

Cross-cultural Differences in Interpreting IAS 37 Probability Phrases

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Abstract

The adoption of IFRS throughout much of the world means that accountants from different cultures will be interpreting the same set of different standards through different cultural lenses. IAS 37 relies on some particularly nebulous terminology, i.e., probable, more likely than not, and remote, that are difficult to interpret even within a culture. Building on prior research, this study explores whether accountants in different cultures interpret verbal probability phrases differently. We compare the ability of US accounting students to interpret the verbal probability of these terms to that of Russian accounting students and find these two groups differ in translating verbal phrases into numeric values but are quite consistent in their application of the accrual or disclosure decision criteria.

Keywords: IAS 37, judgment, probable, remote, verbal probabilities

1. Introduction

Verbal probability expressions are widely used in accounting for various items such as revenue recognition, deferred taxes, and loss contingencies. In particular, International Accounting Standard No. 37, *Provisions, Contingent Liabilities and Contingent Assets* (IAS 37), requires a provision to be recognized in the financial statements when “it is probable (i.e., more likely than not) that an outflow of resources embodying economic benefits will be required to settle the obligation.” In addition, IAS 37 states that “if it is more likely than not that no present obligation exists, the entity discloses a contingent liability, unless the possibility of an outflow of resources embodying economic benefits is remote.” Similarly, Statement of Financial Accounting Standards No. 5 (SFAS 5) requires that a company book a loss contingency on its balance sheet if the probability of the contingency occurring is both *probable* and *reasonably estimable*. The loss contingency must be disclosed in the footnotes to the financial statements if it is *not remote*. No disclosure is required if the probability of loss is *remote*.

Accounting standards rely on verbal probability phrases to guide recognition or disclosure decisions, but limited guidance exists for how to interpret these probability terms. The International Accounting Standards Board (IASB) does not define terms such as *probable or more likely than not*; similarly, US GAAP do not specify benchmark percentages. That is, verbal phrases such as *probable*, *reasonably possible* and *remote* are not quantified. Because of the lack of guidance, interpreting verbal probabilities requires significant amount of judgment and discretion and is considered one of the most difficult tasks for accountants (Amer et al. 1995). For example, prior studies find that auditors interpret probability terms differently when they are asked to assign a numeric value to these terms (Amer et al. 1994, 1995; Chesley 1986; Harrison and Tomassini 1989; Jiambalvo and Wilner 1985; Raghuanandan et al. 1991; Reimers 1992). Across all studies, the mean numerical value ranges from 0.09 to 0.42 for *remote*, from 0.13 to 0.59 for *reasonably possible*, and from 0.40 to 0.78 for *probable*. Interestingly, financial statement users do not appear to be fully aware of the extent of disagreement (Amer et al. 1995). The wide range of values associated with verbal probabilities are problematic as it may affect the consistent application of accounting standards in many areas of financial reporting, from counsel's disclosures in legal letters provided to auditors to the calculation of reserves such as the allowance for doubtful accounts, inventory reserves and environmental reserves (Du et al. 2011a).

Given the wide adoption of IFRS, international differences in financial reporting may result because many preparers and users have different cultural backgrounds and may assess companies on a comparative basis internationally. As Huerta et al (2013, p. 1) note, standard-setting bodies believe that “increased comparability is an important goal associated with convergence of accounting standards internationally”. The move toward a global approach to

financial reporting means that cross-cultural differences play a bigger and bigger role of how accountants in different locales interpret the same standards (Drnevich & Studebs, 2013). If interpreting verbal probabilities is culturally dependent (see Doubnik & Riccio 2003, 2004, 2006), then one would expect to see differences in interpretation across cultures. This study builds on that premise by comparing the mapping of IAS 37 probability judgments between accounting students in Russia and the US and investigates whether judgment consistency differs across these two groups from two different cultures.

