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# The Impact of Cultural Environment on Entry-Level Auditors' Ability to Perform Analytical Procedures

S.B. Hughes, J.F. Sander, S.D. Higgs, and C.P. Cullinan

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## 1. Introduction

### 1.1. *Impact of culture on the audit environment*

There is a presumption in the international auditing literature that a country's culture impacts its audit environment, which in turn may affect the outcome of the audit process. Three of Hofstede's (2001) cultural dimensions, power distance (PD), uncertainty avoidance (UA), and individualism and collectivism, have frequently been associated with differences in national auditing environments. We focus on these three cultural dimensions in this research study.

Prior research on the influence of national culture differences on the auditing process has focused on macro-level auditing issues, for example, differences in perceptions of independence, auditor-client disagreements and whistle-blowing (e.g., Patel, 2003; Patel, Harrison, & McKinnon, 2002; Patel & Psaros, 2000; Welton & Davis, 1990). We find no studies that investigate the impact of culture on the application of similar auditing standards. The study reported in this paper contributes to the international auditing literature by examining the impact of culture on a specific, widely-required audit procedure. Analytical procedures were selected for the study because of the similarity in international and country auditing standards, their applicability to audit clients of various industries and sizes, and because the application of analytical procedures is based

upon auditor judgment—a professional attribute closely associated with the study of independence and auditor decision making included in prior international auditing research.

### *1.2. Overview of analytical procedures*

Analytical procedures are by nature uncertain since they require auditors to use professional judgment rather than rules to form expectations of account balances. Auditors must also maintain appropriate levels of professional skepticism as they assess whether reported balances are logical, and based upon their expectations, prior period balances, and related current period balances. Since judgment and professional skepticism operate within a cultural milieu, it is possible that culture affects auditors' assessments of the risk of material misstatement associated with the reported balances.

The outcome of analytical procedures may be affected by structural factors as well as cultural differences. Evidence from research studies conducted in single-country environments indicates that in the absence of forming expectations without knowledge of current year results, auditors may anchor on the current year results and be less likely to identify material misstatements within the accounts (McDaniel & Kinney, 1995); that income statement accounts are generally considered to be easier to predict than are balance sheet accounts (Kaplan, 1979; Lin, Fraser, & Hatherly, 2003; Lin, Fraser, & Hatherly, 2000; McDaniel & Simmons, 2007); and that the direction of the account balance change affects the ability of auditors to identify possible misstatements (Biggs & Wild, 1985; Heintz & White, 1989).

### *1.3. Research focus and contribution to the literature*

Salter, Lewis, and Juárez Valdes (2004) examine the cultural affects on decision making by managers in the U.S. and Mexico and note that relatively few cross-cultural studies include Latin America. In this study, we extend the single-country and cross-cultural literature to determine if differences in the cultures of Mexico and the U.S. impact the outcome of the planning stage analytical review. As noted by Cohen, Pant, and Sharp (1995), large, multinational accounting firms are working to standardize audit procedures within their global practices; accordingly, the effectiveness of firm training programs may mitigate the impact of culture on the auditing process. As a result, we focus our research on university accounting students in their last two years of study. This approach allows us to investigate the impact of culture on outcomes of the analytical procedures and provides insight into the abilities of entry-level auditors. The need for this type of research is supported by the findings of Hirst and Koonce (1996, p. 482), who reported that U.S. practitioners believe it is important to determine if accounting students are being well prepared for entry into the auditing profession, and suggest that "studies of the practice of analytical procedures in other countries would enrich our understanding of this important topic." The responses of upper-level accounting students were the basis for prior studies investigating the impact of culture on auditing (Patel & Psaros, 2000; Welton & Davis, 1990), in studies of entry-level auditors' problem solving abilities (Bierstaker & Wright, 2001; Herz & Schulz, 1999; Lee & Welker, 2007), and the accounting environment (Geiger et al., 2006; Salter, Schulz, Lewis, & Lopez, 2008).

Our results indicate that, in general, culture did not affect students' abilities to predict income statement balances; culture may, however, affect the ability of students to predict balance sheet account balances, specifically expectations associated with accounts receivable. These results are consistent with the underlying cultural characteristics of the countries. That culture has only limited impact on expectation formation bodes well for large accounting firms working to standardize their audit procedures across countries and cultures.

The results also indicate that regardless of culture, forming expectations of current year account balances did not improve the participants' abilities to appropriately assess the risk of material misstatement of the current year unaudited accounts. Prior research (Glover, Prawitt, & Wilks, 2005) suggests that embedding prompts into analytical review procedures will improve the effectiveness of these procedures, as the prompts remind auditors of the potential weakness of the procedures. Such prompts act as surrogate rules, which may help those auditors from high uncertainty avoidance cultures become confident in deciding that the results lead to negative beliefs about the appropriateness of the unaudited balance.

Within the risk assessments, we find that students in Mexico determined higher risk of material misstatement than that determined in the low power distance, low uncertainty avoidance, low collectivism culture of the U.S. This finding is contrary to our expectations but is consistent with a potentially greater propensity for error in accounts receivables in high power distance cultures (Chan, Lin, & Mo, 2003). Our results also indicate that entry-level auditors assess the risk of material misstatement higher (lower) for accounts that increase (decrease), even when that change is consistent with expectations, than they do for accounts that do not change, even when a change in balance is expected to occur. These findings suggest that planning procedures may not result in appropriate emphasis in audit programs, and point to the need to emphasize the identification and evaluation of account balance changes, or lack thereof, within auditing and professional development courses.

## **2. Background**

### *2.1. Analytical procedures*

International Standards on Auditing (ISA) 520 (IFAC, 2006, p. 3) describes analytical procedures as "evaluations of financial information made by a study of plausible relationships among both financial and non-financial data. Analytical procedures also encompass the investigation of identified fluctuations and relationships that are inconsistent with other

relevant information or deviate significantly from predicted amounts." Lin et al. (2000) operationalized the thought process that underlies analytical procedures as one that requires auditors to estimate account balances, compare the estimates to the recorded balances, and determine what follow-up procedures, if any, are required. The need to rely on estimates and determine the extent to which the estimates are not consistent with the recorded balances requires the auditor to maintain professional skepticism and relies on his or her professional judgment, rather than on specific procedures or rules.

Analytical procedures are used in many countries. The auditing literature describes the use of analytical procedures within Australia (Biggs, Mock, & Simnett, 1999), Canada (Lin & Fraser, 2003), the U.K. (Fraser, Hatherly, & Lin, 1997), and the U.S. (Ameen & Strawser, 1994). The study reported in this paper was conducted in two countries: Mexico and the United States. The auditing standards governing analytical procedures are similar in the two countries, and for Mexico, mirror those of the ISA. As such, analytical procedures provide a unique platform for international auditing research. Analytical procedures rely on professional judgment, not rules, and despite the similarity in standards, professional judgments inherent in analytical procedures may reflect differences between the two cultures.

