

# Control Systems' Effect on Attributional Processes and Sales Outcomes: A Cybernetic Information-Processing Perspective

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*Built upon a cybernetic information-processing framework, this article advances and empirically tests a conceptual model proposing the relationships between sales controls (outcome, activity, capability), salespeople's attributional ascriptions (effort, strategy, ability), attributional dimensions (internal/external, stable/unstable), and psychological consequences (job satisfaction, performance expectation). The study challenges the assumption in the sales literature that attributional dimensions cleanly map onto attributional ascriptions. Findings support that sales control systems affect salespeople's attribution processes in ways suggesting that the processes are more malleable than heretofore theorized in the marketing literature. Furthermore, the study demonstrates that control systems differentially affect attribution processes across two cultures: the United States and China. The article concludes with a discussion of research and managerial implications.*

**Keywords:** *control system; attribution theory; attributions; feedback; sales management*

Sales performance is a function of how salespeople adapt and adjust to successes and failures within their selling environments (Weitz, Sujan, and Sujan 1986). Understanding this adjustment process should be important to sales and marketing managers. Perhaps the most obvious means of management affecting a selling environment is through directing salespeople with sales control systems (Oliver and Anderson 1994). With regard to sales successes and failures, salespeople are likely to use these control systems as perceptual screens to filter their own evaluations of their sales performance (Lord and Maher 1990). For example, if the sales expectations of the firm focus on sales volume, low performance on volume may be attributed to too little effort (e.g., laggards), or by contrast, high performance may be attributed to high levels of effort (e.g., rate busters). Despite the importance of such performance attributions on sales behaviors (e.g., DeCarlo, Teas, and McElroy 1997), it is surprising that *how control systems influence salespeople's attribution processes* remains underresearched. While marketing research specifically addresses attribution retraining, or the coaching of salespeople to make helpful attributions (e.g., Sujan 1999), no research has been conducted to aid sales managers in understanding how salespeople's attributions are made within particular selling environments.

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Thus, the primary contribution of this study is to advance an integrated framework, grounded in cybernetic information processing, pertaining to how attribution processes are affected by sales controls. Within the framework, attributional ascriptions (e.g., effort, ability, and strategy) and dimensions (e.g., locus of causality and stability) are differentiated to explore how sales controls not only affect the ascriptions made regarding successes and failures but also how they moderate the relationships between ascriptions and their dimensions. In other words, sales control systems are proposed not only to affect which causal ascription a salesperson is likely to make (e.g., “I lost the bid because of a lack of effort”) but also to influence the extent to which salespeople view this causal ascription as the result of events under their control (internal/external) and the extent to which the event is likely to reoccur (stable/unstable). Proposing that certain attributed “causes” of success or failure (e.g., effort, strategy, ability) tend to be evaluated by salespeople as more rigid (i.e., stable, external) or more malleable (i.e., unstable, internal) depending on the control system not only challenges extant attribution theory in marketing but provides sales managers with constructive insights for directing or redirecting salesperson endeavors. Also in keeping with the attribution literature in psychology and with cybernetic models of information processing, this study explores how causal attribution in achievement-related contexts differs across cultures. Using primary data collected from salespeople in the United States and in China, this research is the first to propose cultural variations in how sales control systems shape salespeople’s performance attributions.

## OVERVIEW

Cybernetic theories of control emphasize people’s use of *feedback* for the evaluation of their behaviors (Ashby 1956). While, as a general conceptual framework, cybernetic information processing can be overlain onto numerous theoretical perspectives to highlight the importance of environmental feedback (Edwards 1992), the significance of environmental feedback to attributional processes largely has been overlooked in sales research. This is despite suggestions from attribution theorists that how individuals use related information to make causal inferences is the *foundation* for understanding attribution making (Orvis, Cunningham, and Kelley 1975).

A cybernetic information-processing framework of attributions appears particularly germane to sales contexts since feedback can be readily derived from salesperson control systems (Anderson and Oliver 1987). Indeed, one important function of sales control systems is the provision of performance feedback (Agarwal and Ramaswami 1993). Hence, controls may be viewed not only to alter

behavior but to affect cognitive processes. As Lord and Maher (1990) suggested, causal attribution frameworks should take into account important influencers of information processing—such as the environment in which one’s performance is being self-evaluated. Thus, the conceptualization advanced here allows for consideration that attributions are not simply formulated around discrete events but are made while participating in environmental systems involving complexity and continual feedback (Hogarth 1981).

## Environmental Feedback Mechanisms

Anderson and Oliver (1987) and Oliver and Anderson (1994) classified controls into those that emphasize end results (i.e., outcome controls) and those that stress inputs and processes (i.e., behavior controls). More recently, Challagalla and Shervani (1996) suggested that behavioral control can be subdivided into two types: activity control and capability control. In general, for each of these control types (outcome, activity, and capability), managers may use feedback through goal setting, reward, and punishment to direct, reinforce, and discourage certain behaviors and activities of employees to enhance job outcomes. In terms of particular feedback, *outcome control* focuses on the achievement of end results such as sales volume to promote selling effort, while *activity control* focuses on how employees organize and engage in their job-related activities to promote sales strategies. Finally, *capability control* focuses on the development of employee skills that enhance the quality of selling to promote selling abilities. Taken together, the combination of controls used in the direction of salespeople is referred to as the control system.

## Attributional Ascriptions

Weiner (1985, 1986) elaborated on Heider’s (1958) analysis of causes to differentiate conceptually between causal ascriptions and causal dimensions. Casual ascriptions are the specific attributions (e.g., effort, ability, and strategy) individuals make related to successes or failures after their initial casual search. Attribution research in sales suggests six causal ascriptions for successes and failures: effort, strategy, ability, task difficulty, organizational support, and luck (Dixon, Spiro, and Jamil 2001). For two reasons, this study focuses on a subset of ascriptions: strategy, effort, and ability (Sujan, Weitz, and Kumar 1994). First, these ascriptions about performance correspond to working hard (*effort*) and working smart, which has both *strategy* (adaptive selling practices and planning behaviors) and *ability* (capacity to engage in a wide range of sales-related skills) components. Recognizing the importance for sales management to differentiate between (and,

potentially redirect the efforts of their salespeople toward working smart and working hard, the corresponding ascriptions for the three major drivers of salesperson performance—attributional ascriptions for effort, strategy, and ability—are included in the study (Sujan et al. 1994). Second, as suggested by the framework, these ascriptions are posited to be directly affected by sales control systems.

*Effort* has been conceptualized by Heider (1958) as how hard one tries. For salespeople, an effort causal ascription refers to attributing performance successes and failures to selling tenacity. A *strategy* causal ascription refers to attributing performance successes and failures to effective selling approaches. Finally, an *ability* causal ascription refers to performance successes and failures attributed to selling skills and capabilities (e.g., outstanding interpersonal skills).

### Attributional Dimensions

In contrast, attributional dimensions are cognitive evaluations (e.g., locus of causality and stability) regarding success or failure and are fundamental in determining psychological reactions and future behavior (Weiner 1985). Thus, attributional dimensions represent the individual's cognitive evaluation of success or failure, while causal ascriptions are more generalized explanations of events (Martinko 1995). Three *attributional dimensions* have been widely employed in sales-related literatures: locus of causality (internal-external), stability (stable-unstable), and controllability.

The locus-of-causality dimension, derived from Heider (1958), is the notion that an event's cause can be attributed to either being internal or external to the individual, or the degree to which one perceives the causes of success or failure as contingent on one's own making versus being contingent on forces outside of oneself. When the success or failure is attributed to forces outside of oneself, independent of one's own action, an external attribution is made. Alternatively, success or failure attributed to one's own behavior is an internal attribution (Weiner 1986). The stability attributional dimension refers to the perceived variability of causes for successes or failures over time (Weiner 1972). As with the locus-of-causality dimension, the stability dimension has received wide support both empirically (e.g., Johnston and Kim 1994) and conceptually by its inclusion in a number of attribution theories (e.g., Martinko 1995; Weiner 1985). Consistent with Johnson and Kim (1994), the controllability dimension identified by Weiner (1972) is not included because of mixed sentiment as to whether it is sufficiently distinct from the locus of causality and the stability dimensions (Weiner 1986). For example, salespeople probably view most external causes as uncontrollable and most internal causes as controllable (DeCarlo et al. 1997). In terms of cognitive

processes, Weiner (1986) suggested that individuals first arrive at specific causal ascriptions and then explore the attributional dimensions.

Crucial to this study, the extant psychology literature questions the immutability of relationships between causal ascriptions and dimensions (e.g., Weiner 1986). To illustrate, depending on the environmental context, ability causal ascriptions may be either stable or unstable (Forsterling and Engelken 1981). Also, although effort causal ascriptions are typically suggested as unstable, they may be considered stable under some circumstances (Weiner 1986). Exploring the relationships between attributional ascriptions and dimensions helps determine to what extent environmental forces (e.g., sales control systems) influence sales-related attributions for success and failure (see Figure 1).

