.621	-0.065	0.004
INTRIN3	0.834	0.696	0.124	0.015
INTRIN4	0.684	0.468	-0.146	0.021
INTRIN5	0.650	0.423	0.041	0.002
HKS1	0.789	0.623	0.002	0.000
HKS2	0.806	0.650	-0.021	0.000
HKS3	0.805	0.648	0.044	0.002
HKS4	0.749	0.561	-0.018	0.000
HKS5	0.828	0.686	-0.009	0.000
MKS1	0.590	0.348	0.207 <sup>b</sup>	0.043
MKS2	0.855	0.731	-0.028	0.001
MKS3	0.876	0.767	-0.006	0.000
MKS4	0.927	0.859	-0.130	0.017
MKS5	0.802	0.643	-0.021	0.000
Average Variance Extracted		0.723		0.006

<sup>a</sup> All research model factor loadings are significant at  $p \leq 0.001$ .

<sup>b</sup> Common method factor loading significant at  $p \leq 0.001$ .

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