Consistent with ISA520, the auditing standards of Mexico (Instituto, 2001) and the U.S. (AICPA, 2003) require the use of analytical review procedures during the risk assessment (planning) and final review phases of the audit, and indicate that the procedures may be used as substantive tests. U.S. auditing standards require auditors to form expectations of the current year balances (AICPA, 2003). The Mexico standard (Instituto, 2001) does not require that expectations be formed, although our conversations with high-level audit practitioners in Mexico indicated that at least in their experience, expectations were developed. As such, the prescribed use of analytical procedures appears to be consistent across the two country environments.

## 2.2. Potential impact of culture on analytical procedures

Prior research has investigated the impact of national cultural on situations in which auditors must rely on their professional judgment in the face of some form of potential auditor–client conflict. These conflict situations involve professional ethics and independence (Cohen et al., 1995; Cohen, Pant, & Sharp, 1993; Karnes, Sterner, Welker, & Wu, 1990), the extent of audit procedures (Arnold, Bernardi, & Neidermeyer, 1999; Patel et al., 2002; Yamamura, Frakes, Sanders, & Ahn, 1996), and the nature of the audit report (Gul & Tsui, 1993). In each of these prior studies, the authors relied on one or more of Hofstede's (1980, 1991) measures of national cultures. Hofstede's original research of 116,000 IBM employees identified four work-related values: power distance; uncertainty avoidance; individualism and collectivism; and masculinity and femininity. Hofstede's 1991 edition added long- versus short-term orientation. Each of these values is described below.

Power distance (PD) is described as the degree of power or influence between a boss and the subordinate, as determined by the subordinate (Hofstede, 2001, p. 83). In high PD countries, power is often centralized in supervisors and managers. In these cultures, accounting may be seen as a tool of upper-level management, designed to present results they desire (Hofstede, 2001, p. 383). Those lower in the organization are unlikely to question those in authority and less likely to report questionable acts of their superiors (Schultz, Johnson, Morris, & Dyrnes, 1993). Consistent with these expectations, Chan et al. (2003) find 125 percent more judgmental accounting errors in high (as compared with low) power distance countries.

The extent of power distance has also been hypothesized as similarly affecting the interactions of auditors and their clients. Auditors in high power distance cultures may be less likely to question senior client personnel, more willing to acquiesce to the pressures of a powerful client and less willing to question the financial results developed by clients (McKinnon, 1984; Patel et al., 2002; Yamamura et al., 1996). Unfortunately, these actions result in behaviors contrary to the concept of independence, an underpinning of the attest function long considered critical in low PD countries (Cohen et al., 1995). Independence is critical to the successful completion of analytical review procedures. When auditors exhibit independence, they rely on their best judgment and professional opinion to determine when additional audit evidence is required to support financial statement balances that are inconsistent with other audit evidence. When performing analytical review procedures, auditors are expected to form expectations of the appropriate account balance and compare that estimate with the reported balance. If the estimate differs, the auditor should determine there is a high risk of material misstatement in the balance. Auditors in high PD countries may be unwilling to assess risk as high in this situation since it will require the auditor to consult with superiors and potentially client personnel, behaviors contrary to subordinates in high PD cultures.

Uncertainty avoidance (UA) reflects a desire to add structure, which thereby reduces ambiguity. Countries that score high on UA are generally very bureaucratic (Schultz et al., 1993) and have clear rules. On the other hand, low UA implies a high tolerance for ambiguity, a characteristic that has been interpreted as providing members of the society with a higher sense of security (Gul & Tsui, 1993). As such, auditors from low UA countries should be professionally secure, and more comfortable when relying on professional judgment rather than rules. Cohen et al. (1993, p. 4) suggested that "[a]uditors from cultures with a higher tolerance of ambiguity... should be more likely than auditors from cultures having strong UA scores... to focus on the content of the issue rather than on the form alone." In addition, where high UA cultures will focus on following the rules, it may be acceptable in low UA cultures to ignore the rules if in the best interest of society (Cohen et al., 1995). Within the context of analytical procedures, the likelihood of those in low UA cultures to rely on professional judgment and the issue, rather than rules, should result in auditors who are better able to determine where a higher risk of material misstatement exists within the various accounts.

Individualism and collectivism describe how individuals relate to society. Within the work situation (Hofstede, 2001, p. 244), individuals in high individualism cultures are expected to act as individuals with their own needs, and individuals are hired and rewarded based upon their performance. Within societies high in collectivism, employees are considered to be



**Table 1**  
Country ranks for three cultural characteristics.

Country/characteristics	Mexico	United States
Power distance	6	50
Uncertainty avoidance	18	39/40
Individualism	32	1

members of the "in-group" and act in the interests of the group. Employment in these cultures may be similar to a family situation, and there is high mutual obligation and loyalty. In addition, people in a collectivist culture are less likely to form or express judgments individually, independent from the in-group formation of that judgment. Within the audit context, this attribute suggests a strong connection between individualism and independence (Arnold et al., 1999; Cohen et al., 1993, 1995; Patel et al., 2002) that results in a greater propensity to ask tough questions and rely on personal judgment. In contrast, Yamamura et al. (1996) suggest that auditors in a collectivist society will avoid questioning client personnel as such questions could be seen as non-conforming.

Masculinity and femininity are defined by Hofstede as: "Masculinity stands for a society in which social gender roles are clearly distinct: Men are supposed to be assertive, tough, and focused on material success; women are supposed to be more modest, tender, and concerned with the quality of life. Femininity stands for a society in which social gender roles overlap: Both men and women are supposed to be modest, tender and concerned with the quality of life" (Hofstede, 2001, p. 297). These attributes appear in the international audit literature only within the works of Cohen et al. (1993, 1995), where masculinity is associated with preferences in hiring and the firm's control structure.

Long- versus short-term orientation results in either a greater propensity to build long-term relationships and market positions or a focus on short-term profitability. Cohen et al. (1993, p. 9) conjecture that the high social status and expectation for "quick results" associated with a short-term orientation may result in public accounting firms reducing training or accepting high risk clients, actions that may result in positive short-term but negative long-term financial results.

The above review indicates that three cultural values – power distance, uncertainty avoidance, and individualism and collectivism – have been associated with differences in auditor perspective and behavior.

### 2.3. Cultural characteristics of Mexico and the United States

The study described in this paper was administered in Mexico and the U.S. These countries have been used in prior studies of cross-country accounting and auditing (Harrison & McKinnon, 1999). The country ranks for each of Hofstede's three applicable cultural characteristics are shown in Table 1.

