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# Do auditors assess inherent risk as if there are no controls?

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## Abstract

**Purpose** – The purpose of this paper is to examine whether auditors interpret the risk of material misstatement (RMM) in accordance with current standards' definition of inherent risk (IR). It is argued that controls should not be presumed when assessing inherent risk and that inherent risk should be considered separate from and prior to control risk when it is practical to do so. Because auditing standards explicitly require auditors to assess IR without consideration of internal controls (i.e. control risk (CR)), RMM should not be adjusted upward for control deficiencies.

**Design/methodology/approach** – The authors survey and interview practicing auditors to gain an understanding of current risk assessment practice. They then evaluate whether their understanding of risk assessment is in line with current standards.

**Findings** – Contrary to auditing standards' definition of inherent risk, it appears that auditors presume some level of expected control effectiveness when assessing IR and they may increase RMM in response to internal control deficiencies. Such a presumption is inconsistent with the definition of inherent risk from the Auditing Standards Board (SAS No. 107), Public Company Accounting Oversight Board (AS 8), and International Auditing and Assurance Standards Board (ISA 200). Such misinterpretation may be an inadvertent result of guidance provided by standard setters in the form of SAS No. 109 from the ASB, AS 12 from the PCAOB and ISA 315 from the IAASB, which suggest combining IR and CR into RMM.

**Research limitations/implications** – The research is limited both by the small sample size and the small number of risk factors investigated.

**Practical implications** – If auditors presume a level of controls in assessing inherent risk, they may reduce audit effectiveness by estimating a lower RMM than is appropriate.

**Originality/value** – This study presents insights on the interpretation and assessment of audit risk in audit environments where inherent risk is no longer automatically set to be at the maximum. Namely that due to the definition of inherent risk, control information should have a unidirectional downward effect on the risk of material misstatement.

**Keywords** Inherent risk, Control risk, Risk of material misstatement, Risk assessment, Auditing, Finance and accounting

**Paper type** Research paper



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## 1. Introduction

In its 2000 report, the Public Oversight Board's (POB) Panel on Audit Effectiveness noted that inherent risk (IR) should be explicitly assessed to address "what could go wrong" with regard to any of the assertions implicit in all accounts and disclosures reported within financial statements (POB Panel on Audit Effectiveness, 2000). The POB also noted that the standards of that time lacked sufficient guidance for the assessment of both IR and control risk (CR) to support the audit risk model (ARM). In response to the POB report and other reform efforts that took place at the turn of the millennium, three standard-setting bodies, the Public Company Accounting Oversight Board (PCAOB), the Auditing Standards Board (ASB) and the International Auditing and Assurance Standards Board (IAASB), provided additional guidance for ARM implementation in the form of AS 12, SAS No. 109 and ISA 315, respectively. This study investigates if auditors are assessing the risks of material misstatements in accordance with these recent standards.

Guidance from standard setters is important for audit effectiveness and efficiency, as IR and CR are the primary inputs for determining the nature, timing and extent of audit tests. While the recent standards may have enhanced the usefulness of the ARM, the enhancements are potentially undermined if they lead to a misunderstanding of IR and CR when combined into the risk of material misstatement (RMM) construct. Our study extends a literature documenting discrepancies between the historical definition of ARM components in the standards and the implementation of the ARM, as observed in controlled lab experiments such as that by Vandervelde *et al.* (2009). Specifically, we examine whether auditors assess IR without incorporating assumptions about their clients' controls. If auditors assume internal controls exist in their assessment of IR, in contravention of the definition of IR set forth in auditing standards, they may be inappropriately estimating RMM, resulting in a potential loss of audit effectiveness.

We investigate this in a two-phase experiment. In the first phase, we ask 54 auditors from a Big 4 firm to evaluate the effect of specific inherent and CR factors on RMM in general. In the second phase, we enrich the environment and ask participants to make sequential RMM judgments for a hypothetical client using the same inherent and CR factors, one at a time. We find that audit seniors often increase their assessments of RMM in light of internal control deficiencies, which suggests they had an expectation of effective controls in mind when assessing IR in spite of being supplied with no information regarding controls prior to their IR assessments.

We next discuss the appropriateness of a sequential assessment of RMM – IR followed by CR.

