How do financial statement users evaluate hybrid financial instruments?

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ABSTRACT

The financial statement classification of financial instruments with features of both liabilities and equity ("hybrid instruments") is an ongoing problem in financial reporting. Using two experiments, we test how the features and classification of hybrid instruments affect experienced and inexperienced financial statement users' judgments. Our experiments provide two new insights. First, experienced users' judgments of the issuing company's creditworthiness are primarily influenced by the features, not classification, of hybrid instruments, whereas inexperienced users' judgments are most strongly influenced by classification. Second, common features of hybrid instruments have incremental effects on experienced users' judgments, suggesting that no single feature dominates users' conceptions of what constitutes a liability or equity instrument. Overall, our study suggests that, while classification is important for inexperienced financial statement users, information about hybrid instruments' features should also be a focus for standard setters considering the content of financial reports used by constituencies with varying levels of experience.

Keywords: hybrid financial instruments; accounting classification; experience

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1. INTRODUCTION

The financial statement classification of financial instruments with features of both liabilities and equity (hereafter, "hybrid instruments") is an ongoing problem in financial reporting (FASB 2003, 2007). For example, preferred stock typically has a fixed dividend payment, which is a liability feature, but it can also have voting privileges, which is an equity feature. Thus, should preferred stock be considered a liability or equity? Standard setters have been, and continue to be, unable to articulate an overarching theme regarding how to classify these hybrid instruments within the financial statements. It is possible, though, that classification is less important to users when they are provided with information about the underlying features of the instrument. The issue that we investigate in this study is how the experience level of a financial statement user influences whether they rely on the classification of a hybrid financial instrument or the underlying features of that instrument when making judgments about the firm.

The answer to this question is important for several reasons. First, although prior research has established that financial statement classification of hybrid instruments matters to users of financial reports (Hopkins 1996), such research has not established whether users differentiate hybrid instruments based on their features, particularly once they have been classified. If users do distinguish hybrid instruments based on more than just their classification—that is, also based on their features—this would suggest that, while classification may be important, information about features is significant and, therefore, also should be a focus for standard setters considering disclosure requirements for hybrid instruments.

Second, understanding which type of financial statement user is likely to rely on features versus classification is important as there is wide variation in the sophistication level of those who read and use financial reports (Hodge and Pronk 2006). While the FASB has acknowledged

that they are most interested in reasonably sophisticated users of financial reports (FASB 2015), the SEC is also concerned with protecting the welfare of less sophisticated financial statement users (SEC 2014, 2015). Thus, our study provides input to both the FASB and the SEC in helping them understand how variation in users' experience affects how information in financial reports is interpreted.

To examine these issues, we conduct two experiments. In the first experiment, both inexperienced and experienced finance professionals in the role of potential lenders evaluate how hybrid instruments that differ in both features and classification affect a company's creditworthiness. Using experienced professionals, Experiment Two tests the generality of the findings in Experiment One by investigating whether any single feature dominates users' conceptions of what constitutes a liability or equity instrument.

We draw on categorization theory from psychology to develop predictions about how the features and classification of hybrid instruments will affect different types of users' judgments. This theory argues that category representations held in memory are fundamental to people's understanding of the world (Bransford and Johnson 1972; Kozminsky 1977; Loken, Barsalou and Joiner 2008). That is, the category to which items are assigned is important in affecting how items are evaluated. However, items within a particular category are not assumed to be identical, and may differ in their specific features. Such variation in features is potentially important as it may change how an item is evaluated despite its classification.

Drawing on this theory, as well as research that examines how experience affects the use of categories, we posit that experienced financial professionals primarily rely on the underlying features of a financial instrument when evaluating the creditworthiness of a firm while inexperienced users primarily rely on the categorization of the instrument. The basis for this

prediction lies in the fact that inexperienced users have limited exposure to financial instruments and, accordingly, view the categorization of the instrument as informative. In contrast, experienced professionals frequently encounter these instruments and understand the wide variation in their underlying features that can occur, even for instruments that are classified similarly. Because of these different experiences, inexperienced users should rely more on the categorization of the hybrid instrument rather than the features of the instrument. By contrast, experienced financial professionals, even if they are influenced by the classification of hybrid instruments as documented by Hopkins (1996), are likely to rely mainly on the features of hybrid instruments.

Experiment One results are generally supportive of these predictions. Specifically, experienced users' judgments of the company's creditworthiness are strongly influenced by the features of the hybrid instruments, with weaker evidence for the effect of classification. In contrast, inexperienced users' judgments of a company's creditworthiness are most strongly influenced by the classification of newly-issued hybrid instruments. Interestingly, we find some evidence that inexperienced users are influenced by features, but only when the hybrid instrument is classified as equity.

Experiment One documents that experienced users' judgments are influenced by the features of the hybrid instruments. However, in that experiment we manipulate only one feature—maturity of the hybrid instrument. To ascertain the generality of this result, we conduct a second experiment to examine how differences in several common features of hybrid instruments affect finance professionals' judgments. In addition to maturity, the instruments in Experiment Two reflects variation in priority in liquidation, voting rights, settlement in cash versus stock, and dependence on profitability for payments to holders (FASB 1985, 2003, 2007; Ryan 2007;

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Sangiuolo, Taub and Seidman 2010). Results reveal that experienced participants rely on each of these features to distinguish between liabilities and equity. Further, each feature has an independent and incremental effect on participants' judgments of whether the instruments are more liability-like or more equity-like.