Hofstede's research determined correlations exist between these three variables. When power distance and uncertainty avoidance are plotted for 50 countries and three regions, the U.S. appears in a cluster in the upper-left hand quadrant (small power distance and weak uncertainty index); Mexico appears in a cluster in the lower-right hand quadrant (Hofstede, 2001, p. 152). When individualism and uncertainty avoidance are plotted, the U.S. is included in a country cluster in the lower left-hand quadrant of low uncertainty avoidance and high individualism, Mexico is not included in a cluster, and appears in the upper right-hand quadrant, mirroring its high uncertainty avoidance and low individualism ranking (Hofstede, 2001, p. 249). When power distance and individualism are compared, the U.S. again appears in a cluster in the lower left-hand quadrant of the grid, with Mexico now in a cluster in the upper-right quadrant (Hofstede, 2001, p. 217). These results indicate that the U.S. and Mexico differ on all three factors. The results also indicate that within the two countries, power distance, uncertainty avoidance and individualism are highly correlated. As such, cultural differences of importance within the auditing context may result from any or all of the three factors when comparing individual performance within Mexico and the U.S.

Prior research into the impact of cultural characteristics within an international auditing context approached the issue of nationality in different ways. Some studies have included only cultures that differ in the relevant cultural attributes: Japan and the U.S. (Yamamura et al., 1996); Latin American (as a cluster), Japan and the U.S. (Cohen et al., 1995); Hong Kong and Australia (Gul & Tsui, 1993); and Taiwan and the U.S. (Karnes et al., 1990). Other studies have included cultures that duplicate the characteristics of at least one other country included in the study. These studies include seven western European countries that fall within four individualism groupings (Arnold et al., 1999), three countries that fall within two power distance and individualism groupings (Patel et al., 2002), and four countries that fall within two construct groupings (Patel & Psaros, 2000). Similar to the first group of listed studies, our study includes two countries that differ in the relevant cultural attributes.

### 2.4. Development of hypotheses

Analytical procedures rely on professional judgment in two areas. First, they expect that auditors will form expectations of current year balances. These expectations are important because they form the basis for the auditor's evaluation of the risk associated with current year unaudited balances. Second, once expectations are formed, auditors then compare the expectations with the unaudited account balances for the current year. In those cases in which the expectation matches the unaudited balance, the perceived risk of material misstatement in the account should be low; when the actual account

balance differs from the expectation, the risk of material misstatement should be high. In such situations, auditors must decide what additional audit procedures are required to gather sufficient evidence to verify the unexpected balance.

Hofstede's rankings indicate that power distance, uncertainty avoidance and individualism differ for Mexico as compared with the U.S. Because the lower power distance, lower uncertainty avoidance, and higher individualism associated with the U.S. were posited to be associated with a greater reliance on professional judgment rather than rules, auditors from the U.S. are expected to form account balance expectations consistent with business events and conditions.

The high power distance, high uncertainty avoidance and lower individualism associated with Mexico suggests that auditors in that country will be less likely to conclude that there is a significant risk of material misstatement in account balances, even when industry and company events suggest such misstatements are likely. To conclude that balances exhibit a high risk of material misstatement would cause auditors to question the behavior of client management and alter the audit program designed by senior firm personnel. Both of these behaviors are contrary to the culture in Mexico. As such, we expect that auditors in the U.S. will more accurately assess the risk of material misstatement when the unaudited account balances differ from expectations than will auditors from Mexico.

The effectiveness of analytical procedures may also be affected by the type of accounts included in the analysis. The auditing literature indicates that balances in income statement accounts are easier to predict than are balance sheet accounts since income statement accounts represent activity over a period, rather than a momentary state or position (AICPA, 2003; Kaplan, 1979; Lin et al., 2003; McDaniel & Simmons, 2007). As such, it is possible that auditors are more likely to appropriately predict income statement account balances than they are able to predict balance sheet account balances. Because income statement fluctuations are more predictable, they more closely follow a rule-based pattern than do balance sheet accounts. As such, individuals in the U.S. and Mexico may be equally adept at anticipating and evaluating changes in income statement accounts, but may differ in their abilities to assess changes in balance sheet accounts. In fact, Chan et al. (2003) find errors in accounts receivable balances differ when power distance is high or low.

The potential differences in culture and their impact on forming expectations of current year account balances detailed in the prior paragraphs lead to the first research hypothesis.

**H1.** Cultural differences between Mexico and the U.S. will result in different expectations regarding current year unaudited account balances.

Prior research into the application of analytical procedures has determined that knowledge of the current year unaudited financial statement balances provides a basis for auditors to inappropriately anchor their perceptions of current-year changes on account balances (Biggs & Wild, 1985; Heintz & White, 1989; Kinney & Uecker, 1982). McDaniel and Kinney (1995) found that when auditors formed expectations before reviewing current year account balances (thereby eliminating the anchor effect), the likelihood of recognizing errors within the current year unaudited account balances increased. Conversely, auditors who did not quantify their expectations of current year balances were less likely to reach correct conclusions about the appropriateness of the account balances. These results suggest that while auditors in all cultural environments should benefit from forming expectations, those in high UA environments will particularly benefit. Individuals in these environments favor rules. Forming expectations may act as self-determined rules by which the auditors can assess the risk of material misstatement associated with actual account balances when they are subsequently included in the analytical review.

None of the auditing standards describing the use of analytical review procedures provides quantitative guidance describing how changes in account balances affect the risk of material misstatement associated with the balances. As such, those in high uncertainty avoidance countries do not have rules to follow when evaluating account balance changes. In addition, those in high collectivism countries may be less likely to decide that account balance changes should be investigated without approval of the group or additional evidence that the balance may be misstated. As such, we hypothesize that forming expectations without benefit of the current year unaudited results may result in more appropriate risks of material misstatement in these cultures than in those in which uncertainty avoidance and collectivism are lower. These differences lead to the second hypothesis.

**H2.** Forming expectations of current year unaudited account balances prior to reviewing these balances results in more appropriate assessments of the risk of material misstatement in the current year account balances.

Regardless of the potential impact of forming expectations of current year balances, auditors in the U.S. are associated with cultural characteristics that suggest a greater reliance on professional judgment and a willingness to discuss differences between account balance expectations and the actual account balance with client personnel. The cultural characteristics associated with Mexico suggest that auditors in that country will be averse to questioning client personnel about these differences, and would prefer to avoid situations that result in client conflict. A result of this cultural differentiation is that U.S. auditors may be more likely to assess the risk of material misstatement in a current year unaudited account balance to be higher than would their counterparts in Mexico. Mexico auditors would tend to avoid higher risk assessments because they would likely lead to more conversations with client personnel, conversations with a higher potential for conflict, and the need for additional audit procedures for which there is little concrete guidance. These cultural and associated audit differences lead to the following hypothesis.