## 2. (In)dependence of IR and CR

Audit Risk has traditionally been assessed in accordance with SAS Nos 47 (AICPA, 1983) and 39 (AICPA, 1981). SAS No. 47 defines IR as:

[...] the susceptibility of the account balance or class of transactions to error that could be material, when aggregated with error in other balances or classes, assuming that there were *no related internal accounting controls*.

CR is defined as:

[...] the risk that error that could occur in an account or class of transactions and that could be material, when aggregated with error in other balances or classes, will not be prevented or detected on a timely basis by the system of internal accounting control (AICPA, 1983).

These definitions, quoted from the standards, imply a sequential assessment of risk – IR followed by CR. Subsequent standards from the ASB, PCAOB and IAASB maintain similar definitions (AICPA, 2006a; PCAOB, 2010a; IAASB, 2009a).

Recent standards confirm this earlier definitional implication – that CR is the risk that internal controls will not prevent or detect a material misstatement. For instance, in footnote 19 to paragraph 111 of SAS No. 109, the ASB states that “the auditor [should consider inherent risk] before considering the effect of internal controls” related to significant risks (AICPA, 2006b). Similarly, both AS 12 (paragraphs 59, 70-2) and ISA 315 (paragraph 29) direct auditors to first assess what processes are likely to result in material misstatements and then assess the controls that are likely to prevent such misstatements (PCAOB, 2010b; IAASB, 2009b).

Research has found that CR is, at least partially, dependent on IR. Dusenbury *et al.* (2000) finds that auditors’ CR assessments are significantly influenced by IR assessments, which they refer to as “downstream” dependency because CR is modeled as a function of IR (p. 114). The following passage from *Montgomery’s Auditing* (O’Reilly *et al.*, 1998) provides a potential explanation for Dusenbury *et al.*’s finding, which underscores the importance of the difference between the two types of risk assessments:

[M]anagement designs controls **in response to** the particular characteristics of its classes of transactions and account balances. Therefore, inherent risks that are related to those characteristics often are addressed by specific aspects of internal control, including accounting procedures and control activities (emphasis added).

Kinney (1989), perhaps in recognition of the mitigating role CR assessment has on IR, models the relation between IR and CR by decomposing IR into risks that can ( $IR_c$ ) and risks that likely cannot ( $IR_{nc}$ ) be mitigated by controls. Mathematically, Kinney’s model can be expressed as  $RMM = IR_{nc} + (IR_c \times CR)$ , where  $IR_{nc}$ ,  $IR_c$  and  $CR$  assessment are conceptualized as probability assessments ranging from 0 to 100 percent. While  $IR_{nc}$  is a judgment about the likelihood of the introduction of material misstatements into the financials that cannot be detected, prevented or corrected by controls,  $CR$  is the likelihood that a misstatement due to  $IR_c$  will not be prevented or detected by the control system. It seems to follow that if  $CR$  is the failure of controls to mitigate  $IR_c$ , that the controls can only reduce RMM. If risks are assessed sequentially, auditors would not consider any possible controls in assessing  $IR_{nc}$  or  $IR_c$ , but would subsequently determine if controls are in existence to mitigate  $IR_c$ . It then follows that the level of RMM assessed for the client will be highest at the point after considering both components of IR but prior to considering any controls that exist to mitigate any IRs. Thus, any information provided on controls, if relevant, should only serve to decrease RMM following an assessment of IR.

For example, an auditor may assess the IR of material misstatement of the allowance for doubtful accounts as high (90 percent) because the entity’s accounts receivable balance is composed of a wide range of customers, and the calculation of the allowance for doubtful accounts is very complex and subjective. To the extent the risk is  $IR_{nc}$ , controls will not affect RMM. To the extent the risk is  $IR_c$ , controls will either reduce ( $CR < 100$  percent) or not affect ( $CR = 100$  percent) RMM.

In other words, if when  $CR$  is subsequently evaluated, there are no relevant controls found to prevent or detect this misstatement or if existing controls are deficient, the failure of controls to mitigate this error does not increase the likelihood of misstatement over 90 percent, but fails to lower it. On the other hand, if the auditor notes that automated

controls surrounding the flagging of delinquent receivable accounts are not working properly, and there has been no review of past due accounts as a result, the auditor might still reduce RMM even though CR is high because there is at least some control in place. If an auditor believes the control is completely ineffective (CR = 100 percent), RMM would remain at 90 percent. However, control information should never result in an increase of RMM above 90 percent.