Our study contributes to research. Specifically, we update and extend research on the classification of hybrid instruments, especially Hopkins (1996), by showing that differences in the underlying features of hybrid instruments, in addition to their classification, affect users' judgments when the instruments' classification is also available. In Hopkins (1996), experienced participants' judgments were affected by classification of the hybrid instrument. However, the underlying features of the financial instrument were not manipulated; therefore, it was not possible to discern whether his participants would have also made discriminations based on the features of the instrument. Moreover, we extend Kimmel and Warfield (1995), who show that features do influence market reaction to a hybrid instrument that, at the time of their study, typically was not placed in either the liability or equity classification (i.e., was typically in the so-called mezzanine section of the balance sheet). It is particularly important to update results of these two studies, given that the intervening two decades have witnessed both a virtual explosion in the number and type of hybrid instruments issued in practice (Sangiuolo et al. 2010), and changes in the classification of such instruments (e.g., FASB 2003). We also extend both of these studies by documenting that users' experience level determines whether they rely primarily on hybrid instruments' balance sheet classification or on their underlying features, with reliance on features being more likely with experienced finance professionals.

For regulators and standard setters, our results suggest that the joint effects of hybrid instruments' features and classification differ for inexperienced and experienced financial

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statements users. These differences should be informative to regulators interested in how user groups with differing levels of experience use financial statement information (e.g., SEC 2014). An implication for standard setters is that information about features is central to the judgments of experienced users and the classification of hybrid instruments is less critical for this group. However, classification is significant for inexperienced users, suggesting the centrality of the definitions of liabilities and equity for this group of users. Our results also show that, at least for the hybrid instruments that we investigate, no one single feature appears to dominate users' evaluations, suggesting the generality of our insight that features matter.

The remainder of the paper is organized as follows. Section 2 provides background on the features of hybrid instruments and discusses categorization theory. Sections 3 and 4 discuss Experiments One and Two, respectively. Section 5 concludes.

2. BACKGROUND AND THEORY

2.1 Features of Hybrid Instruments

Hybrid instruments are challenging from a classification (i.e., liability versus equity) standpoint because, by definition, they have one or more features that are associated with equity and one or more features that are associated with liabilities. For example, a convertible bond has a written call option (on the company's equity) embedded with the underlying bond. While the written call option is often considered an equity item, the underlying bond is clearly a liability. As another example, mandatorily redeemable preferred stock (MRPS) has liability features in that it typically has a fixed payout (like interest) and must be redeemed, most often for cash, on a specific date or following a designated event. However, it also has equity features as it is preferred stock and the dividend payout can go into arrears, like common stock dividends (Sangiuolo et al. 2010).

Importantly, hybrid instruments can affect how the issuer of the instrument is judged in terms of its perceived value and creditworthiness. In this study, we consider the effect of hybrid instruments on the issuers' creditworthiness. As corporate finance and financial statement analysis texts teach, the more liabilities in a company's capital structure, the more vulnerable it is to default and the weaker its balance sheet; in short, the less creditworthy it is (e.g., Brealey and Myers 2000; Wahlen, Baginski, and Bradshaw 2014). By extension, the more liability-like features in hybrid instruments issued by a company, the less creditworthy that company is likely to be.

2.2 Theory

<u>Categorization Theory</u>: Categorization is the process of grouping or classifying people, objects, events, and experiences. Usually, they are grouped according to classes based on (1) common features that members share within a class, and (2) distinct features that distinguish members from those of other classes. Categorization research shows that individuals retain information about the features that are typical of a category and that this information allows individuals to form judgments about novel members (Medin and Smith 1984). Because not all members of a particular category are typical, though, variation in features can be important in judging an item. In a consumer context, for example, the category "vacuum cleaners" contains uprights and handhelds, plug-in and battery-powered models, and models with varying numbers of attachments. Although all of these are vacuum cleaners and share features common to most vacuum cleaners, they vary in the specific features they have. Thus, the theory indicates that judgments about a new vacuum cleaner can be based on *both* its membership in the category of vacuum cleaners *and* the particular features associated with the specific vacuum cleaner at hand (Meyvis and Janiszewski 2004).

Applying the ideas of categorization theory to an accounting context, the theory suggests that both the financial statement classification *and* underlying features of a hybrid instrument can affect users' judgments. Consistent with the notion that classification affects judgments, prior research by Hopkins (1996) shows that the category to which a novel hybrid instrument is assigned (i.e., liabilities versus equity) affects the valuation judgments of buy-side financial analysts. His study participants had previously acquired knowledge about the categories into which financial statement items are classified; i.e., assets, liabilities and equity (Bransford and Johnson 1972; Kozminsky 1977; Loken et al. 2008). As a result, when they encountered a novel financial instrument (i.e., MRPS), they used their knowledge about categories to understand how to evaluate the hybrid instrument for stock valuation purposes.