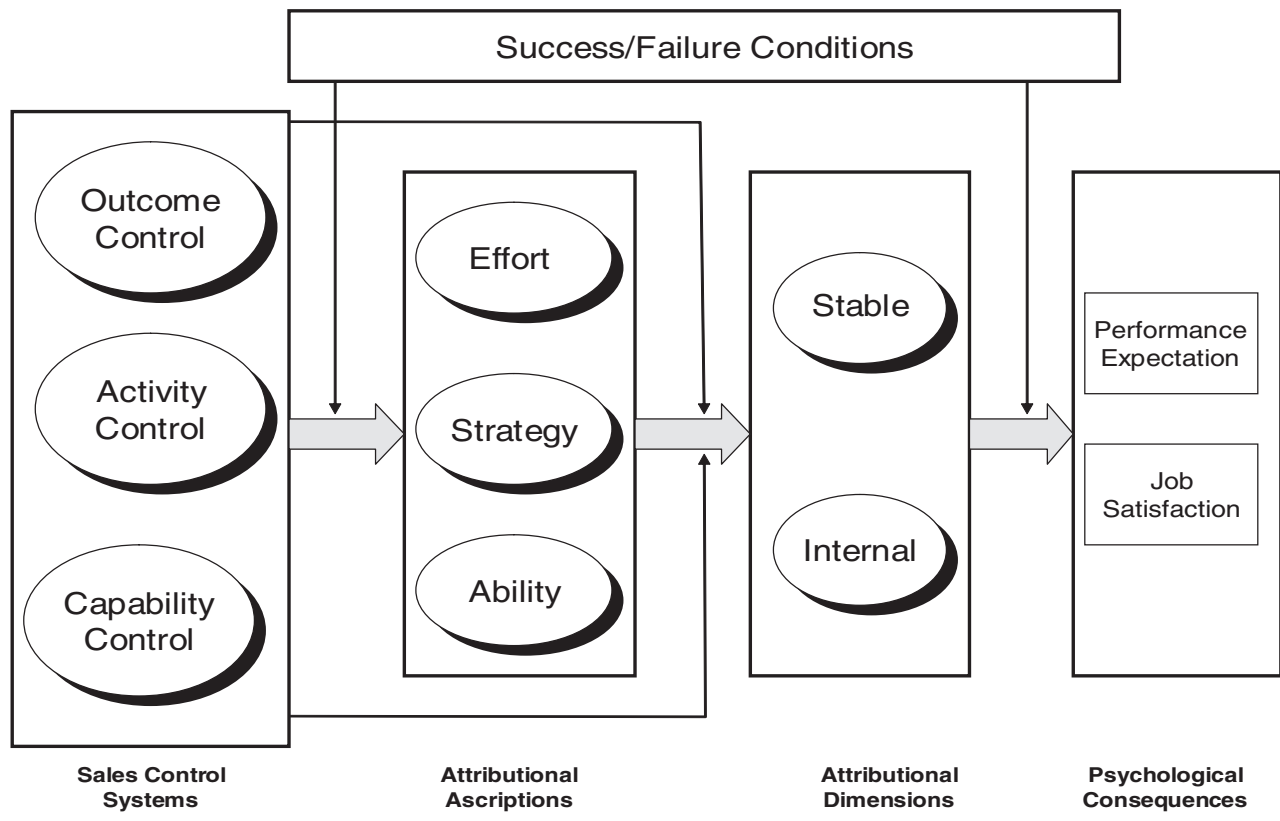
## CONCEPTUAL FRAMEWORK AND HYPOTHESES

### Sales Control Systems and Attributional Ascriptions

In a cybernetic information-processing model of attributions, perceived performance discrepancies between actual performance and performance feedback would prompt salespeople *to pay closer attention to ascriptions associated with the particular feedback* (Klein 1989). For example, when asking themselves why they failed at a particular task, salespeople under outcome controls, which would involve effort-related feedback, might tend to prejudice their attributional ascriptions toward improper selling *effort*.

For contexts like sales, Lord and Smith (1983) suggested that performance evaluations should produce more systematic, *consciously directed* attributions than occur in day-to-day interactions. Under formalized control systems, feedback is normally readily available and directive toward behavioral adaptations, which in turn influence attributional processes to an even greater degree than in other contexts (Lowe and Kassin 1980). This is captured in Ostrom's (1984) contention that in cybernetic processing "action is integral to cognitive processes," or that as behaviors are modified to be in compliance with directives and feedback, a deeper bias in cognitive processing is likely to result (p. 26). The notion that controls play a role in influencing attributional ascriptions is supported in the leadership literature, where Martinko and Gardner (1987) reported that subordinates change their attributions over time according to supervisor's feedback. Likewise, Stajkovic and Sommer (2001) found empirical evidence that performance feedback can influence a subordinate's causal ascription about performance successes and failures.

**FIGURE 1**  
**Integrated Framework of Sales Controls, Performance Attributions, and Psychological Consequences**



Thus, as controls are accompanied by feedback that is directive of behavior, cybernetic models of information processing would predict that a given control type (e.g., outcome control) should correlate with its associated salesperson directive (e.g., more effort is needed). For attributions regarding success, the relationship should be both significant and positive—that under outcome control, selling success will likely be attributed to effort. This closely parallels the attributional notion of “correspondence inference” (Jones and Davis 1965), which suggests that individuals infer from their situation the “existence of some trait, ability, intention, feelings of other disposition” to account for their behavior (Ross and Anderson 1982, p. 132). Similarly, Bem (1972) argued that the desire to protect one’s self-perception results in individuals tending to develop cognitions, or causal attributions, consistent with their cognitive structure and behaviors.

For attributions regarding failure, a cybernetic framework would predict a significant but negative relationship between the ascription associated with a particular control type (e.g., a salesperson’s *vehement denial* of the purported cause) rather than an insignificant statistical relationship (e.g., a salesperson’s *lack of consideration* of the pertinent cause). The negative significant relationship is

due to the environmental feedback serving as the basis by which salespeople will tend to evaluate their performance. Under failure conditions, individuals may deny the purported causes, in part, due to the “principle of discounting” to reduce the cognitive dissonance associated with a negative outcome (Ross and Anderson 1982). For example, salespeople under outcome control might deny that a lack of effort was the cause of their failures (Fazio, Zanna, and Cooper 1972).

Again, outcome control deals with quantitative standards, activity control relates to behavioral standards, and capability control deals with skill or ability standards for salespeople. As a result, it is expected that high levels of outcome controls provide feedback focused on the generation of increased effort (i.e., working hard; Sujan et al. 1994). Since the focus of activity control is on *how* employees are engaged in sales activities, a high level of activity control provides feedback regarding the appropriate strategies, such as planning or cold-calling, to enhance performance (Sujan et al. 1994). While it could be that certain activity controls focus a salesperson’s efforts on a particular task, the feedback indicates that an appropriate *combination of behaviors* (strategy) is desired rather than simply an increase in *overall effort expenditure*. Finally, as

capability control emphasizes salesperson training and self-betterment, high levels of capability control provide feedback that selling skills and abilities are important across a wide range of selling behaviors (Challagalla and Shervani 1996).

*Hypothesis 1a:* Under failure conditions, *outcome control* has a negative effect on salespeople's *effort ascription*.

*Hypothesis 1b:* Under success conditions, *outcome control* has a positive effect on salespeople's *effort ascription*.

*Hypothesis 2a:* Under failure conditions, *activity control* has a negative effect on salespeople's *strategy ascription*.

*Hypothesis 2b:* Under success conditions, *activity control* has a positive effect on salespeople's *strategy ascription*.

*Hypothesis 3a:* Under failure conditions, *capability control* has a negative effect on salespeople's *ability ascription*.

*Hypothesis 3b:* Under success conditions, *capability control* has a positive effect on salespeople's *ability ascription*.

### Moderating Effects of Sales Control Systems

Beyond their effect on causal ascriptions, sales control systems also may moderate the relationships between causal ascriptions and attributional dimensions, which is important since attributional dimensions have been shown to predict important psychological and behavioral outcomes (Johnston and Kim 1994). From a cybernetic perspective, the feedback provided by controls should reinforce the notion that causal ascriptions (i.e., attributions of effort, strategy, ability attributions) are malleable—that the salesperson can do something to affect them (e.g., work harder, adopt a better strategy, and learn new skills). Hence, feedback serves an “informational” function not only about the desired sales behaviors—what salespeople are supposed to be doing and how they are measuring up—but also from a cognitive processing perspective, about the attainability of the control system's directives.

Rewards and punishments associated with controls, viewed here as two key feedback mechanisms of sales control systems (Oliver and Anderson 1994), play “motivational” roles in prompting salespeople to believe that effort, ability, and strategy ascriptions are more internal and unstable (Lowe and Kassin 1980). That is, feedback associated with a particular control type should prime salespeople to attribute the associated ascription as enabling to a particular performance situation. Salespeople will be more likely, for example, to view *effort* as an enabler of their performance, as more internal and unstable, when the salesperson is operating under outcome

control. Thus, given the presence of a particular control type, salespeople should interpret the corresponding directive (increasing effort, modifying strategies, or gaining abilities) as more malleable (Foesterling and Engelken 1981). Thus, cognitive processing becomes biased toward the belief that those causal ascriptions are more malleable (i.e., internal, unstable) given the presence of their corresponding control type:

*Hypothesis 4a:* Under failure and success conditions, *outcome control* positively moderates the relationship between an *effort ascription* and the *internality* attributional dimension.

*Hypothesis 4b:* Under failure and success conditions, *outcome control* negatively moderates the relationship between an *effort ascription* and the *stability* attributional dimension.

*Hypothesis 5a:* Under failure and success conditions, *activity control* positively moderates the relationship between a *strategy ascription* and the *internality* attributional dimension.