2. Background and Literature Review

It is common for people to rely on verbal probability phrases to describe uncertainty encountered in daily life. Prior studies in psychology find that most people prefer expressing their uncertain beliefs with verbal probabilities (Wallsten, Budescu, Zwick, & Kemp, 1993). They argue that verbal terms can minimize problems associated with misinterpretation of numerical probabilities (e.g., Budescu & Wallsten, 1995) because they include wide ranges of numerical probabilities and can accommodate disagreements between various sources and experts (e.g., Wallsten, Budescu, Rapoport, & Forsyth, 1986). However, verbal probabilities are vague and imprecise because different people comprehend language differently, and thus, different numerical values can be attributed to a single phrase. A long line of literature in psychology is devoted to understanding how people interpret and represent the meaning of such ordinary language probability statements (Wallsten et al. 1993).

Verbal probability phrases are widely employed in accounting standards. Accounting scholars have been interested in how experts, such as accountants and auditors, interpret these verbal terms and apply these terms in their profession. Most researchers focus on SFAS 5 loss contingency in US GAAP and attempt to understand how people assign a numeric value to each term (e.g., probable, reasonably possible or remote) by separating the 0% to 100% probability continuum into different decision regions (i.e., accrue, footnote disclosure and no action). Prior research, in general, concludes that people tend to disagree about the exact numeric meaning of each term, and that there is high between-subject variability when people assign numeric values to verbal probability expressions in loss contingency standards. The variability of values documented in prior studies suggest that probability phrases are imprecise, and sophisticated financial statement users, such as auditors, are unable to consistently interpret the verbal criteria (Du et al. 2011a). Thus, decisions about accrual or disclosure may not be comparable across auditors or managers. For example, presented with the same loss contingency, some may consider it as *probable* and accrue the loss while others may deem it *reasonably possible* and disclose it in a footnote. As many accounting standards are inherently vague, it is important to improve the comparability of their interpretation to ensure consistent implementation. In a recent study, Du et al (2011b) supplement probability phrases with their corresponding numerical values and find this practice to be effective in reducing the interpersonal variability commonly associated with verbal probability phrases.

IAS 37, *Provisions, Contingent Liabilities, and Contingent Assets*, classifies obligations into two categories: provisions or contingent liabilities. Provisions are obligations that meet the liability recognition criteria and are therefore recognized in the entity's statement of financial position. Those obligations that do not meet the recognition criteria are classified as contingent liabilities and are disclosed in the notes. The decision process for applying IAS 37 consists of three steps. First, accountants must assess the likelihood of a potential loss by adopting a numeric value. For example, the likelihood of whether a lawsuit may succeed. Then, accountants must choose one verbal phrase (i.e., the decision threshold), such as probable or remote, that best describes this value. Finally, if the obligation is deemed probable, accountants must recognize in the financial statements; if deemed not probable, they must disclose this obligation; and if deemed remote, then no action is required. As the likelihood for every potential loss varies, the process of assigning a numeric value to the uncertainty of the loss is case specific and context dependent (see Du et al. 2011a, b), and thus, the choice of a particular numeric value largely depends on the specifics of each loss. Moreover, judging the likelihood of each loss may not be part of an accounting decision as it is often done by experts or people who are most familiar with the circumstance (e.g., corporate counsel in the case of litigation loss). However, unlike loss judgment, mapping the numeric value to the decision threshold is an accounting decision commonly undertaken by the accountants. Prior studies have attempted to understand how accountants interpret probability terms in accounting regulations regarding loss contingencies. These studies tend to focus on the verbal to numeric mapping – how people translate verbal terms into numeric values, but limited understanding exists in terms of how accountants actually map the numeric values into different decision categories. Thus, in addition to understand how people from different cultural backgrounds assign numeric value to the two phrases, Probable and Remote, in IAS 37 (verbal to numeric mapping), another focus of this study is to examine the numeric to verbal mapping, that is how people translate the numeric likelihood to each decision category (accrual, disclosure or do nothing) which are separated by verbal terms such as probable and remote.