Hopkins (1996) did not vary the features associated with the hybrid instrument in his study. This aspect of his study is important, as categorization theory suggests that the particular features of a hybrid instrument could also affect users' judgments. That is, as described in the vacuum cleaner example above, category membership provides some information, but also allows for important variation among category members that could be important to users. Thus, it remains an unanswered question as to whether users in the financial reporting domain will rely on features of financial instruments once an item has been classified in the financial statements. That is, will they rely only on the category to which an instrument is assigned or will they also (or instead) rely on features? We posit that the answer to this question depends on the experience of the financial statement user, as we explain below.

Experience and Categorization: Although many assume that there are universal aspects of categorization that are domain invariant, research has shown that what we know about categorization can be specific to context and to the experiences of individuals (Ahn, Goldstone,

Love, Markman, and Wolff 2005; Honeck, Firment, and Case 1987). Drawing on research that

tests the effect of experience on categorization, we posit that whether a financial statement user

relies primarily on the features of a financial instrument or the category to which it is assigned is

likely to depend on the experience level of the user.

In general, experience in a particular domain has been found to affect how items are

categorized and evaluated once in a category (Loken, Barsalou, and Joiner 2008). In the

consumer marketing domain, experts are more likely than novices to make distinctions among

products (Johnson and Mervis 1997). That is, they are not only able to think more abstractly on a

conceptual basis, but they also make finer distinctions among items than do novices. As a

consequence of this, experts have been found to be relatively more flexible in their

categorizations and, thus, can change the way they think about category members depending on

the specifics of a context (Cowley and Mitchell 2003).

Drawing on this research, financial statement users who vary in their experience with

financial instruments and financial statements could differentially evaluate a hybrid financial

instrument that has characteristics of both liability and equity. Why? Such an instrument is not

typical of either the liability or equity category, and so the placement of the instrument into

either category is not "perfect." Indeed, because the definitions of the liability and equity

categories within financial reporting are general, the mapping between a particular financial

statement item (like a hybrid financial instrument) and a given category is not straightforward.[1]

Accordingly, the experience level of the individual evaluating a particular financial instrument

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[1] That formal definition of a liability describes three essential features: "(a) it embodies a present duty or responsibility to one or more other entities that entails settlement by probable future transfer or use of assets at a specified or determinable date, on occurrence of a specified event, or on demand, (b) the duty or responsibility obligates a particular entity, leaving it little or no discretion to avoid the future sacrifice, and (c) the transaction or other event obligating the entity has already happened" (FASB 1985, paragraph 36). Equity is defined as the "residual interest in the assets of an entity that remains after deducting its liabilities" (FASB 1985). The definition of equity also refers to "several classes of equity…with different degrees of risk stemming from different rights…" (FASB 1985, paragraph 62).

that has already been placed into a category could affect their reliance on that category placement and/or the potential use of the underlying features of the instrument.

For those individuals who have greater experience evaluating financial instruments, we anticipate that they will have been exposed to instruments that vary in their liability- and equity-like features. As previously noted, not all financial instruments have characteristics that are typical of liabilities (i.e., fixed maturity, fixed payment, etc.) nor do they necessarily have characteristics that are typical of equity (i.e., discretionary payment, voting payments, etc.). Because experienced professionals have seen this type of variation in features, they should appreciate the variation in instruments that are eventually classified in the financial statements in either the liability or equity category. Because they have knowledge of the finer distinctions of items that are placed into the liability and equity categories, they are more likely to look to the variation in features when evaluating a hybrid instrument and less likely to rely solely on the category in which the item is placed.

Compared to experienced users, inexperienced users of financial reports are less likely to have seen the variation in financial instruments; rather, they are more likely to be exposed to typical category members—instruments that are more straightforward examples of the category. For example, long-term debt, without additional features, like conversion options, is a typical liability that most inexperienced users would have seen. Common stock is a typical equity item that, again, most inexperienced users would be familiar with. As a result, when faced with a hybrid financial instrument that is not typical to their prior experiences, inexperienced users will be more likely to view the category to which the instrument is assigned as informative about the nature of the instrument. That is, they will not have sufficient knowledge regarding variation in features to analyze the specific features of the hybrid financial instrument. These predictions are

summarized below.

> HYPOTHESIS: When evaluating the creditworthiness of a company with a hybrid financial instrument, inexperienced users will rely primarily on the categorization (i.e., liability or equity) of the instrument, while experienced users will rely primarily on the underlying features of the instrument.

3. EXPERIMENT ONE

3.1 Design Overview and Participants

Experiment One has a $2 \times 2 \times 2$ between-participants design in which experienced and inexperienced participants assume that they are following a company that has recently issued hybrid financial instruments. We manipulate the features of the hybrid instruments (2 liability & 3 equity vs. 3 liability & 2 equity) and the classification of the hybrid instruments on the balance sheet (liability vs. equity). Participants evaluate how the issuance affects the company's creditworthiness.