*Hypothesis 5b:* Under failure and success conditions, *activity control* negatively moderates the relationship between a *strategy ascription* and the *stability* attributional dimension.

*Hypothesis 6a:* Under failure and success conditions, *capability control* positively moderates the relationship between an *ability ascription* and the *internality* attributional dimension.

*Hypothesis 6b:* Under failure and success conditions, *capability control* negatively moderates the relationship between an *ability ascription* and the *stability* attributional dimension.

### Attributional Dimensions and Consequences

Unlike previous studies that examine the combined effects of causality and stability on psychological consequences, this study explores the effects of stability and causality separately based on arguments in the psychology and sales literatures that combined effects often are erroneously contended (Sujan 1999; Weiner 1986). In brief, attribution theorists contend that certain attributional dimensions should predict certain categories of outcomes. For example, Weiner (1986) suggested that the stability dimension alone influences individuals' anticipation of future achievements. If success is attributed to stable causes, or failure to unstable causes, expectations for future success are higher than if success is attributed to unstable causes, or failure to stable ones. Thus, the study includes *performance expectation* to tap anticipated future achievements. Performance expectation refers to salespeople's cognitive estimates of their future performance; it differs from performance expectancy in that the latter refers to the cognitive linkage between salespeople's effort and expected performance for a particular task (Teas 1981). In other theoretical contexts in the sales literature,

performance expectation has been found to demonstrate a positive effect on sales tasks (Badovick 1990). Performance expectation was specifically chosen because it conceptualizes future motivation at the same global level by which attributions are conceptualized.

The influence of attributions on affect and emotion is more complex. Weiner's early view (1972) was that internal attribution leads to pride and high self-esteem in the case of success and to shame and low self-esteem in the case of failure. Later, Weiner, Russell, and Lerman (1979) noted that success and failure produce broad differences in affective reactions regardless of attributions. However, as Brown and Weiner (1984) noted, certain kinds of affective reactions, particularly satisfaction, depend on how the attributions are made about successes or failures. In particular, the internal dimension is proposed to be the best predictor of affective reactions to successes and failures (Brown and Weiner 1984). Thus, job satisfaction, a likely contributor to future selling success, is included in the study. Job satisfaction is defined as an overall global evaluation of affect toward the job (Dubinski and Mattson 1979). Including job satisfaction is also important since it has been suggested to influence numerous important organizational outcomes such as turnover and organizational commitment (Sager, Futrell, and Varadarajan 1989). Thus, the study includes a measure of satisfaction for both managerial and theoretical reasons. It is contended that under success conditions, the more internal the attribution, the greater the salesperson job satisfaction. Under failure conditions, however, the more internal the attributions, the lower the salesperson job satisfaction (Brown and Weiner 1984):

*Hypothesis 7a:* Under failure conditions, the *stability* attributional dimension has a negative effect on salespeople's performance expectation.

*Hypothesis 7b:* Under success conditions, the *stability* attributional dimension has a positive effect on salespeople's performance expectation.

*Hypothesis 8a:* Under failure conditions, the *internal* attributional dimension has negative effect on salespeople's job satisfaction.

*Hypothesis 8b:* Under success conditions, the *internal* attributional dimension has a positive effect on salespeople's job satisfaction.

### **Cross-Cultural Attributional Variations**

While sales research readily acknowledges the likelihood of cultural influences within control systems (e.g., Anderson and Oliver 1987), no research to date has proposed the cognitive mechanisms through which culture and controls affect sales-related attributions for successes and failures. This study begins that exploration by contrasting two seemingly different cultures, the United

States and China, to reveal how and why controls may have differing influences on salesperson motivation.

Perhaps the most widely argued difference between the United States and China is Hofstede's (1980) notion that Chinese societies are relatively collectivistic compared with Anglo-American societies. Individualism/collectivism refers to the emphasis that societal members place on their self-interests relative to those of the group (Hofstede 1980). Recently, Markus and Kitayama (1991) suggested that the differences between individualistic and collectivistic culture are best understood through the differences between the *interdependent* and *independent* notions of the self, which is the degree to which people see themselves as connected to versus distinct from others. This characteristic is important in managerial control contexts since the independent self (and therefore individualistic cultures) emphasizes autonomy and freedom from social influence by placing high value on the uniqueness of internal qualities like skills, abilities, and effort. More important, in a collectivistic/individualistic inquiry, based on samples from Japan and Canada, Heine and Lehman (1997) found differences in cognitive processing regarding dissonance reduction, which has direct relevance to attribution making for failures. In particular, individuals in cultures characterized by the interdependent self tend to engage in less cognitive dissonance reduction than those cultures characterized by the independent self. Similarly, Brockner and Chen (1996) demonstrated that in independent-self cultures (e.g., the United States), negative feedback prompts more mental self-protection (i.e., cognitive dissonance reduction) than in interdependent-self cultures. Since the effect of sales control systems on salespeople's attributional ascriptions are due in part to cognitive dissonance reduction in failure conditions (Fazio et al. 1972), it is reasonable to assert the following:

*Hypothesis 9a:* Under failure conditions, the negative effect of outcome controls on effort ascriptions will be larger in the United States than in China.

*Hypothesis 9b:* Under failure conditions, the negative effect of activity controls on strategy ascriptions will be larger in the United States than in China.

*Hypothesis 9c:* Under failure conditions, the negative effect of capability controls on ability ascriptions will be larger in the United States than in China.

That is, salespeople in the United States will be more likely to deny the control system's associated causes for failure than will those in China.

For successes, the relationship between controls and attributional ascriptions is likely due, in part, to self-perception maintenance (Fazio et al. 1972). That is, a salesperson is likely to accept credit for successes, in keeping with the control system being employed, to help maintain positive self-esteem. However, self-perception in the

interdependent-self culture can be viewed as more embedded into social context and more likely to be influenced by environmental factors, such as a control system, than it would in an independent-self culture. Self-perception maintenance in independent-self cultures has been described as self-contained, isolated, and less likely to be influenced by social factors (Markus and Kitayama 1991; Sampson 1989). This implies that, in interdependent-self cultures, salespeople are even more likely to attribute the causes of their success to the control system being employed (i.e., outcome/effort, activity/strategy, capability/ability). Cousins (1989) empirically demonstrated that self-perception maintenance in more interdependent-self cultures (e.g., China) is influenced to a greater degree by the environment, in which the self-comparisons are made, than in independent-self cultures (e.g., the United States). Therefore, as part of the self-maintenance environment, sales controls are suggested to have larger *positive* effects on salespeople's attributional ascriptions for successes in China than in the United States.

*Hypothesis 10a:* Under success conditions, the positive effect of outcome control on effort ascriptions is larger in China than in the United States.

*Hypothesis 10b:* Under success conditions, the positive effect of activity control on strategy ascriptions is larger in China than in the United States.

*Hypothesis 10c:* Under success conditions, the positive effect of capability control on ability ascriptions is larger in China than in the United States.

## METHOD

### U.S. Data Collection

Cover letters, sample questionnaires, and return envelopes were mailed to 600 sales managers obtained through a list broker. This sampling design was adopted to ensure sufficient breadth of industry classifications and types of sales jobs, thereby enhancing the generalizability of the findings. A total of 152 sales managers agreed to have their sales organizations participate and identified 1,257 salespeople to participate in the study. To facilitate participation, sales managers were offered summary results of their organization relative to the overall study. According to the number of salespeople identified by each participating sales manager, a survey package for each individual salesperson including written questionnaires, cover letters ensuring anonymity, and return envelopes were mailed to participating sales managers to distribute. The respondents mailed the questionnaires directly back to the researchers. This effort generated 308 responses. Ten respondents indicated less than 1 year's work experience in their current jobs, and three questionnaires had too many missing values; each of these was excluded from

further analysis. The final usable response rate was 23.5 percent. Given the nature of the agreement in securing the mailing list, it was not possible to evaluate nonresponse bias. The nature of the study, however, was not of a sensitive nature; hence, there was no reason to anticipate response bias due to the constructs included in the study. That having been said, nonresponse bias certainly can be considered a limitation of the study.

The sample was composed primarily of men (approximately 77%). Respondents sold products such as health insurance, computer components, home electronics, mechanical products, and financial products. Approximately 39 percent of the respondents were between 40 and 55 years of age and had an average of 16.4 years of sales experience (see Table 1).

### China Data Collection

The sampling frame in mainland China consisted of 30 companies located in seven cities (including both coastal and inland areas): Beijing, Shanghai, Guangzhou, Hangzhou, Changzhou, Hefei, and Wuhu. In each city, four to five companies were identified. These companies varied widely in employee size, type of industry, and sales volume. Every effort was made to ensure that respondents were from a diverse group of industries and types of sales occupations.

Due to problems with the mail system and concerns about industrial espionage, collecting marketing research data from Chinese managers is challenging. Therefore, a high level of personal involvement, consisting of telephone calls and personal delivery and pickup of questionnaires, was used to obtain the Chinese data for this study—a common procedure when conducting research in China (Roy, Walters, and Luk 2001). First, telephone calls were placed to sales managers or general managers of these companies where the purpose of the study was explained. Respondents were offered aggregated results for participating. Once their participation was secured, the sales/general managers received hand-delivered surveys. One of the authors collected the completed surveys by hand directly from the salespeople. These procedures resulted in 247 completed questionnaires. Based on the number of delivered surveys, this represented just more than a 50 percent response rate. Respondents sold products in areas such as insurance, medical equipment, home electronics, and information technology (IT) products. Again, as in the case of the domestic, U.S. survey, nonrespondents in the Chinese sample were difficult, if not impossible, to identify and, as such, we were unable to assess whether nonresponse bias was present.