**H3.** Differences in relevant cultural characteristics lead to different assessments of the risk of material misstatements in account balances.

The ability to effectively evaluate the results of the analytical review process may be further complicated by the nature of the change in the account balance (Biggs & Wild, 1985; Heintz & White, 1989). Analytical procedures tend to focus on "unexpected fluctuations" in account balances (Asare & Wright, 1997, 2001). Kinney and Uecker (1982) found that auditors were more likely to investigate balances that differed from past trends than those that mirrored past trends. However, auditors must recognize that a lack of account balance fluctuation may also indicate a material misstatement (Daroca & Holder, 1985), injecting uncertainty and judgment into the analytical procedures. Collectively, these research findings lead to the fourth hypothesis:

**H4.** Cultural differences impact the assessed risk of material misstatement associated with changes and the lack of change in account balances.

### **3. Method**

#### *3.1. Focus on planning stage analytical review*

This study focuses on analytical procedures conducted during the risk assessment (also referred to as the audit planning) process, procedures that rely on highly aggregated data (AICPA, 2003; Hirst & Koonce, 1996). The planning analytical review has been used in other experimental studies (e.g., Anderson & Koonce, 1998; Heintz & White, 1989), and prior survey research documents that analytical reviews are widely used at the planning stage (Ameen & Strawser, 1994; Fraser et al., 1997). In addition, Johnson et al. (2003) found that planning analytical procedures were the only form of analytical procedures included in the topical coverage of the auditing course of at least 5% of the responding U.S. colleges and universities, and that analytical procedures were included within the auditing course at 147 of 175 (84%) U.S. colleges and universities.<sup>1</sup> In addition, planning stage analytical reviews are required by the auditing standards in both Mexico and the U.S. Although it is well documented that the planning procedures are generally conducted by audit seniors and managers, Lin et al. (2003) noted that "many audit judgments are made at relatively low levels." In fact, Hirst and Koonce (1996) and Lin et al. (2003) found that relatively inexperienced staff members perform substantive analytical review procedures. Hands-on evidence of this occurrence was gathered by one of this study's co-authors when interning during 2002 with a Big 4 firm. As such, information about the learning outcomes of a topic often included in the university curriculum should be of interest to both educators and accounting professionals.

#### *3.2. Description of experimental materials*

##### *3.2.1. Overview*

To determine the impact of country culture on the outcome of planning stage analytical reviews, we created case materials that placed participants in the audit planning process of a realistic, yet fictitious, cereal and juice manufacturer. This type of manufacturing entity is found in Mexico and the U.S. A food manufacturer was selected as the basis for the case since these manufacturers often provide incentives in the form of rebates or pricing adjustment to customers who engage in specific promotional activities. Because a time lag exists between the time customers engage in the activities and report them to the manufacturer, the appropriate value for incentives requires estimation and judgment. Food manufacturers also incur marketing expenses. Until the Emerging Issues Task Force issued EITF 00-25 (EITF, 2000), vendor rebates to resellers were treated as expenses within U.S. financial statements. Although the EITF guidance now requires such price adjustments be reflected as reductions in revenues, the case materials continue to treat rebates as expenses to accommodate the financial reporting knowledge likely to be known by entry-level auditors.

The case materials included a company overview, the current year's business initiatives, a review of the company's significant accounting policies, a description and background of all key personnel, and information about the cereal and retail grocery industries. Knowledge of the client's business and industry is considered necessary to the successful application of analytical review procedures (Messier, Glover, & Prawitt, 2006). The materials also included the prior year audited balance sheet and income statement. The financial statements were presented in a manner similar to that found in most published financial statements within each of the country environments, and were presented in terms of the local currency of each environment (Mexican Pesos or U.S. dollars). The income statement included nine accounts, and because of differences in the treatment of goodwill and intangible assets, the balance sheet included seven or eight asset accounts and seven liability and equity accounts. Providing the participants with materials presented in formats with which they are familiar resulted in two sets of similar, but country-adapted, information.

The case narrative included information that indicated potential current year increases and decreases from the prior year financial statement account balances. These comments and the suggested impacts on the account balances are shown in Table 2. If accounts were not mentioned in the narrative, participants had no reason to believe the current year balances would differ from those of the prior year. The case narrative and financial information were reviewed by experienced accountants

<sup>1</sup> Comparative statistics for Mexico educational institutions could not be located. We polled auditing faculty in Mexico and verified the topic is included within the first auditing course.



**Table 2**  
Summary of narrative comments and suggested change in current year account balances compared with prior year.

Account	Case narrative information	Change suggested in narrative	Actual change in financial statements
Trade promotion expense	To maintain market share, [the company] has emphasized a market-push strategy to increase in-store promotions. . . introduced a nationwide television campaign.	Increase	Constant
Consumer marketing expense	[The company] also increased consumer marketing.	Increase	Increase
Interest expense	[No mention]	[No indication]	Decrease
Accounts receivable	Direct sales to grocery stores have always been the Company's largest market. . .one of the Company's largest grocery store customers was forced out of business on December 15. . .[and the Company] has tightened credit terms for its customers.	Decrease	Constant
Long-term debt	[No mention]	[No indication]	Constant

to ascertain that the relationships imbedded within the narrative led to the expectations shown in Table 2. The current year unaudited account balances were then manipulated so that the reported balances either matched or did not match the expectations provided in the narrative. These manipulations are shown in the far right column of Table 2.

### 3.2.2. Steps taken to control for presentation and reporting differences

The case materials were developed during 2003, and the experiments were conducted in the winter of 2003/2004. The materials were written to control for differences between Mexico and U.S. generally accepted accounting principles (GAAP), presentation formats, and reporting environments as they existed at the time. For example, differences in reporting environments occur in the accounting for sales revenue. In the U.S., there is a widely recognized tendency to overstate sales revenue to increase income. However, we were informed by accounting professionals in Mexico that revenue recognition (except perhaps in U.S. subsidiaries) is not a significant problem. In particular, private ownership and negative tax implications lead to the potential for lower, rather than higher, reported sales revenue in Mexico. As a result of country differences, the current year sales revenue was not manipulated within the experimental materials, nor was it considered an appropriate experimental variable.

An example of a GAAP difference across the two countries is seen in the accounting for property, plant and equipment. In Mexico, inflation adjustments are required on an annual basis, resulting in increases in both the affected accounts and equity (Instituto, 2002). U.S. GAAP did not and does not permit either inflation adjustments or the upward revision of plant, property, and equipment balances. As such, we were faced with reporting environments in which one country's participants may expect increases in the property, plant and equipment account (Mexico), and one in which the balance would naturally decrease without additional investment (the U.S.). To control for these GAAP differences, the balance in property, plant and equipment increased from the prior to the current year to provide for the possible upward adjustments present under Mexico GAAP, and the case materials included narrative that indicated the company had upgraded its production facilities so that the increase would appear appropriate to U.S. participants, as well. Similar to revenue, these differences in reporting treatment precluded the use of property, plant and equipment as an experimental variable.