To further our understanding of current risk assessment, we discussed current procedures with practising auditors from Big 4 firms. The auditors indicated that they assess risk by first asking “What can go wrong?” (IR), and then asking, “What controls are in place to mitigate the things that could go wrong?” (CR). Additionally, a recent presentation provided to the authors from a director of a Big 4 firm, detailed a three-part risk assessment process:

- (1) Initial financial statement risk assessment (IR).
- (2) Initial assessment of entity level controls (entity level CR).
- (3) Residual financial statement risk assessment (assertion level CR).

This three-part assessment follows the same procedures expressed by our interviewed auditors, which are:

- seek out what can go wrong; and then
- seek out controls in place to prevent this.

Thus, the evaluation of CR is conditional on IR. Moreover, CR can only reduce RMM from the amount of IR, meaning that it should never increase RMM, consistent with the mathematical model in which CR cannot exceed 100 percent.

### 3. How to properly assess IR

During the years that followed the passing of SAS No. 47, auditors of both public and private clients usually assessed IR at the maximum level because the cost of considering both firm-wide and account-specific factors for each account balance for IR assessment was considered to be prohibitive (Houghton and Fogarty, 1991; POB Panel of Audit Effectiveness, 2000; Allen, *et al.*, 2006)[1]. However, around the turn of the last millennium, audit firms reconsidered the costs of IR assessment relative to the benefits of planning more (less) substantive testing of account balances with higher (lower) levels of IR (Haskins and Dirsmith, 1995; Bell *et al.*, 1997; POB Panel of Audit Effectiveness, 2000; Tie, 2000; Allen *et al.*, 2006). What the popular press (Weil, 2004; Bryan-Low and Weil, 2004) began referring to as “risk-based auditing”, is simply the correct application of the ARM with IR being assessed by auditors at a balance/assertion level as opposed to being automatically set at the maximum for all balances.

Perhaps in response to this trend, the POB Panel on Audit Effectiveness stated in its 2000 report that “the professional standards [. . .] need strengthening, given the emphasis on inherent risk assessments in determining the nature, extent and timing of audit tests” (p. 19). The POB directed the ASB to provide additional guidance on how auditors should be conducting both inherent and CR assessments. SAS Nos 104-11, dubbed the “risk assessment standards”, were passed largely in response to the POB recommendations as well as the Sarbanes-Oxley Act of 2002. Specifically, SAS No. 109 included significant guidance for both inherent and CR assessments. However, the standard presents the

RMM as a combined construct rather than as the product of two distinct audit risk components[2].

In an attempt to isolate IR from CR, Appendix 1 includes risk factors that an auditor should consider in assessing IR for an unaudited account balance before evaluating controls related to that balance (Elliott, 1983; Houghton and Fogarty, 1991; Wright and Bedard, 2000; Messier and Austen, 2000; O'Reilly *et al.*, 1998; PwC, 2006; AICPA, 2006b; PCAOB, 2010b; IAASB, 2009b). These risk factors do not include consideration of related controls because IR often can and should be conceptualized as separable from CR.

Some risk factors, particularly those related to the client's control environment, have implications for both IR and CR assessments (Haskins and Dirsmith, 1995) These risk factors also tend to be pervasive, having implications for many or most assertions and balances (Messier and Austen, 2000). Other economic and environmental factors unrelated to controls, such as those noted in Appendix 1, have direct implications for IR assessment only.

#### 4. Expectations

In the research design of Haskins and Dirsmith (1995), stimuli from the "control environment" construct (with potential impact on both IR and CR assessment across all accounts/assertions) were purposely given to subjects. In Vandervelde *et al.* (2009), subjects received "background information" which included information about the client's internal control structures prior to gathering subjects' responses in their "IR only" condition. As such, it is not surprising that subjects in both studies embedded a "baseline CR assessment" into their initial assessment of RMM. Given both inherent and CRs factors, one would expect an auditor to assess both and incorporate said assessments into a combined RMM estimate.

We do not believe that the extant literature has addressed our research question, which is whether or not auditors include a baseline CR assessment into their IR assessments when any information about internal controls is absent. If they are, then the implication is that auditors are defaulting to a CR < 100 percent without any evidence to support that claim. Our research design allows us to answer this question, because we provide no information about controls at all prior to asking for an initial RMM assessment.