The sample was composed of primarily men (approximately 71%). Respondents sold products such as insurance, medical equipment, home electronics, and IT products. Approximately 35 percent of the respondents were

**TABLE 1**  
**Sample Characteristics**

	<i>United States</i>	<i>China</i>
Percentage of male salespeople	77	71
Average sales experience	16.4 years	10.5 years
Age		
< 25	12%	18%
25-40	40%	40%
41-55	39%	35%
> 56	9%	5%

between 40 and 55 years of age and had an average of 10.5 years of sales experience.

### Questionnaire Development

The initial version of the questionnaire was developed in English. Once the items for the English version of the survey were finalized, it was translated independently into Chinese by two native Chinese speakers who had been attending graduate business programs at major U.S. universities. In cases where there were differences in the translation, resolution was arrived at via mutual agreement. Later, the Chinese version of the questionnaire was translated back into English by an American-born Chinese who is fluent in both English and Chinese and by a native English speaker who had worked in China for several years and was fluent in Chinese. Overall, there was a reasonably good fit between the back-translated version and the original English version, thus denoting a high level of translation quality (Douglas and Craig 1983). Finally, to further ensure that the salespeople would be able to comprehend the translated items and maintain structural equivalence between two samples, a draft of the final English and Chinese questionnaire was administered in face-to-face interviews to 30 salespeople in China<sup>1</sup> and 11 salespeople in the United States. Modifications to question wording were introduced where recommended, and the survey was prepared for distribution to the sample. The final measures appear in the appendix. For each condition, performance successes and performance failures, respondents were asked to report on both their corresponding attributional ascriptions and dimensions. These responses were given prior to reporting on either the proposed antecedent or consequence variables (i.e., controls; performance expectation and job satisfaction).

### Measurement

Whenever possible, the constructs in this study were measured using existing scales (see Appendix). Most constructs were measured with a closed-ended 7-point Likert-type scale ranging from *strongly disagree* to *strongly*

*agree*, except for locus of causality (internal-external) and stability (unstable-stable), which were measured with 7-point semantic differential scales. Summary statistics for the following measures are reported in Table 2.

- *Outcome control, activity control, and behavior control* measures were adapted from Challagalla and Shervani (1996). Seven items were adopted to measure each type of sales control.
- The *effort* attributional ascriptions under failure and success conditions were each measured by three items adapted from DeCarlo and Leigh (1996). The *strategy* attributional ascription under failure and success conditions was measured by three items adapted from DeCarlo and Leigh (1996). The *ability* attributional ascription under failure and success conditions was measured by four items also adapted from DeCarlo and Leigh (1996).<sup>2</sup>
- The failure and success conditions under the *internal* attributional dimension were each measured by three items developed by Russell (1982). Likewise, the failure and success conditions under the *stability* attributional dimension were each measured by three items (Russell 1982).<sup>3</sup>
- *Performance expectation* was measured by three items developed specifically for this study. *Job satisfaction* was measured at the global level. The specific five-item measure was adapted from Dubinsky and Mattson (1979).

### Assessment of the Measurement Model

Confirmatory factor analysis (CFA) was used to estimate the measurement models. Following Gerbing and Anderson (1988), measurement models were estimated in which each item was restricted to load on its a priori specified factor, and the factors themselves were permitted to be correlated. Due to the change in perspective for success and failure conditions, the number of constructs in the study, and the sample size, four separate CFAs were performed on the U.S. and China samples based on the similarities of the constructs (i.e., outcome control, activity control, and capability control; attributional ascriptions and dimensions under success conditions; attributional ascriptions and dimensions under failure conditions; and psychological consequences constructs: performance expectation and job satisfaction) (Moorman and Miner 1997). Maximum likelihood estimates of measurements models were obtained using EQS. All measurements models exhibited acceptable fit indices for the U.S. and China data as indicated in Table 3. As indicated in the appendix, each factor loading was positive and significant at the .01 level with each loading greater than .4. The coefficient alphas also provided satisfactory evidence of reliability.



**TABLE 2**  
**Means, Standard Deviations, and Correlations**

Variable	M		SD		Correlation Matrix														
	United States	China	United States	China	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1. VOC	4.48	5.02	1.18	1.04	1	.51	.52	-.14	-.02	-.12	.09	-.08	.35	.26	.37	-.19	.14	-.24
2. VAC	4.21	4.68	1.18	1.07	.53	1	.57	-.05	.04	-.13	.02	-.05	.22	.17	.28	-.17	.12	-.26	.31
3. VCC	4.01	4.35	1.24	1.04	.49	.72	1	-.03	.01	.03	.02	.02	.18	.13	.33	-.22	.15	-.28	.36
4. EFAFAI	3.25	3.44	1.34	1.41	-.36	-.27	-.28	1	.42	.37	-.36	.4	-.18	-.14	-.11	.09	-.07	.08	-.24
5. ABIFAI	2.65	2.91	1.08	1.44	-.1	-.06	-.19	.28	1	.41	-.44	.48	-.28	-.3	-.16	.13	-.16	.17	-.25
6. STRFAI	2.75	2.91	1.29	1.55	-.17	-.26	-.12	.5	.47	1	-.39	.39	-.22	-.29	-.24	.13	-.05	.13	-.19
7. STAFAI	3.41	2.97	1.17	1.37	.18	.08	.14	-.24	.11	-.19	1	-.33	.16	.2	.12	-.08	.13	-.2	.24
8. INTFAI	3.22	3.01	1.20	1.45	-.08	-.01	-.15	.29	.32	.33	-.27	1	-.23	-.2	-.14	.05	-.02	.02	.28
9. EFASUC	5.50	5.37	0.97	1.01	.17	.04	.1	-.16	-.23	-.24	-.03	-.03	1	.64	.58	-.34	.32	-.23	.27
10. ABISUC	5.20	5.45	1.06	1.02	.14	.12	.1	-.08	-.24	-.2	.1	-.17	.33	1	.6	-.29	.3	-.29	.22
11. STRSUC	5.33	5.22	0.91	1.07	.12	.16	.11	-.13	-.21	-.3	.01	.03	.38	.31	1	-.31	.33	-.36	.33
12. STASUC	4.94	4.00	1.57	1.58	-.02	-.05	-.06	.01	.1	.01	.08	-.2	-.1	.09	-.12	1	-.16	.28	.19
13. INTSUC	4.91	4.31	1.35	1.48	.17	.1	.22	-.02	-.24	-.24	-.02	-.12	.33	.33	.36	-.19	1	-.12	.24
14. VPE	5.67	4.74	1.31	1.33	-.02	.04	.07	.05	.04	-.17	.04	.12	.12	.05	.12	.23	.01	1	-.24
15. VJS	5.20	5.24	1.20	1.16	.05	.17	.31	-.19	-.18	-.35	.09	-.24	.2	.13	.3	-.04	.26	-.04	1

NOTE: Correlations above the diagonal are for the Chinese sample; those below the diagonal are for the U.S. sample. VOC = outcome control; VAC = activity control; VCC = capability control; EFAFAI = effort attributional ascription under failure; ABIFAI = ability attributional ascription under failure; STRFAI = strategy attributional ascription under failure; STAFAI = stability attributional dimension under failure; INTFAI = internal attributional dimension under failure; EFASUC = effort attributional ascription under success; ABISUC = ability attributional ascription under success; STRSUC = strategy attributional ascription under success; STASUC = stability attributional dimension under success; INTSUC = internal attributional dimension under success; VPE = performance expectation; VJS = job satisfaction.

**TABLE 3**  
**Measurement Models Fit Indices in the U.S. and China Samples**

	<i>United States</i>	<i>China</i>
Attributional ascriptions/ dimensions (failure)	Chi-square ( $df = 89$ ) = 251.29, GFI = .90, CFI = .93, NFI = .90, RMSR = .06	Chi-square ( $df = 89$ ) = 182.17, GFI = .91, CFI = .95, NFI = .90, RMSR = .05
Attributional ascriptions/ dimensions (success)	Chi-square ( $df = 89$ ) = 268.85, GFI = .89, CFI = .92, NFI = .88, RMSR = .07	Chi-square ( $df = 89$ ) = 246.20, GFI = .89, CFI = .91, NFI = .88, RMSR = .07
Sales controls	Chi-square ( $df = 184$ ) = 486.54, GFI = .90, CFI = .93, NFI = .91, RMSR = .06	Chi-square ( $df = 184$ ) = 566.26, GFI = .88, CFI = .91, NFI = .89, RMSR = .07
Psychological consequences	Chi-square ( $df = 17$ ) = 35.28, GFI = .97, CFI = .99, NFI = .98, RMSR = .03	Chi-square ( $df = 17$ ) = 60.56, GFI = .94, CFI = .94, NFI = .93, RMSR = .06

NOTE: GFI = Goodness-of-Fit Index; CFI = Comparative Fit Index; NFI = Normed Fit Index; RMSR = root mean square residual.

Next, a series of nested confirmatory factor model comparisons between any two constructs in the model assessed whether chi-square differences existed between the model when correlations between the latent variables were set free versus when the correlations between the latent variables were constrained to 1.0. The various chi-square difference tests were all significant and provided evidence of discriminant validity (Bagozzi, Yi, and Phillips 1991). In addition, as indicated in the Appendix, the average variance extracted (AVE) is greater than the squared correlation between the two constructs, further supporting the discriminant validity of the constructs (Fornell and Larcker 1981).