Presentation format differences arise from Mexico's mandatory profit sharing requirement, which results in a separate line item on the income statement. As a result, this account was included within both versions of the income statement. Differences in the presentation and accounting for goodwill and intangible assets exist between the countries. At the date of the case materials, goodwill was not amortized under U.S. GAAP, but rather tested annually for impairment; in Mexico goodwill was amortized. Because the common format in Mexico is to combine goodwill with intangible assets, we combined these accounts into one balance sheet line item in the Mexico version of the case materials but listed goodwill and intangible assets as two lines within the U.S. version of the balance sheet to conform with the requirements of FAS No. 142 (FASB, 2001, p. 33).

The case was written in English, the native language of its authors, and then translated into Spanish by a U.S. MBA student, a native of Columbia. The translation was reviewed for accuracy and consistency with the English copy by a U.S. finance professor, also a native of Columbia, and compared with actual Mexico financial statements to assure the appropriateness of the financial statement account titles.

### 3.3. Case study administration and description of possible responses

Fig. 1 presents a graphic overview of the research model and the sequential nature of the two phases of the case administration; each phase involves a different professional judgment. The first phase of the case involves the accuracy of the formation of account balance expectations and it provides the data to test H1. The second phase begins with the introduction of new information (unaudited current year account balances), requires the assessment of risk of material misstatement in those balances, and provides the data to test H2–H4. In Fig. 1, the influence of cultural characteristics on perception of the case information, the judgment processes, and communication of the judgment outcomes is represented by the oval in the diagram.



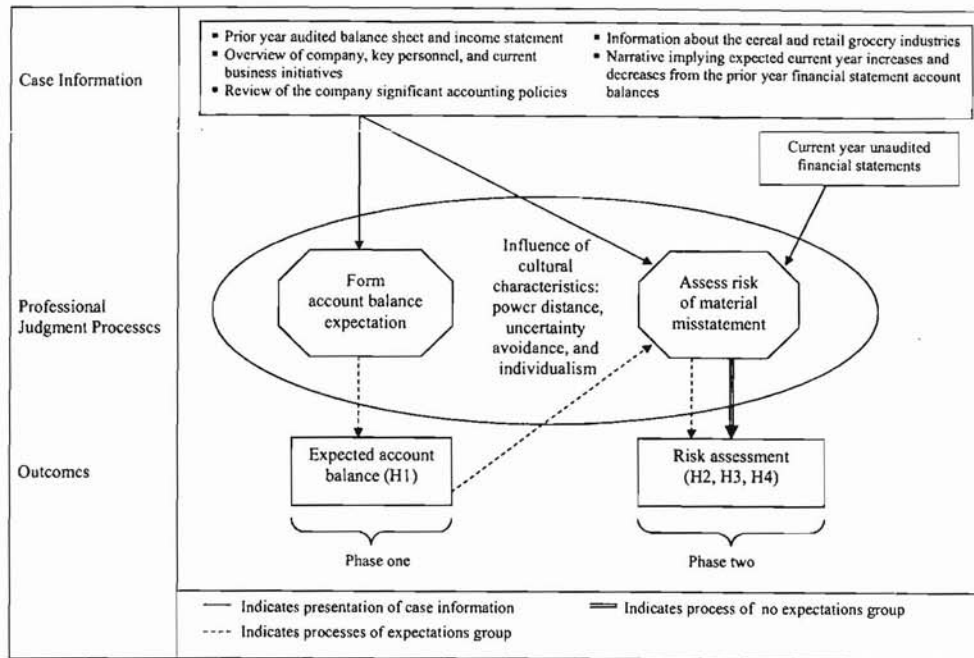


Fig. 1. Model of research.

### 3.3.1. Phase one

All participants received the case materials, including the prior-year audited balance sheet and income statement balances, and the background information described in the preceding paragraphs. In the first phase of the case administration, one-half of the participants in each country (referred to as the expectations group (EG)) were asked to make and document their expectations of the current year balances based upon the narrative materials provided. The role of the EG is represented in Fig. 1 by the dashed lines. These participants documented their expectations by indicating whether each account was likely to decrease, stay the same (also referred to as "constant" in this paper), or increase, using a five-point scale. In phase one, the other half of the participants in each country (referred to as the no expectations group (NEG)) was limited to reading and reviewing the provided materials.

### 3.3.2. Phase two

After completing the first phase of the study, all participants were provided with comparative balance sheets and income statements that added current year unaudited balances to the prior year audited balances that were provided in the first phase of the study. The use of prior year audited and current year unaudited balances is consistent with the format used in other research into analytical review procedures, for example, Bedard and Biggs (1991), Mueller and Anderson (2002), and McDaniel and Kinney (1995). The financial statements were again presented in the appropriate currency and in common size. In phase two, both the EG and NEG were asked to assess the risk of material misstatement in each of the current year unaudited balance sheet and income statement accounts, and indicate if the risk of material misstatement was low through high, again based on a five-point scale, coded as one indicating low and five indicating high. The role of the no expectations group is indicated in Fig. 1 by the double line.

As noted in Table 2, within the current year unaudited income statement balances, trade promotions expense, suggested in the narrative to increase, stayed the same; consumer marketing increased, consistent with the narrative; and interest expense, not discussed in the narrative, decreased, although long-term debt stayed virtually the same as the prior year. Within the balance sheet accounts, the accounts receivable balance, suggested in the narrative to decrease, remained constant. These treatments result in five experimental variables, in which the current year unaudited balance for one account was consistent with the narrative, the balances for two accounts were inconsistent with the narrative, and the balances for two other accounts were interrelated but not discussed in the narrative. The manipulations allowed us to test whether the nature of the change – increase, decrease, or stay the same – resulted in different assessments of the risk of material misstatement by the participants.

### 3.4. Participants

The case materials were distributed to 40 junior and senior accounting majors at a midwest U.S. university, and 41 accounting majors in their last two years of study at a major university near Mexico City, Mexico. We specifically sought

**Table 3**  
Comparison of participants' educational experiences by country and experimental group.

Means and analysis of variance				
	Mexico	U.S.	t	p-Value
Years at university <sup>a</sup>	3.667	3.650	0.151	0.880
Courses taken <sup>b</sup>				
Tax	0.972	0.950	0.498	0.620
Advanced topics	0.333	0.600	-2.385	0.020
Advanced managerial	0.389	0.650	-2.324	0.023
Advanced financial	0.361	0.400	-0.344	0.731
Experience in public accounting <sup>b</sup>	0.389	0.475	-0.749	0.456
Comparisons by case treatment: means and t-test results				
	No expectation formation group (NEG)	Expectation formation group (EG)	t	p-Value
Years at university <sup>a</sup>	3.649	3.667	-0.163	0.871
Courses taken <sup>b</sup>				
Tax	1.000	0.923	1.780	0.083
Advanced topics	0.489	0.462	0.215	0.830
Advanced managerial	0.595	0.462	1.157	0.251
Advanced financial	0.459	0.308	1.357	0.179
Experience in public accounting <sup>b</sup>	0.405	0.462	-0.488	0.627

<sup>a</sup> First year = 1, second year = 2, third year = 3, and fourth year = 4.