IR factors, as they are expected to either increase or decrease RMM, are assumed to possess both direction and magnitude in assessment. CR factors on the other hand, as they should be unidirectional, should have only magnitude in their assessment. Thus, when evaluating the subjective strength of risk factors, IR factors will either raise or lower RMM, depending on the strength and direction of the factor. Likewise, we expect that CR will lower (or have no effect) on RMM assessments. This leads to our hypothesis:

- H1.* Revisions of RMM based on internal control information will either reduce or have no effect on the prior RMM assessment.

In practice, information on controls may increase RMM if the control assessment leads to new information revising or updating prior auditor knowledge regarding IR. Also, results of tests of controls that find they are not operating effectively might lead to an increase in RMM that had included CR. We explicitly eliminate these considerations through our experimental design in Phase 1 of our study while we introduce, and control for, these considerations in Phase 2.

Our study builds on existing research by examining the effect of risk type (IR vs CR) on RMM. We predict that IR factors have the capability to both increase and decrease RMM, while CR factors should only decrease RMM if IR is being assessed both separately from and prior to CR, as risk assessment standards suggest it should.

## 5. Method

We ran a two-phase experiment with a within-subjects design to investigate our expectations. Each phase consists of participants assessing the impact of IR factors and CR factors on RMM. These factors, listed in Appendix 2, are taken from SAS 109, Appendix C. We use two IR and two CR classifications. Under each of the four classifications are two instances of the same risk consideration, varied by strength, for a total of eight risk factors. The factors were common both among participants and the phases but ordered differentially in each. Due to the within-subject design, and two phases, there exist 16 RMM assessments for each participant (two assessments, one per phase, for eight risk factors). The two-phase task was constructed to provide the strongest test possible of our hypothesis while also allowing for concerns likely to arise in recurring engagements.

In Phase 1, participants are asked to evaluate the eight risk factors by answering the prompt "Ignoring all other information, how do you think the following factor will affect the risk of material misstatement?" the eight risk factors are then presented individually, and participants indicate whether, and to what degree, the risk factor increases, decreases, or does not effect on RMM (-5 strong RMM decrease to +5 strong RMM increase).

The prompt for the question is an important aspect of our experimental procedure. By asking auditors to ignore any prior knowledge (or assumptions) they may have regarding the client and by also excluding any reference to the client's internal control structures in our initial task description, we differentiate our instrument from most audit engagements and from the Vandervelde, *et al.* (2009) study. In practice, information from prior year engagements with the client may be used to develop an initial baseline level of RMM that includes a consideration of prior year CR. In Vandervelde, *et al.* (2009), subjects are given information about baseline controls prior to receiving inherent and CR stimuli. This prevents them from examining whether or not auditors enter the experiment with baseline priors regarding CR.

The dependent variable in Phase 1 is thus an assessment of the effect of the risk factor on RMM, which is separable from an RMM assessment (as performed in Phase 2). Phase 1 is designed to offer the cleanest test possible of our hypothesis. The structure of Phase 1 allows for a direct inference on whether auditors evaluate risk, particularly CR, in the manner advocated herein. Therefore, we do not provide company information, and participants evaluate the risk factors individually in the absence of any additional information. However, as noted above, outside an experimental environment, auditors are likely to be in possession of prior year knowledge or other sources of information. If auditors are in possession of a control assessment based on prior knowledge, new information, through updating older assessments, may then have an upward or downward RMM effect.

After Phase 1, participants completed an unrelated distractor task. The intent of the task is to reduce the risk that participants are remembering, and simply repeating, an earlier risk assessment (Liu and Fu, 2007). Through this procedure we are able to increase the independence, and therefore usefulness, of the additional phase.

In Phase 2, we expand our study by examining the combination of IR and CR in determining RMM. This phase presents a context rich environment, including background company information. After reading the background information, participants are asked to provide a baseline assessment of RMM. Following this assessment, the same eight risk factors are presented in two independent cases. The cases consist of one strength level of each risk factor classification – for a total of four risk factors per case. In each case, participants are asked to recall their baseline RMM assessment and provide a new RMM assessment after considering the introduced factor. Each participant receives the same two cases, and therefore risk factors, but in differential orders. Therefore, while Phase 1 captures the direct effect of the risk factor on RMM, Phase 2 requests participants make actual sequential assessments of RMM.