For inexperienced participants, we recruit Masters of Accounting students at a large state university.[2] Seventy-five individuals participate in the experiment in exchange for a chance to win one of four $75 prizes. For experienced participants, we use an alumni database to identify 300 individuals with at least five years of current work experience in banking, finance, and related fields. All 300 individuals receive a hard copy of the experimental instrument in the mail, and 162 individuals (54 percent) return a completed instrument to us. Our experienced participants have an average of 19.7 years of work experience, with 49 percent having banking experience and 38 percent having corporate finance experience. Forty-four percent indicate that they have made lending decisions in the past. All participants are randomly assigned to one of the four experimental conditions.[3,4]

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[2] The Institutional Review Board (IRB) at the affiliated university approved the use of human subjects for both experiments reported in this paper.

[3] There are differences in timing of the data collection from the experienced and inexperienced participants, and

3.2 Case Materials, Manipulations, and Dependent Variables

Our experimental materials are adapted from Hopkins (1996). Participants receive

background information about a company that has just issued a press release announcing a $7

million security issuance. The press release indicates that proceeds from the security issuance

will be used to expand domestic operations, and it lists the features of the instruments (see

Appendix). There are five features in total and we hold constant four of these features across

conditions. Two of the four features that are held constant suggest that the instruments are

similar to traditional liabilities in that the holders receive fixed periodic payments, and these

payments accumulate interest if not paid on a timely basis. The remaining two features that are

held constant suggest that the instruments are similar to traditional equity in that the holders

receive additional payments if yearly profit targets are met, and the holders have voting rights.

The information surrounding the remaining feature is manipulated between-participants.

Specifically, in the '3 liability/2 equity' conditions, this feature indicates that the instruments will

mature in 2020; in the '2 liability/3 equity' conditions, this feature indicates that the instruments

have no maturity date.

After reading the press release, participants view summary income statement and balance

sheet data for the company. This information does *not* include the effects of the new issuance,

and is held constant across conditions. The size of the issuance is material to the financial

statements, representing 5.4 percent of total assets. As dictated by the treatment condition, the

materials indicate either that the company will account for the new instruments as equity or as a

liability. We also provide participants with the journal entry that will be used to record the

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differences in a few questions used in the materials.

[4] Experiment One asked participants about whether they believed that the company had a choice about how to classify the instruments, and about how familiar they are with SFAS 150. Responses to these questions differ by experience level, but do not differ by treatment (i.e., classification and features) condition, and do not affect the interpretation of results.

issuance (with the credit to the entry being to a liability account or to an equity account) and we ask participants to recast the company's balance sheet (with a new balance sheet that has blank amounts for the liabilities and equity sections) to reflect the new offering.

Next, participants respond to two questions about the effect of the issuance on the company's creditworthiness. The first question, based on Hales, Venkataraman and Wilks (2011), asks participants to judge how the issuance of the $7 million in securities affects the company's vulnerability to default. Participants respond to this question on a 101-point scale with endpoints of 0 (100), labeled as "much less vulnerable" ("much more vulnerable"). The second question asks participants to judge how the issuance of the $7 million in securities affects the strength of the company's balance sheet. Participants respond on a 101-point scale with endpoints of 0 (100), labeled as "creates much weaker balance sheet" ("creates much stronger balance sheet").[5] Upon completion of these judgments, participants move to the next section of the materials, which includes debriefing questions and manipulation check questions. Finally, participants provide responses to questions that capture their tolerance for ambiguity.

3.3 Manipulation Checks

To confirm that our features manipulation was successful, we asked participants to indicate whether the article described the instruments as maturing in 2020, or as having no maturity date.[6] Ninety-seven (ninety-two) percent of participants in the 3 liability/2 equity (2 liability/3 equity) conditions correctly indicated that the instruments do (do not) have a maturity date. We also asked participants to indicate whether they were told how the company was planning to account

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[5] We also asked participants to indicate how willing they would be to lend additional money to the company. Responses to this question did not significantly differ by treatment condition, suggesting that lending decisions are based on a variety of factors that were held constant in the context of our experiment. Consistent with this notion, responses to an open-ended question, asking experienced participants how they formed their lending decisions, indicated that making a lending decision is a multifaceted process.

[6] Inexperienced participants were also allowed to indicate that they did not recall how the article described the instruments.

for the instruments. Eighty-one (seventy-seven) percent of participants in the equity (liability) conditions correctly indicated that the company was planning to account for the instruments as equity (a liability). Thus, we conclude that both manipulations were successful.[7]

3.4 Results

We predicted that when evaluating the creditworthiness of the company issuing the hybrid financial instrument, inexperienced users would rely primarily on the categorization (i.e., liability or equity) of the instrument, while experienced users would rely primarily on the underlying features of the instrument. To test this hypothesis, we collected the two dependent measures described earlier—namely, the vulnerability to default measure and the balance sheet strength measure. The Cronbach alpha coefficient, which measures the consistency with which each of the two measures captures the same underlying construct, is 0.53, suggesting that each measure captures a relatively unique aspect of this complex judgment (e.g., Nunnally 1978, Peterson 1994). We therefore analyze the effect of our independent variables on each measure separately.

For each dependent measure, we conduct a $2 \times 2 \times 2$ analysis of variance (ANOVA) with three independent variables—the categorization of the instrument (liability or equity), the underlying features of the instrument (3 liability/2 equity or 2 liability/3 equity), and the experience level of the participant (inexperienced or experienced). The results are reported in Table 1, and the pattern of cell means is depicted in Figure 1.