Accounting researchers have attempted to understand cultural differences in interpreting accounting standards and found cross-national differences influences the interpretation of verbal probability expressions used in accounting standards systematically (Davidson & Chrisman 1993, 1994; Doupnik & Richer, 2003). Specifically, Davidson and Chrisman (1993, 1994) find that Anglophone and Francophone students in Canada assigned different numerical value when they were asked to assign a probability from 0 percent to 100 percent to a particular verbal expression. This phenomenon is also documented by Doupnik and Richter (2003, 2004). Specifically, Doupnik and Richeter (2003) show that the German accountants are more conservative than American accountants as they assigned a lower numeric value to most verbal probability expressions. Consistent with the claim by Gary (1988), who argues that the cultural value most closely related to conservatism is uncertainty avoidance, the degree to which individuals are comfortable with uncertainty and ambiguity, Doupnik and Richter suggest that national culture affects accounting values such as conservatism (see p6, Doupnik and Richter 2004). This line of literature implies that different cultural background may cause systematic difference in accountants' interpretation of verbal phrases in IAS 37 during the verbal to numeric mapping. This leads to our first hypothesis:

H1: Accounting Students from different cultural background will assign different values when they are asked to translate Probable or Remote into a specific number.

Unlike verbal-to-numeric mapping, which translates three categories into many different points, numerical-to-verbal mapping translates many different points into three categories which can communicate meanings consistent with wide ranges of numeric probabilities and accommodate disagreements among financial statement users (Du et al. 2011b). As accrue versus disclosure is among the most common decisions faced by accountants, it is important to understand whether or not accountants are consistent in their performance in terms of interpreting and applying IAS 37 when they map a specific numeric value to the decision criteria such as accrual or disclosure. Du et al (2011b) argue that the process underlying verbal to numeric translation includes two steps: first assess the uncertainty of the potential loss and then determine how to classify this loss. They test their process model by examining how US internal accountants translate the numerical probability values to verbal terms such as probable, reasonably possible and remote, as specified by SFAS 5 (Du et al. 2011b). The focus on numeric to verbal translation underlines the importance of decision outcome instead of judgment performance. Despite the inconsistency found in verbal to numeric mapping, their research shows that numeric to verbal translation is surprisingly stable, and the contextual information, such as the base rate, does not affect the classification of the three loss contingency categories. Following this argument, we do not expect cultural differences to impact the mapping from numerical values to verbal phrases. Specifically, our H2 suggests:

H2: Accountants from different cultural background will classify a numeric probability to the same category of Probable or Remote.

3. Method

3.1 Participants

We recruited two groups of upper-level undergraduate accounting students. These two groups are from different cultural background, but have similar education background. All of the student participants are upper-level undergraduate students majoring in accounting and have taken Intermediate Accounting courses and at least one course in statistics. The subjects volunteered to participate in response to in-class announcements for extra course credit. The first group are forty-nine (twenty seven male and twenty two female) students from a large private university in the United States. The second group are eighty seven students from a large university in Kazan, Russia. Among them, sixty are female, and twenty-seven male. Demographic information collected at the end of the experiment indicates that these two groups do not differ in their working experience. About seventy-five percent of the students have some work experience.

3.2 Procedure and Task

In this experiment, we seek to understand how accountants interpret verbal probability terms such as *probable* and *remote* which are included in IAS 37. We provided the participants with the following instructions:

International Accounting Standard No. 37, Provisions, Contingent Liabilities and Contingent Assets, requires accruing a contingent liability if all of three conditions are met: "(a) an entity has a present obligation (legal or constructive) as a result of a past event; (b) it is probable (i.e., more likely than not) that an outflow of resources embodying economic benefits will be required to settle the obligation; and (c) a reliable estimate can be made of the amount of the obligation...."

Furthermore, IAS 37 states that “if it is more likely than not that no present obligation exists, the entity discloses a contingent liability, unless the possibility of an outflow of resources embodying economic benefits is remote.” IAS 37 defines Probable (IN2) as “more likely than not” but gives no definition of “Remote.”

IAS 37 classifies obligations into two categories—provisions and contingent liabilities. Those that meet the liability recognition criteria are classified as provisions. Those that do not meet the recognition criteria are classified as contingent liabilities. The classification of obligations is important because provisions are recognised in the entity’s statement of financial position whereas contingent liabilities are not recognized but disclosed in the notes.