The phases are designed to complement each other. Phase 1 is designed to maximize parsimony in evaluating how risk factors are viewed. By doing so – we can evaluate if CR factors are evaluated as possessing only a null or downward effect per theory contained herein based on recent guidance. Phase 2 seeks to capture the incremental effect of risk factors on RMM in the presence of prior year or baseline knowledge; better reflecting the realities of the auditing world. Therefore, while Phase 1 provides stronger inferences for our hypothesis, we perform Phase 2 to improve our generalizability.

## 6. Results

Participants ( $n = 54$ ) were 48 percent male, had an average of approximately four years of experience and had participated in risk assessment at their firm an average of eight times. All participants were attendees at a Big 4 firm's in-charge training session. Summary RMM responses regarding Phases 1 and 2 for all participants are available in Tables I and II.

Consistent with our hypothesis – we expect that for CR risk factors the manipulated strength will affect the magnitude of the RMM assessment change, but not the direction. As Table I shows, counter to expectations, we find that information on control quality (internal audit competence or automated controls) does increase RMM at times when interpreted by auditors. Specifically, results show that of auditors who thought there was an increase in RMM due to a CR factor, there was a significant increase in RMM due to three out of four. Indeed, of the 216 instances of RMM assessment regarding controls

**Table I.**  
Phase 1 – auditor risk factor assessment: strength, direction and frequency

		Frequency count (average strength)		
		Decreases RMM	No effect	Increases RMM
IR 1	Sales decrease	1 (4.00)	3	50 (2.68)
	Sales increase	4 (1.38)	19	31 (1.77)
IR 2	High allowance complexity	1 (2.00)	3	50 (2.61)
	Low allowance complexity	42 (1.98)	8	4 (1.88)
CR 1	High internal audit competence	35 (2.06)	16	3 (1.83) <sup>a</sup>
	Low internal audit competence	4 (2.07)	4	46 (2.28) <sup>a</sup>
CR 2	Automated controls work well	44 (2.07)	10	0 (0.00)
	Automated controls work poorly	2 (1.75)	2	50 (3.21) <sup>a</sup>

**Notes:**  $n = 54$ ; <sup>a</sup>these means are significantly different from a null value of 0 ( $p < 0.01$ )

in Phase 1 (54 participants \* four risk factors) – RMM was judged to have been increased approximately 45 percent of the time.

These inferences are further confirmed in Phase 2 of the investigation. Again, of the four CR factors, auditors judged three of them to significantly increase RMM at times. Similar to the 45 percent rate of overall RMM increases found in Phase 1 due to CR factors, Phase 2 reveals a 48 percent rate. The results from Phase 1 and 2 imply a fundamentally different view of IR than that defined by auditing standards. Auditors do appear to be assessing IR as if some baseline level of controls exists[3]. Additionally, CR does not appear to be viewed as a mitigation of IR, but as a construct which is included and anticipated as being less than 100 percent in IR assessment, which is inconsistent with our hypothesis and the industry’s professional skepticism standard.

As IR is the susceptibility of an account to misstatement in absence of controls (Ramos, 2007), we expect both increases and decreases in risk in response to the attainment of new information regarding risk factors. Logically, we expect increased industry sales to lower RMM, and decreased industry sales to increase RMM (i.e. significant declines in customer demand (AICPA, 2002, Appendix A.2)). As can be seen in the tables, this is not what we find. A possible explanation for the increase in RMM regardless of the direction of the sales change is that a change in the economic environment may have an uncertain effect on the accuracy of the financial statements and thus might increase RMM. Another possible explanation is that auditors see an increase in sales as an indicator of possible fraud.

In evaluating the complexity of the calculation for the allowance of doubtful accounts, we expect that a complex calculation would raise RMM (AICPA, 2006b, Appendix C), and a simple calculation would lower RMM. IR is expected to have both magnitude and direction, and as such, we expect that there would be more errors (and thus risk) introduced with a complex calculation than a simple one. Results regarding this factor suggest the overall response pattern expected.

Phase 1 results (Table I) suggest that auditors often view weak internal controls as increasing RMM. However, this is counter to standards and the theory advocated herein that weak controls do not increase RMM, only fail to mitigate it. Phase 2 results (Table II) largely confirm this inference while increasing the generalizability of our results by exposing the participants to baseline or background knowledge; an environment more similar to that faced by auditors in the field.