Insert Table 1 and Figure 1 about here

Starting with the vulnerability to default measure, Panel A of Table 1 shows descriptive

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[7] The results reported below include all participants. Our inferences are unchanged if we exclude those participants who failed the manipulation checks.

statistics (see also Panel A of Figure 1), while Panel B reports the overall ANOVA, and Panel C presents follow-up statistical tests partitioned by experience level. The ANOVA in Panel B reveals several significant effects: a main effect of features ($F_{1,229} = 6.13$, $p = 0.01$), a main effect of experience ($F_{1,229} = 4.58$, $p = 0.03$), a two-way experience × classification interaction ($F_{1,229} = 3.23$, $p = 0.07$), and a three-way experience × features × classification interaction ($F_{1,229} = 5.00$, $p = 0.03$).

To better understand these effects and whether they support our hypothesis, we conduct follow-up tests for each group of participants to ascertain whether the particular pattern of results is as anticipated. As shown in Panel C, there is a main effect of classification for inexperienced participants, as we anticipated ($F_{1,71} = 3.78$, $p = 0.03$, one-tailed). Specifically, the inexperienced participants judged the vulnerability of the firm to default as greater when the financial instrument was classified as a liability (mean of 56.76) compared to when it was classified as equity (mean of 48.63). This result is as expected, supporting our hypothesis.

Interestingly, for the inexperienced participants, we also observe a marginally significant effect of features ($F_{1,71} = 3.09$, $p = 0.08$) as well as a marginally significant interaction between classification and features ($F_{1,71} = 3.21$, $p = 0.08$). These results were not predicted. We offer a possible, ex-post, explanation for these unexpected results from other psychology theory on categorization. Specifically, categories can be relatively broad or narrow. Broad (narrow) categories are such that there is more (less) variation in features associated with category members (Meyvis and Janiszewski 2002; Loken et al. 2008). As a result, category associations are more likely to be used as a simplifying heuristic in forming judgments about new members of narrow categories, whereas features play a greater role in forming judgments about new members of broad categories. This pattern of results therefore appears consistent with

inexperienced participants viewing the equity category as broader than the liability category, and thus considering features in assessing the effect of the hybrid instrument when it is classified as equity, but not when it is classified as a liability.[8]

For the experienced participant group, Panel C of Table 1 reveals a significant main effect of features ($F_{1,158} = 3.14$, $p = 0.04$, one-tailed), as predicted. On average, the experienced participant group judged the company's vulnerability to default as greater when the instrument had more liability features and fewer equity features ('3 liability/2 equity' condition mean of 49.85) compared to when it had fewer liability features and more equity features ('2 liability/3 equity' condition mean of 45.00). No other effects are significant in the ANOVA, providing strong support for our prediction that experienced users would rely primarily on a hybrid instrument's features in judging its effects on the issuing firm's creditworthiness.

Turning to the balance sheet strength measure, Panel D shows descriptive statistics, while Panel E reports the overall ANOVA, and Panel F presents follow-up statistical tests partitioned by experience level. The ANOVA for the balance sheet strength measure reveals a significant main effect of features ($F_{1,229} = 9.07$, $p < 0.01$), a significant main effect of classification ($F_{1,229} = 8.85$, $p < 0.01$), and a marginally significant three-way experience $\times$ features $\times$ classification interaction ($F_{1,229} = 2.63$, $p = 0.11$).

We again conduct follow-up tests for each group of participants to better understand these effects and whether they support our hypothesis. As shown in Panel F, there is a main effect of classification for inexperienced participants, as we anticipated ($F_{1,71} = 5.10$, $p = 0.01$, one-tailed). Specifically, the inexperienced participants judged the company's balance sheet to be

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[8] This view of the liability and equity categories appears consistent with the formal definitions of these categories put forth by the FASB (see footnote 1 for these definitions). Based on these definitions, the equity category is arguably quite broad (at least compared to the liability category), with few essential features that lead to strong associations based on category membership. It also seems likely that our inexperienced participants, with formal accounting training, but little real-world experience, would rely on formal definitions of liabilities and equity in forming their judgments.

stronger when the hybrid instrument was classified as equity (mean of 60.29) compared to when it was classified as a liability (mean of 52.22). The effect of features on inexperienced users' balance sheet strength judgments is not significant ($F_{1,71} = 1.28$, $p = 0.26$), which also supports our prediction that inexperienced users would rely primarily on classification. As with the vulnerability to default measure, we observe a marginally significant features $\times$ classification interaction ($F_{1,71} = 2.99$, $p = 0.09$), reflecting an effect of features when the hybrid instrument is classified as equity, but not when it is classified as a liability.

For the experienced participants, Panel F reveals a highly significant main effect of features on balance sheet strength judgments ($F_{1,158} = 13.64$, $p < 0.01$), as predicted. Specifically, experienced participants judged the company's balance sheet to be stronger when the instrument had fewer liability features and more equity features (mean of 57.55) compared to when it had more liability features and fewer equity features (mean of 48.11). We also observe a significant main effect of classification on experienced participants' judgments of balance sheet strength ($F_{1,158} = 4.18$, $p = 0.04$); they judge the balance sheet to be stronger when the hybrid instrument is classified as equity (mean of 55.49) compared to when it is classified as a liability (mean of 50.28). The features $\times$ classification interaction is not significant ($F_{1,158} = 0.17$, $p = 0.68$).