To estimate the relationships among constructs in cross-cultural settings, Steenkamp and Baumgartner (1998) indicated that full or partial metric invariance must be satisfied. A series of nested confirmatory factor model comparisons were estimated using EQS multigroup analysis. First, each construct with all loadings set to be equal was estimated across the two samples. Second, the same model with one loading set free was estimated across the two samples. Finally, the chi-square difference between these two models was obtained. As the Appendix indicates, all the constructs realized full or partial metric invariance. In addition, to compare regression coefficients (where measurement errors cannot be explicitly taken into account) across two samples, error variance invariance also needs to be realized (Steenkamp and Baumgartner 1998). A series of nested confirmatory factor model comparisons were estimated using EQS multigroup analysis. First, each construct with all measurement error variances set to be equal was estimated across the two samples. Second, the same model with one error variance set free was estimated across the two samples. Finally, the chi-square difference between these two models was obtained. All the constructs realized full or partial error variance invariance.

## ANALYTIC APPROACH

### Model Specification

The related research hypotheses were tested using the following system of equations in each sample separately.

$$\text{EFAFAI} = a_1 + b_{11} \text{VOC} + e_1 \quad (1)$$

$$\text{ABIFAI} = a_2 + b_{21} \text{VCC} + e_2 \quad (2)$$

$$\text{STRFAI} = a_3 + b_{31} \text{VAC} + e_3 \quad (3)$$

$$\begin{aligned} \text{INTFAI} = & a_4 + b_{41} \text{EFAFAI} + b_{42} \text{ABIFAI} + \\ & b_{43} \text{STRFAI} + b_{44} \text{EFAFAI} \times \text{VOC} + \\ & b_{45} \text{ABIFAI} \times \text{VCC} + b_{46} \text{STRFAI} \times \text{VAC} + \\ & b_{47} \text{VOC} + b_{48} \text{VCC} + b_{49} \text{VAC} + e_4 \end{aligned} \quad (4)$$

$$\begin{aligned} \text{STAFAI} = & a_5 + b_{51} \text{EFAFAI} + b_{52} \text{ABIFAI} + \\ & b_{53} \text{STRFAI} + b_{54} \text{EFAFAI} \times \text{VOC} + \\ & b_{55} \text{ABIFAI} \times \text{VCC} + b_{56} \text{STRFAI} \times \text{VAC} + \\ & b_{57} \text{VOC} + b_{58} \text{VCC} + b_{59} \text{VAC} + e_5 \end{aligned} \quad (5)$$

$$\text{VPE} = a_6 + b_{61} \text{STAFAI} + e_6 \quad (6)$$

$$\text{VJS} = a_7 + b_{71} \text{INTFAI} + e_7 \quad (7)$$

$$\text{EFASUC} = a_8 + b_{81} \text{VOC} + e_8 \quad (8)$$

$$\text{ABISUC} = a_9 + b_{91} \text{VCC} + e_9 \quad (9)$$

$$\text{STRSUC} = a_{10} + b_{101} \text{VAC} + e_{10} \quad (10)$$

$$\begin{aligned} \text{INTSUC} = & a_{11} + b_{111} \text{EFASUC} + b_{112} \text{ABISUC} + \\ & b_{113} \text{STRSUC} + b_{114} \text{EFASUC} \times \text{VOC} + \\ & b_{115} \text{ABISUC} \times \text{VCC} + b_{116} \text{STRSUC} \times \text{VAC} + \\ & b_{117} \text{VOC} + b_{118} \text{VCC} + b_{119} \text{VAC} + e_{11} \end{aligned} \quad (11)$$

$$\begin{aligned} \text{STASUC} = & a_{12} + b_{121} \text{EFASUC} + b_{122} \text{ABISUC} + \\ & b_{123} \text{STRSUC} + b_{124} \text{EFASUC} \times \text{VOC} + \\ & b_{125} \text{ABISUC} \times \text{VCC} + b_{126} \text{STRSUC} \times \text{VAC} + \\ & b_{127} \text{VOC} + b_{128} \text{VCC} + b_{129} \text{VAC} + e_{12} \end{aligned} \quad (12)$$

$$\text{VPE} = a_{13} + b_{131} \text{STASUC} + e_{13} \quad (13)$$

$$\text{VJS} = a_{14} + b_{14} \text{INTSUC} + e_{14} \quad (14)$$

where

VOC = outcome control, VAC = activity control, and VCC = capability control

EFFAI = effort attributional ascription under failure condition

ABIFAI = ability attributional ascription under failure condition

STRFAI = strategy attributional ascription under failure condition

STAFAI = stability attributional dimension under failure condition

INTFAI = internal attributional dimension under failure condition

EFASUC = effort attributional ascription under success condition

ABISUC = ability attributional ascription under success condition

STRSUC = strategy attributional ascription under success condition

STASUC = stability attributional dimension under success condition

INTSUC = internal attributional dimension under success condition

VPE = performance expectation, VJS = job satisfaction

The system of equations (equations 1-14) was tested using a seemingly unrelated regression analysis to maximize the efficiency of the estimation (Johnston 1984). Seemingly unrelated regression (SURE) was developed by Zellner (1962) for estimating sets of equations that are related theoretically. As in equations 1-14, the error terms from the different equations could be correlated (e.g., EFFAI, STRFAI, and ABIFAI), and different sets of independent variables could be correlated as well (e.g., VOC, VAC, and VCC; STAFAI and INTFAI). Under these two conditions, the ordinary least square (OLS) estimates could be misleading, and SURE would provide significantly more efficient coefficient estimates than OLS (Zellner 1962). If the equations have the same set of independent variables, then the estimation provided by SURE would be the same as provided by OLS. When regressions involve multiplicative terms, all variables that constitute the multiplicative terms were mean-centered to reduce multicollinearity (Aiken and West 1991). To test the hypotheses concerning cross-cultural differences (Hypotheses 9a-10c), a series of Chow tests in the SURE model

were performed to compare the differences of the coefficient estimates between the two samples (i.e., the United States and China). Table 4 reports the results based on the SURE procedure.

## RESULTS

### Direct Effects of Sales Control Systems on Salespeople's Causal Ascriptions

Hypothesis 1a suggested that for failure conditions, *outcome control* negatively influences salespeople's *effort attributional ascriptions*. As indicated in Table 4, Hypothesis 1a is supported in both the U.S. ( $b = -.35, p < .05$ ) and China samples ( $b = -.13, p < .05$ ). Hypothesis 2a indicated that for failure conditions, *activity control* negatively influences salespeople's *strategy ascriptions*. Table 4 reports that Hypothesis 2a is supported in both samples at the .05 level ( $b = -.27$  in the U.S. sample and  $b = -.15$  in the China sample). Hypothesis 3a states that for failure conditions, *capability control* negatively influences salespeople's *ability ascriptions*. This is supported in the U.S. sample ( $b = -.23, p < .05$ ) but not in the China sample.

Under success conditions, it was contended that *outcome control* positively affects salespeople's *effort ascriptions* (Hypothesis 1b). This hypothesis is supported in both the U.S. ( $b = .14, p < .05$ ) and China samples ( $b = .28, p < .05$ ). Hypothesis 2b proposed that for success conditions, *activity control* positively influences salespeople's *strategy ascriptions*. As indicated in Table 4, Hypothesis 2b is supported in both the U.S. ( $b = .16, p < .05$ ) and China samples ( $b = .21, p < .05$ ). However, Hypothesis 3b is not supported in either the U.S. or China samples, as *capability control* was not shown to be related to *ability ascriptions*.

### Moderating Effects of Control Systems on the Causal Ascriptions-Attributional Dimensions Relationship

Hypothesis 4a suggested that *outcome control* positively moderates the relationship between *effort ascriptions* and the *internality* attributional dimension under both failure and success conditions. As indicated in Table 4, this hypothesis is supported only in the U.S. sample ( $b = .13, p < .05$  for failure conditions;  $b = .11, p < .05$  for success conditions). Table 4 shows that Hypothesis 4b, suggesting that *outcome control* negatively moderates the relationship between *effort ascriptions* and *stability* under both success and failure conditions, is supported under failure conditions in both the U.S. and China samples ( $b = -.12, p < .05$  under the failure condition in the U.S.

**TABLE 4**  
**Failure Condition (standardized coefficients)**

Independent Variables	Effort		Effort		Ability		Strategy		Internal		Stability	
	United States	China	United States	China	United States	China	United States	China	United States	China	United States	China
VOC	-.35*	-.13*	-.29*	-.17*	-.04	-.05	-.06	-.09	-.01	-.06	.14*	.09
VAC		.01	-.04	.01	.12	.06	-.34*	-.14*	.25*	-.03	-.24*	-.05
VCC		.05	-.10	.05	-.29*	.01	.16*	.09	-.27*	.07	.26*	.00
Effort									.13*	.17*	-.14*	-.15*
Ability									.11*	.32*	.35*	-.27*
Strategy									.26*	.17*	-.29*	-.21*
VOC × Effort									.13*	.08	-.12*	-.13*
VAC × Strategy									.02	-.09	-.03	.02
VCC × Ability									-.07	.13*	-.01	.05
Weighted $R^2$	.077	.015	.102	.018	.102	.018	.102	.018	.195	.301	.195	.301
Independent Variables	Performance Expectation		Performance Expectation		Performance Expectation		Performance Expectation		Job Satisfaction		Job Satisfaction	
	United States	China	United States	China	United States	China	United States	China	United States	China	United States	China
Effort												
Ability												
Strategy												
Internal												
Stability									-.24*	-.29*	-.14*	-.19*
Weighted $R^2$	.042	.056	.089	.074	.089	.074	.089	.074	.042	.056	.089	.074

NOTE: Direct effects of ascriptions are significant ( $p < .05$ ) on each outcome until considered simultaneously with the effects of the attributional dimensions. VOC = outcome control; VAC = activity control; VCC = capability control; effort = effort causal ascription under failure; strategy = strategy causal ascription under failure; ability = ability causal ascription under failure; stability = stability attributional dimension under failure; internal = internal attributional dimension under failure.