		Frequency count (average strength)		
		Decreases RMM	No effect	Increases RMM
IR 1	Sales decrease	2 (8%)	6	46 (14%)
	Sales increase	9 (9%)	21	24 (13%)
R 2	High allowance complexity	11 (9%)	11	32 (11%)
	Low allowance complexity	34 (12%)	12	8 (7%)
CR 1	High internal audit competence	44 (22%)	8	2 (3.5%)
	Low internal audit competence	2 (4%)	3	49 (16%) <sup>a</sup>
CR 2	Automated controls work well	20 (9%)	16	18 (14%) <sup>a</sup>
	Automated controls work poorly	5 (8%)	13	36 (11%) <sup>a</sup>

Notes: n = 54; <sup>a</sup>these means are significantly different from a null value of 0 (p < 0.01)

**Table II.**  
Phase 2 – auditor risk factor assessment: frequency, strength of RMM revision and direction



## 7. Conclusion and discussion

The ARM's usefulness may have been enhanced by recent standards, but these enhancements are potentially undermined by auditors' misunderstanding of the process by which IR and CR should be considered separately and sequentially in their overall assessment of RMM. It does not appear that in-charge auditors assess risk in a manner specified by auditing standards. Auditors may instead assume a baseline level of internal control in their IR assessments rather than no controls. They then increase or decrease RMM depending on whether CR factors are greater or less than the factors assumed in their baseline. In other words, auditors do not assess IR as if there are no controls, but as if there is an average or expected level of controls. Thus, the initial estimate of IR may be lower than what is anticipated in the standards. Whether their final assessment of RMM is appropriate is a question for future research.

Of course, auditors taking into account all of their knowledge about a client and its control environment is appropriate, recommended and consistent with the standards in a continuing audit engagement. However, if auditors evaluate specific risk factors in the context of the ARM, they should assess IR and CR factors in a manner consistent with how those constructs are defined within authoritative standards.

Our study is limited in its implications by testing a small number of risk factors, a limited sample of participants from one firm, and by assumptions previously mentioned in our theory. Future research may increase the external validity of our findings by expanding the number of risk factors, participants and specifically tying IR factors to information on controls designed to prevent the aforementioned IR.

Our study provides insights on how practising auditors interpret risk factors. We believe that our results show that accountants are not following the letter of the risk standards and are using an implied level of expected controls when assessing IR. These insights can help auditors better assess risk in line with the risk standards which derive from theory. Improved risk assessment should then lead to more effective audit planning.

## Notes

1. Similarly, CR can be assessed to be at the maximum in instances where the cost of evaluating the effectiveness of controls is considered prohibitive. Messier *et al.* (2008) refer to this type of an audit strategy as substantive since the only audit tests performed are substantive analytical procedures and substantive tests of details. There are no tests of controls because the auditor does not rely on controls to prevent, detect and/or correct errors. Defaulting to an assessment of CR at the maximum without evaluating is no longer an option for auditors of public clients as a result of AS 2 (PCAOB, 2004) and subsequently AS 5 (PCAOB, 2007); the effectiveness of controls must be evaluated on audits of public clients regardless of the auditor's control reliance strategy.
2. Paragraph 111 of SAS 109 does discuss IR separately as it requires auditors to determine if IRs are "significant risks."
3. As Leslie (1984) suggests, our participants may be incorporating the likelihood of preventive controls when evaluating IR; based on prior experience. However, such consideration would be unwarranted in our setting.

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### Appendix 1. Factors to be considered when assessing IR

Notes: Certain IR factors are pervasive, impacting many or all account balances, while others are more account-specific (Messier and Austen, 2000). An IR assessment of a balance should include evaluation of IR at the assertion level for each account balance (AICPA, 1983; Lea, *et al.*, 1992; Waller, 1993; Elder and Allen, 2003). While Lea, *et al.* (1992) contend that IR is more accurately assessed at the assertion level for each balance, both Waller (1993) and Elder and Allen (2003) present evidence that IR assessments of the assertions embedded within a given balance are nearly identical implying that auditors appear to consider IR at a balance level.