3.5 Additional Analysis

Recall that we asked participants to recast the company's balance sheet, using a new balance sheet with blank amounts for the liabilities and equity sections, to reflect the new security offering. We also provided participants with the journal entry that would be used to record the issuance (with the credit to the entry labeled as either a liability or equity account). To test whether inexperienced users rely on the classification of the hybrid instrument more than do experienced users, we examined the extent to which participants accepted or rejected the liability

or equity classification provided when recasting the balance sheet. Results of a logistic regression (untabulated), in which participants' recasting was coded as either consistent or inconsistent with their assigned classification, reveal that inexperienced participants were significantly more likely to rely on the assigned classification than were the experienced participants ($\chi^2_{1,237} = 4.81$, $p = 0.03$). That is, we find that 84 percent of the inexperienced participants relied on the assigned classification when recasting the balance sheet whereas only 69 percent of the experienced participants did so. We view this as consistent with the idea that inexperienced participants view the balance sheet classification of the hybrid instruments as more informative than do the experienced participants.

3.6 Summary of Results

The overall pattern of results generally supports the prediction that financial statement users' reliance on the classification versus underlying features of a hybrid financial instrument depends on their experience. Those with more experience in evaluating financial instruments and financial statements tend to rely primarily on the underlying features of hybrid instruments, with the caveat that they also consider classification in judging balance sheet strength (but not when judging vulnerability to default). In contrast, those with less experience rely more on the classification of the instrument as a liability or equity, with the caveat that they also consider underlying features when the hybrid instrument is classified as equity.[9]

4. EXPERIMENT TWO

Experiment One documents that experienced users' judgments are influenced primarily by

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[9] As part of Experiment One, we also asked participants a series of questions designed to capture their tolerance for ambiguity. These questions, which were located at the end of the case materials, were taken from Budner (1962) who has extensively validated them as capturing tolerance for ambiguity. Because tolerance for ambiguity might affect how participants construe the liability and equity categories, we asked these questions in order to control for participants' tolerance for ambiguity as a covariate and to rule out such tolerance as an alternative explanation for our results. Overall, results indicate that tolerance for ambiguity does not affect our study participants' creditworthiness judgments; nor does it explain the effect of features or classification on these judgments.

the features of the hybrid instruments. The purpose of Experiment Two is to test the potential

generality of the results in Experiment One by documenting whether experienced users

distinguish among other features—besides maturity as documented in the first experiment—that

potentially differentiate liabilities from equity. Further, we test whether increasing the number of

liability- or equity-like features also increases the judged similarity to the liability or equity

classification. That is, do experienced users consider more than one feature when evaluating a

hybrid instrument?

4.1 Design Overview and Participants

To identify the features that are most commonly associated with the liability versus equity

classification, we reviewed the literature and noted five features whose instantiation commonly

determines whether an instrument is considered more like a liability or more like equity.

Specifically, based on a review of the conceptual framework (FASB 1985), financial accounting

standards and exposure documents (e.g., FASB 2003, 2007), materials and discussions at past

FASB/IASB issues conferences (particularly 2004 and 2006), and the academic and practitioner

literature (e.g., Ryan 2007; Sangiuolo et al. 2010), the five features are:[10]

1. *Maturity*: traditional liabilities have a fixed maturity date; common equity is perpetual.

2. *Priority in liquidation*: traditional liability holders have priority over common
   stockholders in liquidation; common equity holders do not.

3. *Voting rights*: traditional liabilities do not confer voting rights; common equity typically
   does convey such rights.

4. *Settlement in cash or common stock*: traditional liabilities are usually settled in cash;
   although common equity is perpetual, the ability to settle in common stock is sometimes

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[10] While other features are sometimes mentioned as distinguishing liabilities and equity (e.g., transferability, uncertainty about existence, difference in rights under liquidation and non-liquidation), these five were the most frequently mentioned during our review.

considered to make a hybrid instrument more equity-like.

5. *Dependence on profitability*: interest payments on traditional liabilities do not depend on the issuing company generating profits; dividend payments to equity holders must come from retained earnings.

Accordingly, participants in Experiment Two evaluate multiple hybrid instruments that differ with respect to these five primary features. We manipulate each of these five features so that each feature is either representative of traditional equity or is representative of a traditional liability. For example, we manipulate the voting feature so that holders "do not have voting rights" (which is arguably similar to a liability) or "have voting rights" (which is arguably similar to equity).