\* $p < .05$  (one-tailed test).

sample;  $b = -.13, p < .05$  under the failure condition in the China sample).

Furthermore, Hypothesis 5a suggested that *activity control* positively moderates the relationship between *strategy ascriptions* and *internality* for both success and failure conditions. As indicated in Table 4, this hypothesis is supported only for success conditions in the U.S. sample ( $b = .12, p < .05$ ). Similarly, Hypothesis 5b proposed that activity control negatively moderates the relationship between *strategy ascriptions* and *stability*. Table 4 indicates that this hypothesis is supported only for success conditions in China ( $b = -.15, p < .05$ ).

Finally, Hypothesis 6a suggested that *capability control* positively moderates the relationship between *ability ascriptions* and *internality* for both success and failure conditions. As indicated in Table 4, Hypothesis 6a is only supported in the China sample under failure conditions ( $b = .13, p < .05$ ). As indicated in Table 4, Hypothesis 6b suggests that *capability control* negatively moderates the relationship between *ability ascriptions* and *stability*. This is only supported in the U.S. sample under success conditions ( $b = -.26, p < .05$ ).

### Attributional Dimensions and Psychological Consequences

Hypothesis 7a suggested that under failure conditions, the *stability* attributional dimension has a negative effect on salespeople's *performance expectations*. Table 4 indicates that this hypothesis is supported in both the U.S. ( $b = -.17, p < .05$ ) and China samples ( $b = -.16, p < .05$ ). Hypothesis 7b suggested for success conditions that *stability* has a positive effect on salespeople's *performance expectation*. As indicated in Table 4, this hypothesis is supported in both the U.S. ( $b = .23, p < .05$ ) and China samples ( $b = .25, p < .05$ ).

With regard to the relationship between the *internality attributional dimension* and *job satisfaction*, Hypothesis 8a suggested that for failure conditions, *internality* has a negative effect on salespeople's *job satisfaction*. This is supported in both the U.S. ( $b = -.24, p < .05$ ) and China samples ( $b = -.29, p < .05$ ). Finally, Hypothesis 8b proposed that for success conditions, *internality* has a positive effect on salespeople's *job satisfaction*. Table 4 indicates that this hypothesis is supported in both the U.S. ( $b = .27, p < .05$ ) and China samples ( $b = .23, p < .05$ ). Table 5 summarizes these results.

### Cross-Cultural Difference Test

The results in Table 6 support four of the six cross-cultural hypotheses (Hypotheses 9a-10c) regarding the influence of controls on causal ascriptions. As hypothesized in Hypothesis 9a, for failure conditions, the negative effect of *outcome control* on *effort ascriptions* is

significantly larger in the United States than in China ( $p < .05$ ). As Table 6 indicates, for failure conditions, the negative effect of *activity control* on *strategy ascriptions* is also larger in the United States than in China ( $p < .05$ ), thus Hypothesis 9b is supported as well. Similarly, Hypothesis 9c is supported in that the negative effect of *capability control* on *ability ascriptions* is larger in the United States than in China ( $p < .05$ ). For the success conditions, the Chow tests show that the positive effect of *outcome control* on *effort ascriptions* is larger in China than in the United States ( $p < .05$ ), supporting Hypothesis 10a. Hypotheses 10b and 10c, however, are not supported since the Chow tests failed to demonstrate significant differences.

### Post Hoc Analyses: The Mediation of Attributional Dimensions

The model suggests that attribution dimensions (internal-external and stable-unstable) fully mediate the effects of salespeople's causal ascriptions and psychological consequences (performance expectation and job satisfaction). To help further the development of attribution theory in sales, this mediation effect was tested using the procedures recommended by Baron and Kenny (1986). As Table 4 indicated, in both samples, after the inclusion of attribution dimensions, most of the causal ascriptions do not demonstrate a significant effect on the dependent variables (performance expectation or job satisfaction) under both success and failure conditions. The only exceptions are the relationship between strategy causal ascription and performance expectation under the success condition in both the U.S. and China samples ( $b = .12, p < .05$  in the U.S. sample and  $b = -.26, p < .05$  in the China sample), the relationship between strategy causal ascription and job satisfaction under the success condition in both the U.S. and China samples ( $b = .21, p < .05$  in the U.S. sample and  $b = .25, p < .05$  in China sample), and the relationship between the strategy causal ascription and job satisfaction under the failure condition in the U.S. sample ( $b = -.30, p < .05$ ). Based on these findings, the attribution dimensions (internal/external and stable/unstable) appear to fully mediate the effect of the effort and ability causal ascriptions on performance expectation and job satisfaction, but they only partially mediate the effect of strategy causal ascription on performance expectation and job satisfaction.

### Post Hoc Analyses: A Rival Model

It is possible that the relationships between sales control systems and attributional ascriptions are due to a self-serving bias. That is, attributional ascriptions (effort, strategy, and ability) are affected by successes (or failures) *in general*, rather than by the specific type of sales control that were hypothesized. To evaluate the tenability of this



**TABLE 6**  
**Summary of Hypothesis Testing Results**

<i>Hypotheses</i>	<i>Empirical Results</i>
Hypothesis 1a: Under failure conditions, outcome control has a negative effect on salespeople's effort attributional ascription.	Supported in the United States and China
Hypothesis 2a: Under failure conditions, activity control has a negative effect on salespeople's strategy attributional ascription.	Supported in the United States and China
Hypothesis 3a: Under failure conditions, capability control has a negative effect on salespeople's ability attributional ascription.	Supported in the United States
Hypothesis 1b: Under success conditions, outcome control has a positive effect on salespeople's effort attributional ascription.	Supported in the United States and China
Hypothesis 2b: Under success conditions, activity control has a positive effect on salespeople's strategy attributional ascription.	Supported in the United States and China
Hypothesis 3b: Under success conditions, capability control has a positive effect on salespeople's ability attributional ascription.	Not supported
Hypothesis 4a: Under failure and success conditions, outcome control positively moderates the relationship between effort attributional ascription and internal attributional dimension.	Supported in the United States
Hypothesis 4b: Under failure and success conditions, outcome control negatively moderates the relationship between effort attributional ascription and stable attributional dimension.	Supported under failure condition in the United States and China
Hypothesis 5a: Under failure and success conditions, activity control positively moderates the relationship between strategy attributional ascription and internal attributional dimension.	Supported under success condition in the United States
Hypothesis 5b: Under failure and success conditions, activity control negatively moderates the relationship between strategy attributional ascription and stable attributional dimension.	Supported under success condition in China
Hypothesis 6a: Under failure and success conditions, capability control positively moderates the relationship between ability attributional ascription and internal attributional dimension.	Supported under failure condition in China
Hypothesis 6b: Under failure and success conditions, capability control negatively moderates the relationship between ability attributional ascription and stable attributional dimension.	Supported under success condition in the United States
Hypothesis 7a: Under failure condition, stability attributional dimension has a negative effect on salespeople's performance expectation.	Supported in the United States and China
Hypothesis 7b: Under success conditions, stability attributional dimension has a positive effect on salespeople's performance expectation.	Supported in the United States and China
Hypothesis 8a: Under failure conditions, internal attributional dimension has a negative effect on salespeople's job satisfaction.	Supported in the United States and China
Hypothesis 8b: Under success conditions, internal attributional dimension has a positive effect on salespeople's job satisfaction.	Supported in the United States and China

interpretation, a series of tests addressing these possible alternative explanations were conducted. In each sample, each causal ascription (effort, strategy, and ability attributional ascriptions) was regressed on all three sales control types (outcome, activity, and capability controls) under failure and under success conditions. As Table 4 indicates, most relationships that were not hypothesized between sales control types and certain causal ascriptions were insignificant—with the only exception being the relationship between *capability control* and the *strategy* ascription under the failure condition in the U.S. sample ( $b = .16, p < .05$ ). In fact, most hypothesized relationships that were supported when a causal ascription was regressed on only one hypothesized sales control type remained so when regressed on all three simultaneously, with the only exception being that the relationship between activity control and *strategy* was found to be insignificant under the success condition in the U.S. sample ( $b = .14, p > .05$ ). Based on these findings, it appears that each sales control type does predict a particular attributional ascription.