#### Complexity

There are at least three dimensions of complexity at both the balance and entity level. First, due to the difficulty associated with understanding and implementing certain accounting standards,

the determination of certain balances is more complex than others. Second, certain balances are complex because they result from non-routine transactions, such as a merger or acquisition, as opposed to routine transactions. A third dimension of complexity is more entity-specific. For instance, a large company that consolidates financial information from business units all over the world (in various currencies) generates balances that are more complex than a company that consists of one, smaller domestic business unit.

#### *Judgment requirements*

Certain balances require judgment by definition, such as reserves and allowances. Additionally, companies will exercise significant risk amounts of judgment in establishing account balances not traditionally requiring judgment. For instance, when the cost and quantity of inventory in process is difficult to measure at any point in time, the percentage completed will be estimated by companies in order to generate work-in-process inventory at the balance sheet date.

#### *Size/directional considerations*

For assets and revenue accounts, large reported balances are more susceptible to material misstatement because the primary risk is over-statement. Conversely for liability and expense accounts, small balances are more susceptible to material misstatement because the primary risk is under-statement.

#### *Fraud risks*

The first type of fraud is misappropriation of assets and is typically considered at the account balance level. Some asset accounts are more susceptible to misappropriation than others. For instance, it is easier for someone to steal cash than it is for them to steal a ten story building. Another type of fraud is financial statement fraud and is typically considered at the overall financial statement level. Consideration of incentives, such as management compensation being closely tied to earnings, in concert with reporting history, such as the propensity to meet/beat earnings forecasts for public clients, are important steps in assessing financial statement fraud risks regardless of internal controls to prevent fraud.

#### *Impact of related party transactions*

When related parties are involved in transactions associated with an account balance such as a receivable due from related party, the likelihood of the balance being misstated increases.

#### *Potential impact of business risks on the account balance*

Business risks include anything that could prevent a client from accomplishing its objectives. Some business risks will have no impact on the IR of a balance, but others will. For instance, SAS No. 109 suggests that a business risk faced by many clients is increased competition in their industry. When competition increases, over-production is possible for a client because demand might decrease. Over-production, particularly in industries subject to fast technological advancements, could lead to a significant amount of obsolete inventory. Thus, when assessing IR of inventory for this client, the auditor must consider the impact that business risks could (or should) have on the unaudited inventory obsolescence reserve.

#### *Inconsistency of the unaudited account balance with economic trends and other account balances*

Preliminary analytical procedures involve the establishment of expectations for client account balances by auditors and the subsequent comparison of those expectations to unaudited balances during audit planning. In order to establish meaningful expectations, an auditor must understand the client's business processes, which includes gaining extensive knowledge of the client's industry, position within its industry, business risks that threaten the client's ability to accomplish business objectives, client's stated competitive advantage(s), client's measurement of operating performance for purposes of management compensation, etc. Comparison of auditor

expectations to client reports allows an auditor to identify account balances that are or are not consistent with the business processes within which the client functions.

## Appendix 2. Risk factors used

### IR 1

- The client is in an industry that is particularly sensitive to the state of the economy, due to a recent recession; business is expected to decrease for the industry as a whole (lower sales).
- The client is in an industry that is particularly sensitive to the state of the economy, and due to recent economic growth, the industry's sales as a whole are expected to be increasing (higher sales).

### IR 2

- The entity's accounts receivable balance is composed of a wide range of customers. Because of this diversity, the calculation of the allowance for doubtful accounts is very complex (high complexity).
- The entity's accounts receivable balance is composed of a relatively homogeneous group of customers that results in a relatively simple calculation for the allowance for doubtful accounts (low complexity).

### CR 1

- The company employs an internal audit department whose head was a senior manager at a Big 4 accounting firm and has been with the current company five years. His work has always appeared competent and thorough in the past (high competence).
- The company employs an internal audit department whose head has only been with the company for two years. Prior year work found many errors in the internal audit workpapers, but these were due to carelessness, not corruption (low competence).

### CR 2

- In a review of the controls around the revenue and collections cycle, it was noted that automated controls surrounding the flagging of delinquent receivable accounts for management review has been working properly throughout the year (high automated control quality).
- In a review of the controls around the revenue and collections cycle, it was noted that automated controls surrounding the flagging of delinquent receivable accounts for management review has not been working properly, and there has been no review of past due accounts as a result (low automated control quality).

## About the authors

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