The experiment utilizes a 2^5 half-fractional factorial design. Half-fractional factorial designs are useful when investigating the effects of a relatively large number of independent variables (Kuehl 2000). In this study, we are interested in the effects of five independent variables that, if fully crossed, would create 32 separate hybrid instruments. If presented between-participants, these 32 instruments would require a participant pool that is larger than we could realistically expect to obtain. In contrast, if presented within-participants, requiring individuals to evaluate all 32 instruments would take a substantial time commitment from our participants that could threaten our response rates. To balance these concerns, we use a half-fractional factorial design, which requires participants to evaluate only 16 of the 32 possible instruments on a within-participants basis. Importantly, we carefully select the 16 instruments so that all main effects and two-way interactions are fully interpretable in what is termed a "Resolution V design."[11, 12]

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[11] In Resolution V designs, the three- and four-factor interactions cannot be independently estimated (see Kuehl 2000 for additional information about fractional factorial designs). However, these higher order interactions are generally negligible (Louviere 1988; Slovic 1969). For an example of a similar design in the accounting literature, see Ashton (1974).

We recruit experienced participants from the same alumni database, and using the same selection criteria, as we used in Experiment One. We mailed the experimental instrument to 100 individuals that did not participate in Experiment One, 56 of whom returned a completed instrument to us. Our participants are similar to those that participated in Experiment One. They have an average of 23 years of work experience, with 45 percent having banking experience and 34 percent having corporate finance experience. Forty-five percent of our participants indicate that they have made lending decisions in the past.

4.2 Case Materials and Dependent Measures

The case materials explain to participants that financial instruments can have features that vary along a liability-equity continuum. As noted above, we ask participants to evaluate instruments that differ with respect to five such features – the presence of a fixed maturity date, priority over common stockholders in liquidation, the presence of voting rights, the form of settlement (cash or common stock), and dependence on profitability for payments to holders. Each of these features can take one of two possible values for each instrument, and Figure 2 provides an example of an instrument that we used in the experiment. A key design feature is that we refer to the hybrid instruments as "Security #1," "Security #2," etc., so that we do not change any other aspect of the instrument, such as the name normally assigned to the instrument.

Participants rate each of the 16 instruments on separate 101-point scales to indicate where the instrument falls along the liability-equity continuum. Scale endpoints of -50 (50) are labeled "exactly like a bond liability" ("exactly like common stock"). The scale midpoint of 0 is labeled "equally like a bond liability and common stock."

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[12] To balance any possible order effects, the 16 instruments appear in one of four separate orders. Order is not a significant variable in any of our analyses, so we do not discuss it further.

Insert Figure 2 about here

4.3 Results

Panel A of Table 2 presents descriptive statistics for each of the 16 instruments. To analyze

the results, we use a repeated-measures ANOVA with hybrid instrument as a repeated factor. As

described above, only the main effects and two-factor interactions are interpretable in our design.

Thus, our model examines the effect of these variables on participants' judgments. As reported in

Table 2, Panel B, we find that each of the five features of the hybrid instrument significantly

affects experienced participants' classification judgments (all $F_{1,55} > 41.44$, all $p < 0.01$). These

results indicate that experienced users do distinguish differences in all five features, including

maturity and the remaining four features that we previously identified as potentially important to

the classification of hybrid instruments.

Additional analysis of the Experiment Two data reveal that three of the ten two-factor

interactions—the priority by settlement ($p = 0.05$), priority by profit ($p = 0.06$), and settlement

by profit ($p = 0.05$) interactions—are at least marginally significant.[13] These interactions,

although statistically significant, seem to have relatively small effect sizes. Taking the settlement

by profit interaction as an example, we find that when settlement is in cash, varying the profit

feature results in a 17-point difference in judgment; when settlement is in common stock,

varying the profit feature results in a 14-point difference in judgment. Thus, the 3-point

difference in the size of these simple main effects, although resulting in a significant interaction

term, is relatively small. The remaining two-factor interactions are non-significant. Based on

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[13] We use an unstructured covariance structure for this analysis. However, using other covariance structures does not change our inferences. For example, results are similar using compound symmetry, another common covariance structure. Under compound symmetry, all of the main effects are significant (all $F_{1,55} > 95.95$, all $p < 0.01$), but none of the two-factor interactions are significant (all $F_{1,55} < 2.30$, all $p > 0.13$).

these results, we conclude that our participants view each of the five features as important to the liability-equity distinction, and that in general, these features have an additive effect on their judgments. That is, each feature contributes independently to their similarity judgments with more liability (or more equity) features increasing the judged similarity to a typical liability (equity) item.

Insert Table 2 about here

Results of Experiment Two therefore suggest the generality of at least one of our main results from Experiment One. Specifically, because experienced participants view multiple features as causing hybrid instruments to be more like liabilities or more like equity, the results related to differences in the maturity of the instrument from Experiment One are likely to hold for other common features of hybrid instruments.

5. DISCUSSION

Standard setters are currently grappling with how to classify hybrid instruments within the financial statements, and prior research (Hopkins 1996) has documented that classification of these instruments affects the judgments of experienced financial statement users. The purpose of our research is to update and extend this research by examining how the classification and underlying features of a hybrid instrument affect the judgments of users with different levels of experience. That is, once the instrument is classified, do users rely solely on the classification or do they differentiate between instruments that have the same classification but different underlying features? Our results show that experienced users of financial reports tend to rely more on the features of a hybrid financial instrument rather than the classification when they render judgments about the creditworthiness of a company. In contrast, inexperienced users tend

rely more on the classification (liability or equity) of the hybrid instrument, although they also appear to consider features when the instrument is classified as equity.