## DISCUSSION

### Research Implications

The first important contribution of this study was finding that salespeople bias attributions away from the causes of failure most associated with their control systems. In this study, it was clear that salespeople did tend to deny the causes most associated with the controls being used (Hypotheses 1a and 2a supported; Hypothesis 3a supported in the United States only). In fact, the only exception was that *capability control* appeared to have no effect on *ability* ascriptions in China for failures (Hypothesis 3a). In China, it is possible that salespeople enjoy less selling autonomy and do not perceive skills training as an important element of sales success and, in the Johnston and Kim (1994) framework, are less likely to feel the need for ego defense or enhancing self-perceptions. It could be that salespeople in China assume that failures from abilities or skills are simply part of the learning process and are thus naturally less ego-involved with capability control

**TABLE 7**  
**Cross-Cultural Hypotheses (Chow tests of SURE coefficient estimates)**

<i>Failure Condition</i>	<i>United States</i>	<i>China</i>	<i>Chi-Square Difference</i>	<i>Results</i>
Hypothesis 9a: VOC → Effort Attributional Ascription	-.35*	-.13*	7.96*	Supported
Hypothesis 9b: VAC → Strategy Attributional Ascription	-.27*	-.15*	5.34*	Supported
Hypothesis 9c: VCC → Ability Attributional Ascription	-.23*	-.01	9.01*	Supported
<i>Success Condition</i>	<i>United States</i>	<i>China</i>	<i>Chi-Square Difference</i>	<i>Results</i>
Hypothesis 10a: VOC → Effort Attributional Ascription	.14*	.28*	4.96*	Supported
Hypothesis 10b: VAC → Strategy Attributional Ascription	.16*	.21*	3.92	Not supported
Hypothesis 10c: VCC → Ability Attributional Ascription	.09	.07	.65	Not supported

NOTE: SURE = seemingly unrelated regression; VOC = outcome control; VAC = activity control; VCC = capability control.  
 \* $p < .05$ .

than their U.S. counterparts. Alternatively, emphasis may be less likely to be placed on skills or, possibly, on formalized training programs in China (McCain 1999); this may have introduced bias into capturing the notion of capability control in the China sample. The result is interesting and warrants further research, since capability control's effect on ability ascriptions exhibited the greatest between-cultures difference for any of the hypotheses tested (Hypothesis 9c).

The general failure to find support of the effect of capability control on ability causal ascription under the success condition (Hypothesis 3b) could be due to the conceptualization of capability control. It appears reasonable to propose that "learning of sales strategies" could be incorporated into an operationalization of capability controls or that capability controls are not distinct from activity controls. Perhaps then, the inability to link capability controls with other variables is due, in part, to the construct being operationally underspecified or misspecified. Certainly, many types of training include strategy components—prospecting, adaptive selling, customer contact management—all of which may need to be made more explicit in a capability controls measure.

Other than the refuted hypotheses mentioned above, the cybernetic information-processing framework, whereby feedback from the environment is contended to influence attribution making, proved to be fairly robust. Sales managers should be aware that the attributions made by salespeople are indeed biased by the sales control system being employed. Thus, salespeople are likely to report, although perhaps errantly, that their successes and/or failures were caused by the factors most closely related to the controls being employed—especially for *outcome controls* and *effort*, and for *activity controls* and *strategy*. Of course, effective managerial action would predicate installing controls that aid in selling effectiveness. Therefore, these results should be tempered by the notion that salespeople are making legitimate, or accurate,

attributions for their successes or failures. However, to the extent that the control system is broadly applied across a sales force, without concern for individual differences in salesperson effectiveness, there is an increased possibility that the causes of individual salesperson successes or failures might be misattributed.

Second, with regard to the moderation results, sales performance ascriptions have been proposed as unstable and internal but have rarely been afforded empirical verification (DeCarlo et al. 1997). The results reported here were significant steps toward not only verifying such propositions but exploring the generalizability of attribution theory to other dissimilar cultures (e.g., United States and China). By exploring ascriptions and dimensions as separate groups of constructs, the study revealed in Hypothesis 4a, for example, that in China, *effort ascriptions* are not viewed as more *internal* under outcome controls. That is, while Chinese salespeople did relate effort with internal causation, they were not more likely to do so under the control system designed to emphasize effort unlike findings from the U.S. sample. Interestingly, in neither the U.S. nor the China samples did outcome control moderate the relationship between *effort* and *stability* in success conditions, but it did moderate the relationship under failure conditions. As predicted, it appears that salespeople in either culture are even more likely to admit that too little effort is the cause of sales failures when evaluated under outcome controls.

However, for *strategy* and *ability* ascriptions, the results are more difficult to interpret (Hypotheses 5a-6b). *Activity control* did not moderate the relationships between *strategy* ascriptions and attributional dimensions, except for the case of success in the U.S. sample for *strategy-internality* and for success conditions in China for *strategy-stability*. For the most part, activity controls were not more likely to inspire U.S. or Chinese salespeople to consider strategy as malleable or changeable (i.e., internal causation and unstable). Moreover, in China, only under



failure conditions did capability controls affect the malleability of *ability* by increasing perceptions of internal causation. For the U.S. sample, only under success conditions was *ability* affected by increasing perceptions of *instability*.

One explanation of these complex findings is that the nature of control systems might make either a success or failure condition more cognitively relevant. That is, the “changeability” of strategies and abilities becomes more apparent to salespeople given the reward and/or punishments associated with the controls. Systematic variation in how activity and capability control are administered across cultures might thus explain some of these findings. These results may serve to stimulate further interest in exploring and clarifying these cultural differences in attributional processes.

An important managerial consequence is that attributional ascriptions may indeed be more malleable than has been assumed in the sales literature. Moreover, since the general theoretical relationships between attributional ascriptions, attributional dimensions, and sales outcomes were supported, managers should be aware that the causal ascriptions given sales successes or failures may not be the best predictors of sales outcomes such as performance or job satisfaction. Depending on the control systems employed, salespeople’s ascriptions of effort, strategy, or ability may have a greater or lesser effect on job outcomes. That is, understanding what salespeople say are the causes for their successes or failures is less important than finding out about how they perceive the changeability of the causes—since it is the underlying dimensions of the attributions that primarily affect outcomes. Managers should be sensitive to how malleable (internal, unstable) an ascription is perceived. Understanding how controls influence attributional dimensions is one step. Overall, controls seemed to make relevant ascriptions appear more malleable to salespeople—setting the stage for managers to encourage the sales tactics most closely aligned to the control system (e.g., more effort, better strategy, the acquisition of skills). In addition, knowing their salespeople and encouraging open feedback about successes and failures—to better identify perceptions of the underlying causal dimensions—is crucial for managers’ effective interventions. In sum, by supporting propositions from psychology, the study verified that the mappings of causal ascriptions onto causal dimensions are indeed malleable and affected by the sales control system being employed.

Third, this study indicates, in both samples, that stability negatively influenced salespeople’s performance expectations under failure conditions and positively under success conditions (Hypotheses 7a and 7b fully supported). It appears that stability alone is a valid predictor of performance expectations supporting the several recent contentions in the sales literature and similar contentions elsewhere. Likewise, locus of internality affected

salespeople’s job satisfaction negatively under failure conditions and positively under success conditions (Hypotheses 8a and 8b fully supported). Furthermore, support was found for the general pattern of attributional dimensions affecting performance expectations and job satisfaction, which is consistent with Russell’s (1982) contention that attributional dimensions, rather than attributional ascriptions, most influence psychological consequences. This study is unusual in that attributional dimensions and ascriptions were both tapped, allowing for testing of assumed relationships, and seems an important addition to any future research studying environmental or cultural differences on attribution making. Future research may also seek to explore how subsequent attribution modification (e.g., new sales controls, attribution retraining) mediates the relationship between performance expectations and actual sales performance.

Finally, with regard to cross-cultural differences, the results indicate that under failure conditions, perhaps because of the independent-self emphasis, salespeople in the United States are more likely to be engaged in cognitive dissonance reduction than those in China, which can be characterized as emphasizing the interdependent self. As a result, salespeople in the United States tend to deny, to a larger extent, the causes that are prompted more saliently through respective sales control types than those in China. However, cross-culture hypotheses under the success condition are generally not supported (except for Hypothesis 10a concerning the positive effect of outcome control on effort attributional ascription). A possible explanation could be that the extent to which salespeople’s self-perceptions are affected by environmental factors (e.g., sales control system) is not significantly different across the two cultures. As a result, the effects of sales control systems on causal ascriptions for success do not vary significantly across two cultures: China and the United States.

## LIMITATIONS

Given the attitudinal and behavioral cross-sectional measures employed, common method problems could be a concern. In attempts to alleviate such concerns, several recommended steps in data collection were taken. First, the survey used was relatively short. Second, it was based on concepts derived from interviews with a pretest sample, thus minimizing the probability of creating pseudoattitudes that are dominated by context effects (Lindell and Whitney 2001).

Regarding measurement, to remain consistent with extant measures, items for the attributional ascriptions for success were modified by changing the lead-in for each item to reflect the “positive” wording appropriate for a causal evaluation of success. To the extent that such

framing altered the meaning of an attribute ascription within the success condition, comparisons between attributions for success and failure may be confounded by the measures. As noted earlier, nonresponse bias was difficult to assess in this study, thereby introducing caution in the interpretation of the results.