The relationship between provisions and contingent liabilities is summarised as follows:

... there is a present obligation that probably requires an outflow of resources. A provision is recognized (paragraph 21.4).	... there is a possible obligation or a present obligation that may, but probably will not, require an outflow of resources. No provision is recognised (paragraph 21.12). Disclosures are required for the contingent liability (paragraph 21.15).	... there is a possible obligation or a present obligation for which the likelihood of an outflow of resources is remote. No provision is recognised (paragraph 21.12). No disclosure is required (paragraph 21.15).
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We ask the participants to complete three sets of short questions. In question set one, we ask them to assign a numerical value (between 0% to 100%) to the term *probable* or *remote* that best describes the likelihood of obligations. For each term, they must provide the best estimate (a point estimate) of the likelihood, specifically as below:

(1) If the likelihood is Probable, please provide numerical probability (0%-100%)

The best (point) estimate is: _____%.

(2) If the likelihood is Remote, please provide numerical probability (0%-100%)

The best (point) estimate is: _____%.

In question set two, the participants are given a list of numerical probabilities. Each numerical probability stands for the likelihood of obligation. They must decide which term best describe the numerical probability for “Remote” and “Probable.” For example, if they think that “Remote” means 0%, then they would place a check after Remote in Row 4. Similarly, if they think that “Probable” means 100%, then they would place a check after Probable in Row 7. See below for an example. The students can only pick one verbal phrase (either remote or probable) for each numeric value.

30%	means	remote	probable
10%	means	remote	probable
90%	means	remote	probable
0%	means	remote	probable
40%	means	remote	probable
70%	means	remote	probable
100%	means	remote	probable
20%	means	remote	probable
80%	means	remote	probable
60%	means	remote	probable
50%	means	remote	probable

In the last set of question, we ask participants to answer demographic questions, including gender, experience, and education. For the second international group, the instrument is translated in Russian as all the participants speak Russian.

4. Results

In the first set of questions, we ask participants to assign a numerical value (between 0% to 100%) to the term of Probable or Remote that best describes the likelihood of obligations. The results are reported in Table one. For the phrase of Probable, the US participants assigned a mean rating of 70% ($n = 49$, $std = 17.38$) and the Russian students assigned a mean rating of 76% ($n = 87$, $std = 12.37$). The independent samples T test shows that the mean difference is significant ($t = 2.42$, $p < 0.05$). Apparently, the US participants assign a much lower numeric value for Probable than the Russian participants. Thus, Russian students appear to be more conservative in their accrual decisions than US students. For the term Remote, the US assigned a mean rating of 29% ($n = 49$, $std = 20.38$) while the Russian student participants assigned a mean estimate of 27% ($n = 87$, $std = 16.58$). The independent samples T test shows that the mean difference is not significant ($t = -0.55$, $p > 0.05$). The two groups seem to interpret the probability term of Remote in a very similar fashion. The results partially support H1.

In addition, we measure and compare the judgment variability of these two groups. For the term Probable, the values assigned by US participants range from 20% to 100%, with a skewness of -0.78 and Kurtosis 0.25, while the value assigned by Russian participants ranges from 50% to 100%, with a skewness of -0.57 and Kurtosis -0.13. Levene's Test for Equality of Variances indicates that these two groups differ significantly in variability ($F(1, 134) = 8.68$, $p < 0.05$), as the standard deviation of the numeric values is much higher for US students than Russian students. Next, we examine the numeric values assigned to Remote. The values assigned by US participants range from 0 to 80% with a skewness of 0.69 and Kurtosis -0.05. The values assigned by Russian participants range from 0% to 79%, with a skewness of 1.10 and Kurtosis 1.38. Levene's Test for Equality of Variances indicates that these two groups differ significantly in variability ($F(1, 134) = 3.98$, $p < 0.05$) as the standard deviation is much higher for US students than Russian students. We believe the difference in variability is driven by the nature of the statistics course from the US institution and Russian institution. It appears the statistics taught by the US institution is more theoretically based than the Russian program.