<sup>b</sup> Yes = 1, no = 0.

students in Mexico City to participate in the study. Mexico City has an international business perspective, and its location removes it from the strong U.S. influences more prevalent closer to the U.S. border, for example, influences more likely to be found in Monterrey. The universities share a common focus on learning, and promote their relatively small class sizes and student participation in co-operative education programs. The students were either enrolled in or had completed the first course in auditing. The use of analytical procedures had been covered in the auditing classes of each university prior to the administration of the research materials.

Students in each location were randomly assigned to the no expectations (NEG) and expectations (EG) treatments of the experimental materials. After completing the two parts of the case study, each participant completed a short background questionnaire about his or her educational and work experiences. The responses were reviewed, and five were eliminated from data analysis because of incomplete responses to critical variables, resulting in 76 usable responses included in the data analysis, 36 from Mexico and 40 from U.S. students.<sup>2</sup>

## 4. Results

### 4.1. Participants' backgrounds

The participants' educational backgrounds and work experiences were analyzed using *t*-tests to determine if differences exist between the participants by country or treatment (NEG or EG). As a reminder, all students were in their third or fourth years of university study and were either enrolled in or had completed the auditing course. As shown in the top panel of Table 3, the mean years of education for the Mexico and U.S. students were 3.667 and 3.650, respectively, indicating that slightly more 4th year than 3rd year students participated in the study. The results also indicate that the timing and/or the content of the accounting curriculum differs across countries. For example, although we find that at least 95% of the students in each country had taken a tax course, and from 36% to 40% of the students had taken advanced financial accounting, significant differences ( $p = 0.02$ ) exist in the percentage of students taking advanced topics or advanced managerial courses. Since neither of these latter courses covers auditing topics, the differences should not impact the results of the study. Students in both countries reported work experiences with public accounting firms – 47.5% of the U.S. students and approximately 39% of the Mexico students; the difference between these levels is not significant ( $p = 0.456$ ).

The bottom panel of Table 3 compares the participants' backgrounds for the expectations treatment groups. The participants in the two groups appear to be quite similar. *t*-Tests failed to reveal statistically significant differences in either the years at university, experience in public accounting or courses taken between the NEG and EG groups. Combined, these results indicate that while there are content differences in the accounting curriculum of the two countries, there are no apparent differences that may bias the results of the study.

<sup>2</sup> One respondent provided all responses with the exception of an assessment of the risk of material misstatement for long-term debt. As such,  $n = 75$  for long-term debt.

**Table 4**  
Expectations: actual responses, means and *t*-test results.

	Narrative Direction	Number of Responses					Mean Response	<i>t</i>	Country Comparison <i>t</i>
		Decrease		Stay the Same	Increase				
		1	2	3	4	5			
<b>Trade promotions</b>	<b>Increase</b>								
Mexico (n=17)		0	1	1	6	9	4.353	***	
U.S. (n=20)		0	0	1	11	8	4.350	***	
<b>Consumer marketing</b>	<b>Increase</b>								
Mexico		0	1	2	6	8	4.235	***	
U.S.		0	0	0	13	7	4.350	***	
<b>Interest expense</b>	<b>Constant</b>								
Mexico		0	2	9	5	1	3.294		
U.S.		0	2	12	6	0	3.200		
<b>Accounts receivable</b>	<b>Decrease</b>								
Mexico		0	7	1	4	5	3.412	**	
U.S.		2	13	1	3	1	2.400	**	
<b>Long term debt</b>	<b>Constant</b>								
Mexico		1	1	6	7	2	3.471	*	
U.S.		0	2	10	8	0	3.300	*	

Boxes indicate those responses consistent with the narrative. \*\*\*Significantly different from 3 at  $p < 0.01$ . \*\*Significantly different from 3 at  $p < 0.05$ . \*Significantly different from 3 at  $p < 0.10$ .

#### 4.2. Manipulation checks

The narrative and financial statement manipulations listed in Table 2 and previously discussed in Section 3 include three income statement and two balance sheet accounts. To assess whether or not the manipulations included within the narrative were correctly perceived by those participants who formed expectations, we undertook two analyses. The results of these analyses are presented in Table 4. First, we summarized the responses for each country. The boxed responses represent the number of responses in which the subject's expectation of account change was consistent with the narrative content. Next, we conducted one-sample *t*-tests in which the mean response is compared with the value of 3, the response value that indicates the balance is expected to stay the same. A mean value less than 3 indicates that participants expected the account to decrease in the current year; a mean response greater than 3 indicates the participants expected the current year balance to increase.

A review of the responses indicates that the majority of the U.S. participants appropriately interpreted the narrative as signaling account balances that should increase, decrease or stay the same, as the majority of responses for the U.S. students appear in the boxed columns. Within the Mexico responses, the students appropriately interpreted the narrative for the three income statement accounts. However, for both accounts receivable (expected to decrease) and long-term debt (no mention, expected to stay constant), the majority of the Mexico students expected that the balance would increase. To further assess the appropriateness of the narrative interpretation, we performed one-sample *t*-tests by country. The results of these *t*-tests are shown in the mean response and *t* columns of Table 4. The results indicate that the mean responses of the Mexico and U.S. students are consistent with the narrative. For trade promotions and consumer marketing the means are significantly different ( $p < 0.01$ ) from the "stay the same" value of 3, the *p*-value for interest expense is not significant, indicating the means do not differ from the value of 3. The mean value for long-term debt is above 3, suggesting that students in both countries expected long-term debt to increase, however this expectation is not significantly different from no change at  $p < 0.05$ . Only the expectations of accounts receivable differ between the students in Mexico (expectation of an increase in accounts receivable) and the U.S. (expectation that the balance will decrease). These country differences result in a significant ( $p < 0.05$ ) difference in the country assessments.