Conceptually, this study was limited to the implications of sales control systems on salesperson attributional processes. Other environmental factors such as perceived organizational culture and organizational supportiveness, which may affect salespeople's attribution processes, are certainly worthy of future investigation. Research could also address the nature of the organizational feedback (e.g., amount, source, delivery mode) on attributional processes. Moreover, situational characteristics may contribute to marketers' understanding of these attributional patterns. Another research opportunity pertains to the influence of salespeople's individual differences. Dixon et al. (2001) suggested that interpersonal control and personal efficacy may affect salespeople's attributional tendency. In addition, salespeople's tenure and/or stage in their professional life cycle would be of value to explore in which way it influences the implications of controls on salesperson's attributions. A possible extension of the present study would be to assess the effect of sales control systems on salespeople's attributional processes as moderated by these individual dispositions. Furthermore, this study did not investigate actual sales behaviors following certain attributional processes. From a managerial standpoint, a linkage between actual sales behaviors as a consequence of the attributional processes would provide more compelling evidence to rethink how feedback from sales controls systems is structured given sales successes and

failures, thereby engaging in more active interventions to obtain desired sales behavioral changes. Finally, the cross-cultural nature of this study was limited to two countries. To examine the effects of other cultures and to provide a more expanded exploration of the dimensions advanced by Hofstede (1980), future investigations should include a broader array of countries and cultures.

## CONCLUSION

Despite the widespread interests in salespeople's performance attributions, little research has sought to aid sales managers in proactively identifying and adapting to the specific attributions that salespeople are likely to make in particular selling environments. In sum, the cybernetic information-processing framework for explaining attribution making proved to be fairly robust. Specifically, this study demonstrated that sales control systems (outcome control, activity control, and capability control) influence salespeople's effort, strategy, and ability attributional ascriptions respectively and that the sales control systems moderate the causal relationships between causal ascriptions (effort, strategy, and ability) and attributional dimensions (internal-external and stable-unstable). These are important findings since they suggest conditions under which certain attributions are more likely to be made and also suggest the malleability of those causal ascriptions. Findings also suggest that the effects of sales control systems on salespeople's performance attributions appear to vary according to two cultural contexts: the United States and China.

## APPENDIX Measurements

<i>Item</i>	<i>Loading</i>	
	<i>United States</i>	<i>China</i>
Think about the times in the past 12 months when you were unable to secure new business or lost current business. Considering all these instances, please indicate the extent to which each of the following reasons in general contributed to your lack of success with these customers.		
Effort causal ascription under failure condition		
alpha: .69 (China) and .76 (United States); average variance extracted (AVE): .57 (China) and .77 (United States)		
1. My lack of motivation toward these customers.	.91*	.52*
2. Insufficient time devoted to these customers.	.77	.87
3. My lack of effort related to these customers.	.94	.83
Ability causal ascription under failure condition		
alpha: .71 (China) and .74 (United States); AVE: .61 (China) and .60 (United States)		
1. Inadequate product and customer knowledge related to these customers.	.54	.63
2. Not possessing the interpersonal skill to develop, or keep, strong relations with these customers.	.70	.74
3. My lack of selling ability related to these customers.	.89	.89
4. My lack of natural selling skills in these customers.	.91	.84
Strategy causal ascription under failure condition		
alpha: .73 (China) and .73 (United States); AVE: .69 (China) and .63 (United States)		
1. Working less effectively than the average salesperson in these situations.	.79	.79
2. Using ineffective selling approaches and procedures in these situations.	.82	.87
3. My lack of selling strategies in these situations.	.78	.83
Think about the reasons for the lack of success for the customers you commented on above. Please circle one number that best represents your impression regarding the causes for the lack of success.		
Stability attributional dimension under failure condition		
alpha: .72 (China) and .70 (United States); AVE: .59 (China) and .48 (United States)		
1. Temporary—Permanent	.74	.53
2. Variable—Stable	.68	.85
3. Changeable—Unchangeable	.66*	.87*
Internal attributional dimension under failure condition		
alpha: .68 (China) and .75 (United States); AVE: .54 (China) and .64 (United States)		
1. Reflects an aspect of yourself—Reflects an aspect of the situation	.71	.85
2. Inside of you—Outside of you	.92*	.50*
3. Something about you—Something about others	.76	.81
Think about all the times in the past 12 months when you succeeded in obtaining an order from a customer. Please indicate the extent to which each of the following in general contributed to your success with these customers.		
Effort causal ascription under success condition		
alpha: .74 (China) and .75 (United States); AVE: .55 (China) and .65 (United States)		
1. My intense motivation toward these customers.	.80	.69
2. Sufficient time devoted to these customers.	.71	.72
3. My intense effort related to these customers.	.90	.81
Ability causal ascription under success condition		
alpha: .75 (China) and .73 (United States); AVE: .60 (China) and .55 (United States)		
1. Adequate product and customer knowledge related to these customers.	.63	.71
2. Possessing the interpersonal skill to develop, or keep, strong relations with these customers.	.74	.73
3. My excellent selling abilities related to these customers.	.84	.83
4. My excellent natural selling skills in these situations.	.75	.83
Strategy causal ascription under success condition		
alpha: .72 (China) and .76 (the United States); AVE: .67 (China) and .75 (the United States)		
1. Working more effectively than the average salesperson in these situations.	.80	.77
2. Using effective selling approaches and procedures in these situations.	.90	.86
3. My excellent selling strategies in these situations.	.89	.83
Think about the reasons for success you have commented on above. Please circle one number that represents your impression regarding the causes for success with these customers.		
Stability attributional dimension under success condition		
alpha: .70 (China) and .70 (United States); AVE: .52 (China) and .49 (United States)		
1. Temporary—Permanent	.76*	.44*
2. Variable—Stable	.65	.92
3. Changeable—Unchangeable	.69	.72

(continued)

## APPENDIX (continued)

Item	Loading	
	United States	China
Internal attributional dimension under success condition		
alpha: .72 (China) and .76 (United States); AVE: .59 (China) and .75 (United States)		
1. Reflects an aspect of yourself—Reflects an aspect of the situation	.70	.85
2. Inside of you—Outside of you	.91	.70
3. Something about you—Something about others	.96	.74
Job satisfaction		
alpha: .76 (China) and .85 (United States); AVE: .55 (China) and .75 (United States)		
1. I find my work very satisfying.	.92	.71
2. I feel that I am really doing something worthwhile in my job.	.91	.83
3. My job is interesting and rewarding.	.92	.80
4. My work provides me a sense of accomplishment.	.89	.85
5. I often think about quitting my current job (reverse order)	.67*	.46*
Performance expectation		
alpha: .70 (China) and .71 (United States); AVE: .55 (China) and .55 (United States)		
1. I will reach my sales objectives this year.	.89	.86
2. My performance will be higher than my peers.	.65	.67
3. My performance will be higher than my initial expectations.	.65	.68
This section asks about the supervisor practices of your sales organization. Please circle the number that best describes your experience during the past 12 months.		
Outcome control		
alpha: .84 (China) and .87 (United States); AVE: .60 (China) and .61 (United States)		
1. The extent to which I attain my quantitative goals is critically evaluated.	.85	.76
2. If my quantitative performance goals are not met, I would be required to explain why.	.83	.78
3. Feedback on the extent to which I achieve my assigned goals is provided regularly.	.84	.79
4. My pay increases are based on how my performance compared with my goals.	.77	.76
5. I would get a bonus if I exceed my sales volume target or market share target.	.68	.78
6. I would received a warning if my sales objectives are not met.	.77	.78
7. My pay increase would suffer if my sales objectives are not met.	.70	.75
Activity control		
alpha: .82 (China) and .88 (United States); AVE: .67 (China) and .55 (United States)		
1. The extent to which I follow established sales procedures is critically monitored.	.72	.77
2. The procedures used to accomplish a given task are carefully regulated.	.73	.78
3. Feedback on how to achieve my performance goals is frequently communicated to me.	.75	.81
4. My immediate boss modifies my work procedures when desired results are not obtained.	.68*	.85*
5. If I perform sales activities well, my supervisor would commend me.	.79	.83
6. I would be recognized by my supervisor if he or she is pleased with how well I perform my sales activities.	.83	.87
7. I would receive a warning if my manager is not pleased with how well I perform my sales activities.	.69	.81
Capability control		
alpha: .80 (China) and .85 (United States); AVE: .68 (China) and .62 (United States)		
1. My supervisor has standards by which my selling skills are evaluated.	.83	.82
2. My supervisor provides guidance on ways to improve my selling skills and abilities.	.85	.84
3. My supervisor periodically evaluates the selling skills I use to accomplish a task.	.91	.85
4. My supervisor evaluates how I make sales presentations and communicate to customers.	.83	.87
5. I would be commended if I improve my selling skills.	.78	.76
6. Assignment to better territories or accounts depends on how good my selling skills are.	.61*	.81*
7. I would receive a warning if my manager is not pleased with my selling abilities.	.64	.81

\* Refers to the significant chi-square difference of metric invariance test at the .05 level.

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## NOTES

1. Adler, Campbell, and Laurent (1989) raised the concern about social desirability biases in the Chinese context, in that respondents are under pressure to be knowledgeable. Therefore, consistent with Atuahene-Gima and Li (2002), respondents are offered a "do not know" option, and

we encouraged respondents to skip questions they did not want to answer or could not recall.

2. Consistent with Sujan (1986), to avoid potential retrieval biases, salespeople were asked to think about all their experienced successes and failures during the last 12 months, rather than any particular experience.

3. In order for salespeople to provide accurate perceptions of attribution dimensions (locus of causality and stability), besides effort, strategy, and ability attributions, other relevant causal ascriptions (task difficulty, organizational support, and luck) were also asked about in the questionnaire.

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