In the second set of questions, we provide participants with a list of eleven numeric probabilities (ranging from 0% to 100% in 10% increment) and ask them to map each number into its verbal equivalent. In fact, we are asking the participants to translate the eleven numeric probabilities into two broad categories of "Probable" and "Remote". For example, if they think that "Remote" means 0%, then they should place a check after Remote. Similarly, if they think that "Probable" means 100%, then they should place a check after Probable. Table one show the frequency of judgment for each numeric probability across the two groups. Because our two samples (Russian vs. US) are not the same, we report the proportion of the count, instead of the count itself. Panel A of Table One shows the proportion for those match different numeric values to Remote. Panel B of Table One shows the proportion for those match different numeric values to Probable. Specifically, Table One shows that for the category of 0% (P0) numerical probability, 71% of the Russian participants assign it to the verbal class of Remote, and 0% of Russian assigned it to the Probable class, while 61% of the US participants assign it to Remote, and 6% of them assign it to Probable. Similarly, for the category of 90% (P90) numerical probability, 1% of the Russian participants assign it to the verbal class of Remote and 74% assign it to the Remote Class, while 4% of US participants assign it to Remote and 74% to Probable. To test the statistical significance, we performed Pearson chi-square tests for each numeric class to compare the frequency of mapping between the professional and students. The chi square value and its significance are reported at the bottom of each panel. All the values are insignificant except for 0% probability class in Panel B. Apparently, 6% of US students classify 0% as probable while 0% Russian students deem so. The difference is significant ($chi\ square = 5.45$, $p < 0.05$).

Table 1. Proportion of judgments for Russian and US students

Panel A: Frequency for Remote											
	<i>P0</i>	<i>P10</i>	<i>P20</i>	<i>P30</i>	<i>P40</i>	<i>P50</i>	<i>P60</i>	<i>P70</i>	<i>P80</i>	<i>P90</i>	<i>P100</i>
US Students	61%	77%	63%	63%	55%	27%	10%	4%	10%	4%	4%
Russian Students	71%	78%	72%	71%	55%	31%	18%	9%	5%	1%	6%
<i>Pearson Chi square</i>	1.44	0.01	1.23	0.93	0.00	0.31	1.61	1.20	1.59	0.28	20.18
<i>sig</i>	0.16	0.93	0.27	0.33	1.00	0.58	0.15	0.27	0.21	0.26	0.67
N=49											
Panel B: Frequency for Probable											
US Students	6%	2%	2%	8%	12%	51%	63%	71%	76%	74%	65%
Russian Students	0%	2%	6%	2%	13%	36%	55%	67%	68%	74%	69%
<i>Pearson Chi square</i>	5.45	0.01	1.02	2.56	0.07	3.06	0.84	0.33	0.89	0.00	0.19
<i>sig</i>	0.02	0.92	0.11	0.83	0.80	0.08	0.36	0.56	0.34	0.99	0.66
N=87											

Figures One and Two presents the proportion of judgments for the Russian and US samples. In the figures the dark line depicts the Remote class and the light captures the Probable class. The horizontal axis represents eleven numeric values ranging from P0% to P100%. The vertical axis shows the percentage of choices. The lines appear to be quite similar across these two samples. Both lines are quite monotonic, except for the Remote line for US students. For the Probable line, we can see that few people (less than 10%) classify numeric probability below 30% into the Probable class, but the frequency increases after the 40% numeric probability. At the 50% numeric probability category, around 40% of the participants class it into the Probable class. At the 70% numeric category, about 75% of participants classify it as Probable. The line reaches its peak at the 90% numeric category, where over 80% of participants deem it as Probable. The Remote line behaves similarly but in an opposite direction. It reaches the peak at the numeric probability of 10%, where over 80% participants deem it as remote and then decreases gradually after that. The two lines cross over at the 50% numeric probability. For the Remote line, most of participants assign 0% numeric probability to the verbal class of remote. These results are consistent with the predictions of H2.