#### 4.3. Results of H1

H1 predicts expectations regarding current year unaudited account balances will differ between cultures that collectively differ in power distance, individualism and uncertainty avoidance, in this example, between the U.S. and Mexico. The *t*-test results indicate that except for the expectations pertaining to the accounts receivable balance, the participants' expectations did not differ across cultures. It is commonly accepted that changes in income statement accounts are easier to predict than are balance sheet accounts. The difference in the ability of students in Mexico to predict a balance sheet account, accounts receivable, as compared with students in the U.S., a culture with lower power distance, lower uncertainty avoidance and higher individualism, is consistent with the logic underlying the development of H1.

**Table 5**  
Impact of the experimental form, country and their interaction on the risk of material misstatement.

	n	General linear model level of significance					Country marginal mean
		Model	Intercept	Form	Country	Interaction	
Trade promotions Mexico	76	0.160	0.000	0.804	0.051	0.280	3.243
U.S.							2.650
Consumer marketing Mexico	76	0.116	0.000	0.494	0.019	0.980	3.672
U.S.							3.000
Interest expense Mexico	76	0.212	0.000	0.206	0.330	0.181	2.695
U.S.							2.975
Accounts receivable Mexico	76	0.750	0.000	0.856	0.301	0.719	3.135
U.S.							3.425
Long-term debt Mexico	75	0.065	0.000	0.059	0.065	0.981	3.206
U.S.							2.675

#### 4.4. Results of H2 and H3

H2 predicts different assessments of the risk of material misstatement will occur if auditors first form expectations of what those balances should be. H3 predicts that cultural differences regardless of differences that may result from forming or not forming expectations of those balances, result in different evaluations of the risk of material misstatement within the current year unaudited account balances. To test both H2 and H3, we used type III general linear models (GLM) in which the dependent variable is the perceived risk of material misstatement. The independent variables are the two main effects, form (expectations or no expectations) and country, and their interaction. The results are shown in Table 5. With regard to H2, the results indicate that the perceived risk of material misstatement does not differ between subjects who form and do not form expectations ( $p$ -values range from 5.9% to 85.6%). With regard to H3, the risk of material misstatement for the balance in consumer marketing ( $p=0.019$ ) does differ between Mexico and the U.S., with Mexico students assessing the risk higher than their U.S. counterparts. This result differs from our expectations. A review of Table 5 also reveals that the Mexico students also evaluated the risk of material misstatement for trade promotions and long-term debt at higher mean levels than their U.S. counterparts. The differences, however, are not significant at the  $p < 0.05$  level. To determine if educational experience, work in public accounting, or the reported experience with analytical review techniques resulted in different expectations or risk assessments, we replicate the  $t$ -tests and GLM models using these variables as the independent variables. No significant differences occurred within these analyses. Analyses also reveal that the interaction of form and country is not significant for any of the assessed risks of material misstatement.

#### 4.5. Results of H4

H4 predicts differences in country culture result in different assessments of the risk of material misstatement when the account balance change is increasing, decreasing or no change. We use one-tailed paired  $t$ -tests that analyze the relationship between the risk assessments formed on pairs of accounts. One-tailed tests were used because of the anticipated direction of the differences between the responses. We focus this analysis on two related expense accounts, trade promotion and consumer marketing, and the related income statement and balance sheet accounts, interest expense and long-term debt.

When we compare mean risk assessments for trade promotions and consumer marketing, we evaluate the students' abilities to differentiate between an account that stayed constant in error (trade promotions), and one that increased consistent with the narrative (consumer marketing). Appropriate analysis of the risk of the material misstatement for each account should result in higher risk for trade promotions (the account did not change as expected) and lower risk for consumer marketing (the account balance increased as expected). A review of the mean risk of material misstatement for these two accounts by country, as shown in Table 6, indicates that the students in both Mexico and the U.S. assessed the risk of consumer marketing (means equal 3.666 and 3.000, respectively) higher than they did for trade promotions (3.250 and 2.650, respectively). The paired  $t$ -tests of the risk of material misstatement for these two accounts indicate that the mean of the paired differences is  $-0.417$  and  $-0.350$  in Mexico and the U.S., respectively, indicating that individual risk assessments for consumer marketing exceed those of trade promotions. Neither of these differences are significant at the  $p < 0.05$  level; the  $p$ -value for the Mexico difference is 0.053 and that of the U.S. is 0.064. Even though the differences are not significant, the results suggest that consistent with Kinney and Uecker (1982), the risk assessment mirrors the direction of the change in the consumer marketing account balance, rather than its actual risk. These results are also consistent with those found by



**Table 6**  
Account balance changes and risk perception: income statement accounts.

Paired <i>t</i> -tests by country (low risk = 1, high risk = 5)			Mean risk of misstatement Actual responses			
	Narrative direction	Actual direction	Mexico	U.S.		
Trade promotions	Increase	Constant	3.250	2.650		
Consumer marketing	Increase	Increase	3.666	3.000		
Interest expense	No Mention	Decrease	2.685	2.975		
Long-term debt	No Mention	Constant	3.228	2.675		
Paired <i>t</i> -tests of the risk of material misstatement		Mean	S.E.	<i>t</i>	df	1-tail sig.
Trade promotions less consumer marketing						
Mexico		-0.417	0.250	-1.667	35	0.053
U.S.		-0.350	0.225	-1.554	39	0.064
Interest expense less long-term debt						
Mexico		-0.543	0.273	-1.989	34	0.028
U.S.		0.300	0.203	1.477	39	0.074

Cullinan and Hughes (2008), in which experienced auditors were found to be less sensitive to a non-change in an account balance than to a change in an account balance.

Last, we compared the risks of material misstatement for the related interest expense and long-term debt accounts. If the students evaluated the risk of misstatement by comparing the actual account balance change to expectation, risk should be higher for interest expense. The U.S. students assessed the risk associated with interest expense as higher than the risk associated with long-term debt, while the Mexico students assessed the risk associated with long-term debt to be higher than that for interest expense. On a paired basis, the difference between the U.S. students' risk evaluations is not statistically significant ( $p = 0.074$ ). The mean paired difference in the Mexico results is significant at  $p = 0.028$ . The Mexico students' lower risk assessment for interest expense mirrors a decrease in the interest expense account balance; the higher risk of material misstatement is associated with long-term debt, an account balance which stayed relatively constant from the prior year. These results provide additional support, albeit in the opposite direction seen in the trade promotion/consumer marketing example, that students assess risk in the direction of the change, rather than consistent with their expectations.

## 5. Conclusions and limitations

Our study examines if differences in three of Hofstede's (2001) cultural characteristics impact auditors' expectations and assessed risks of material misstatement when conducting planning analytical reviews. Specifically, the study focuses on the impact of differences in power distance, uncertainty avoidance and individualism on conducting planning analytical reviews within the cultures of Mexico and the U.S. Upper-level accounting students studying in Mexico and the U.S. were asked to perform the planning analytical procedures associated with an annual audit engagement. One-half of the students in each group were asked to form expectations about the current year balances prior to being given these balances; the other one-half were simply asked to perform analytical procedures. All participants were then provided with current year unaudited account balances and asked to assess the risk of material misstatement in all of the balance sheet and income statement balances. The experimental materials included information about, and/or manipulations within five current year account balances. We emphasize several conclusions.