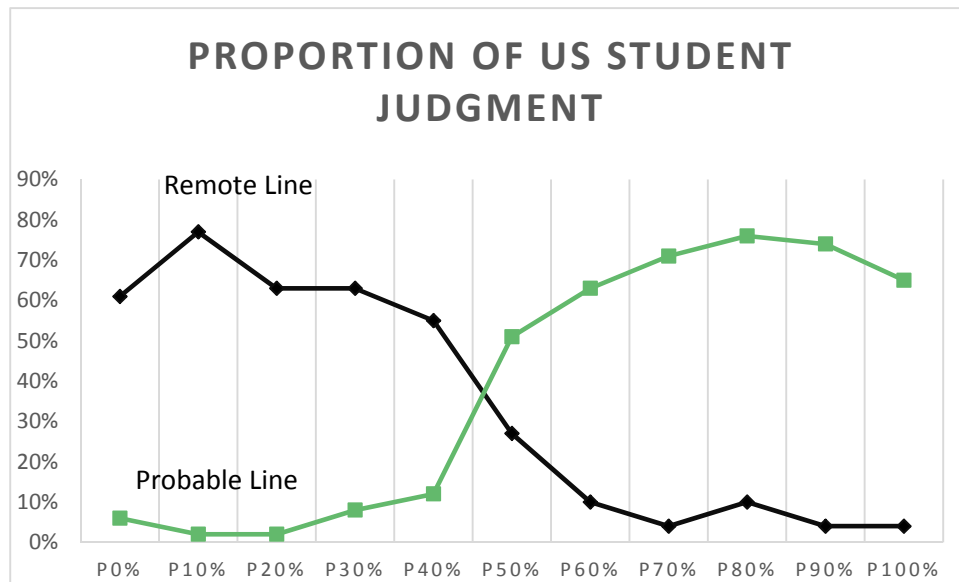


Figure 1. Frequency of judgments for US

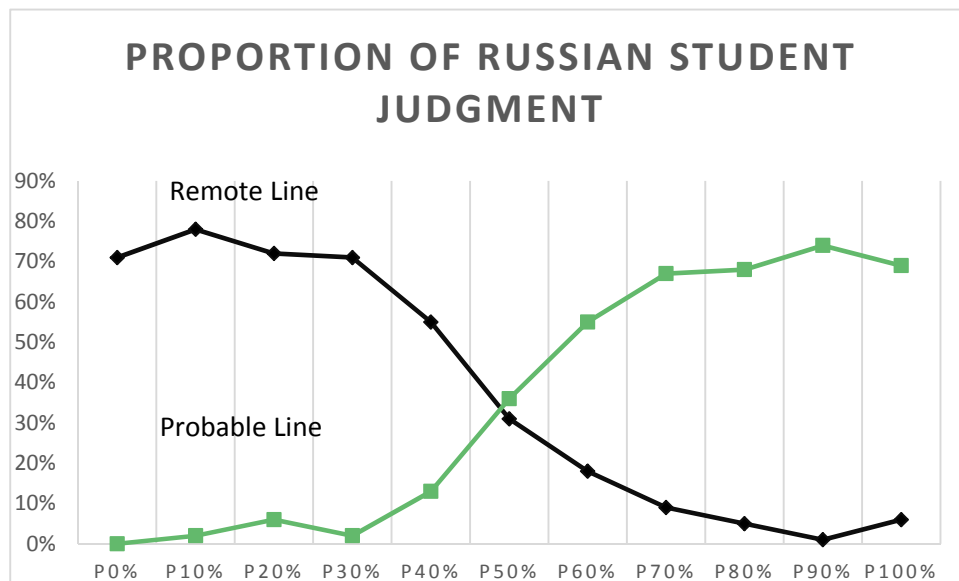


Figure 2. Frequency of judgments for Russian students

5. Conclusions

In this study we examine whether cultural background may play a role in interpreting verbal probability regarding provisions and contingent liabilities in IAS 37. We focus on two steps in the process: first, how participants translate a verbal term into a numeric probability (i.e., verbal to numeric mapping); then, how participants translate a numeric value into a verbal probability term (i.e., numeric to verbal mapping). We find Russian participants assigned higher numeric value to Probable than US participants but their judgments of Remote is very similar. In addition, the consistency of numeric judgments is much higher for Russian participants than US participants. Moreover, when given a set of numeric values, the two groups do not differ significantly in the pattern of numeric to verbal mapping. Our findings support Douppnik and Richeter (2003 and 2004) which documents inconsistency in verbal to numeric mapping across different countries, but we also go beyond their work by examining the effects of cultural backgrounds on decision outcome such as numeric to verbal mapping. Specifically, we find that despite the inconsistency in judgment performance across nations, once a numeric term is assigned, accountants, regardless of

their cultural backgrounds, are quite consistent in their application of the accrual or disclosure decision criteria. Our evidence suggests that to ensure consistency and comparability in accounting decisions across nations, more attention should be devoted to the initial assessment of potential loss. Standards setters may want to provide further guidance about how to consistently and accurately assign numeric value of the uncertainty of potential losses.

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