First, consistent with prior research, we find that participants in both cultures are better able to predict changes in the income statement accounts than in the balance sheet accounts. Differences identified in the ability to predict changes in accounts receivable are consistent with our hypothesis.

Second, despite large differences in views of power distance, uncertainty avoidance, and individualism-collectivism between Mexico and U.S. students, the ability to form expectations regarding current year unaudited account balances did not generally differ by culture. This finding may be particularly insightful for the Big 4 public accounting firms. Relying on a Dutch sample of 113 company audits, Blokdiik, Driehhuizen, Simunic, and Stein (2006) found that while the then Big 5 auditors and non-Big 5 firms did not differ in total hours spent on audits, the Big 5 auditors spent more time on planning, risk assessment, and evaluation of internal controls than did smaller firms. The excess time spent on audit planning by large firms suggests that they will place more reliance on planning stage analytical reviews than may occur in smaller, nationally-based firms. If expectation formation is not affected by cultural differences, large firms that effectively link expectation formation, a review of current and prior year balance changes or lack thereof, and subsequent risk assessment may be able to develop consistent, cross-border and cross-cultural audit planning.

Third, we find no evidence that documenting expectations, even when the expectations are correct, leads to an increased ability to detect potential errors in accounts. This finding is consistent across the two countries. Within the instrument used for this study, the expectations were formed on one page, the risk assessment on another. By linking the two responses on the same page, and then resolving differences between the two responses, entry-level auditors, particularly those in high UA

countries, may be better able to determine if their expectations have or have not been met, thereby altering their assessment of material misstatement. Other techniques may also be useful. For example, Glover et al. (2005) found that prompting experienced auditors to consider inherent weaknesses in analytical procedures reduced their reliance on weak substantive analytical review procedures.

Fourth, we find evidence that the participants in both countries tend to assess the risk of material misstatement consistent with the nature of the change in the prior year to current year account balance, rather than in a manner that is consistent with their expectations. For example, participants assessed the risk higher if the account balance increased from the prior year and lower if the account balance decreased from the prior year. The intent of any analytical review procedure is to identify account balance relationships that are inconsistent with company and/or industry information and trends, so that audit effort can be focused on evidence collections in areas not consistent with expectations. The possibility that auditors are fooled by the direction of balance changes suggests that audit hours may be inappropriately increased for accounts in which balances increased in accordance with expectations; in our study this occurred with marketing expenses. More concerning is the possibility that audit hours may not be increased when an account balance does not increase in accordance with expectations; in this study these results are seen in the lower risk assessment associated with decreased trade promotion expenses. This result may not be limited to entry-level auditors, as a lack of change in trade promotion expense, when an increase would be expected, was one of the underlying events leading to the actual restatement of the Aurora Food's 1998 and 1999 financial statements in the U.S. (USGAO, 2002).

Fifth, there is the very real possibility that auditors assess risk differently at different points in time. Allen and Elder (2005) caution against generalizing research findings captured at one point in time. Their data on audits conducted between 1994 and 1999 indicates that auditors' error projections decreased over the five-year period. Blokdiik et al. (2006) based their study on 1998 and 1999 audit hours. The additional planning time included in Big 5 audit firm audits discussed in this study could be associated with the more pervasive use of a business risk approach to audits used by large firms (Bell, Marrs, Solomon, & Thomas, 1997; Eilifsen, Knechel, & Wallace, 2001). Allen, Hermanson, Kozloski, and Ramsay (2006, p. 160) note that while there are advantages and disadvantages to the approach, "[u]nderstanding the client's business processes aids in understanding key performance indicators and in developing expectations for financial statement accounts." Future research may lead to a greater understanding of the relationship between forming expectations and the firm's audit approach.

Sixth, there is the possibility that more experienced auditors would assess risk differently than did the entry-level auditors who participated in this study. Cullinan and Hughes (2008) found that within a sample of experienced auditors, those with more experience were more sensitive to incorrect non-changes in current year balances than were less experienced auditors. Similarly, Kaplan, O'Donnell, and Arel (2008) found that more experienced senior auditors' judgments were not influenced by management's assessment of the effectiveness of internal controls, but that less experienced seniors were influenced by these assessments. Future research could investigate the relationship between experience and auditors' abilities to form expectations and evaluate the risk of material misstatements.

Extensions of this current research study in other cultures should also add to our understanding of how cultural differences impact the formation of expectations and the assessment of the risk of material misstatement of current year account balances during the planning analytical reviews. For example, we would expect that for research into the effect of culture, the strongest results would logically come from comparisons of countries with the greatest differences. Hofstede's (2001, p. 249) comparisons of individualism and uncertainty avoidance show the greatest difference between the weak uncertainty/high individualism cluster of the U.K., Canada, New Zealand, the Netherlands, and Australia on the one hand and the cluster of Central and South American countries of Ecuador, Venezuela, Colombia, Panama, Peru, Chile, and Salvador on the other hand. Since the U.S.-Mexico comparison in this study did not involve countries with the greatest differences in culture regarding uncertainty avoidance and individualism-collectivism, an extension of this current research study to cultures with greater UA and I-C differences should add to our understanding.

While our findings indicate that participants are fairly capable of forming expectations about account balance changes, the findings indicate entry-level auditors need additional exposure to and experience relating differences between expected and actual balances to assessments of the risk of material misstatement of those account balances. Particularly in countries high in uncertainty avoidance and collectivism, guided opportunities to practice relating expected-actual balance differences to the risk of material misstatement could provide entry-level auditors with a heuristic variety of "rules" that they can apply to similar situations in the future. Successful use of these rules in training to assess risk should allow the auditors to feel confident in the use of an endorsed analytical process and the group's perception of their resulting risk assessments: As the new auditors become more confident of group support and their abilities to appropriately predict and assess current period balances, they should become more confident in speaking with client personnel about their findings. Accordingly, coverage of planning analytical reviews should be expanded within university-level auditing courses and emphasized in entry-level training programs of public accounting firms, with both steps being accompanied by research into their effectiveness and how that effectiveness is mediated by culture.

As in all experimental studies, we faced certain limitations in carrying out this study. First, our sample size was limited by the number of upper level accounting students at each university. Second, the need to adapt the company background, products and operations to those likely to be found in the two countries limited the complexity of the business operations and financial reporting. Third, time constraints limited the extent of data collected from the participants to that of quantitative data. The ability to collect narrative responses as to why participants evaluated the risk of material misstatements as they did would provide additional insight into their decision-making processes.

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