These findings are important to standard setters as they consider how to classify hybrid instruments in the financial statements (FASB 2003, 2007), and as they reconsider the formal definitions of liabilities and equity (FASB 2007). For example, our results suggest the formal definitions of liabilities and equity are arguably more important for inexperienced financial statement users as they tend to rely on those categories when evaluating financial instruments for which they have little experience. In contrast, the classification of hybrid instruments as either liabilities or equity is less critical for experienced users as long as they are able to determine the specific features underlying these instruments. Further, our results are important to regulators concerned with the protection of less experienced users in that they highlight the manner in which inexperienced users' judgments differ from those of experienced users.

Our experiments include a number of design choices that create opportunities for future research. First, we examine the effects of features and classification in the context of hybrid instruments with characteristics of liabilities and equity. However, future research could apply categorization theory in the context of other financial statement classifications, including assets, revenues, and expenses. Such research could investigate, for example, whether users view these categories as relatively broad or narrow, and the relative importance of differences in features for items in these categories.

Second, in both of our experiments, we choose to include only features that the literature suggests are of primary importance to the liability versus equity distinction. However, there are additional features that may play a secondary role in this distinction, such as the transferability of the instrument. Future research could examine how inexperienced and experienced users view

these secondary features, and could examine how the inclusion of these features would affect the results reported in this paper. For example, if users believe that secondary features are as important as the primary features, then these secondary features are likely to affect users' judgments in a manner that is consistent with the results reported above. Alternatively, if users' believe that secondary features are relatively unimportant or irrelevant then including this information, along with the primary features, could have a dilutive effect on users' judgments (e.g. Nisbett, Zukier and Lemley 1981).

Third, in practice, firms may engage in strategic classification shifting (e.g., McVay 2006; Fan et al. 2010). In our context, this might take the form of strategically classifying financial instruments as either liabilities or equity, or structuring an instrument to achieve a desired classification. As such, future research could examine how this type of strategic behavior affects the joint effects of classification and underlying features we document here. In short, there are numerous opportunities for additional research on this important topic.

APPENDIX
EXCERPT FROM EXPERIMENT ONE MATERIALS

Panel A: Press Release Provided to Participants in the 3 Liability & 2 Equity Feature Conditions

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Bransford Announces Financing Plan

By a WALL STREET JOURNAL STAFF REPORTER

SOUTH CREEK, Wis. – In an unexpected announcement, Bransford Sensors, Inc. said it will issue $7.0 million of preference securities.

The new offering will help Bransford, a manufacturer of flow and measurement instruments, expand domestic operations and establish manufacturing and distribution facilities in Canada. Earlier this month, Branford's board of directors announced general expansion plans but did not take a position on the project's financing.

Bransford said it will issue 1.4 million securities for $5 each.

- The securities will be redeemed at a liquidation value of $5 each in 2020.

- Holders of the securities will be entitled to quarterly preferential dividend distributions, over the rights of common shareholders, at a rate of 7.5% per annum.

- If any 7.5% per annum payment is not paid on a timely basis, holders of the securities will still be entitled to receive those payments along with an interest accumulation on the past-due payment.

- In addition to quarterly preferential dividend distributions, holders of the securities will be entitled to additional dividend payments (beyond the 7.5% per annum) to the extent that firm meets certain yearly profit targets.

- Holders of the securities will have the right to vote, along with the common shareholders, at a rate of one-quarter vote per security held.

Bransford's common stock closed yesterday at $38.25, unchanged, in NASDAQ composite trading. The Company made the announcement after the close of yesterday's trading.

Panel B: Press Release Provided to Participants in the 2 Liability & 3 Equity Feature Conditions

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Bransford Announces Financing Plan

By a WALL STREET JOURNAL STAFF REPORTER

SOUTH CREEK, Wis. – In an unexpected announcement, Bransford Sensors, Inc. said it will issue $7.0 million of preference securities.

The new offering will help Bransford, a manufacturer of flow and measurement instruments, expand domestic operations and establish manufacturing and distribution facilities in Canada. Earlier this month, Branford's board of directors announced general expansion plans but did not take a position on the project's financing.

Bransford said it will issue 1.4 million securities for $5 each.

- The securities will have no maturity date and will continue to pay dividends indefinitely.

- Holders of the securities will be entitled to quarterly preferential dividend distributions, over the rights of common shareholders, at a rate of 7.5% per annum.

- If any 7.5% per annum payment is not paid on a timely basis, holders of the securities will still be entitled to receive those payments along with an interest accumulation on the past-due payment.

- In addition to quarterly preferential dividend distributions, holders of the securities will be entitled to additional dividend payments (beyond the 7.5% per annum) to the extent that firm meets certain yearly profit targets.

- Holders of the securities will have the right to vote, along with the common shareholders, at a rate of one-quarter vote per security held.

Bransford's common stock closed yesterday at $38.25, unchanged, in NASDAQ composite trading. The Company made the announcement after the close of yesterday's trading.


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FIGURE 1
Experiment One – Creditworthiness Judgments

Panel A: Vulnerability to Default
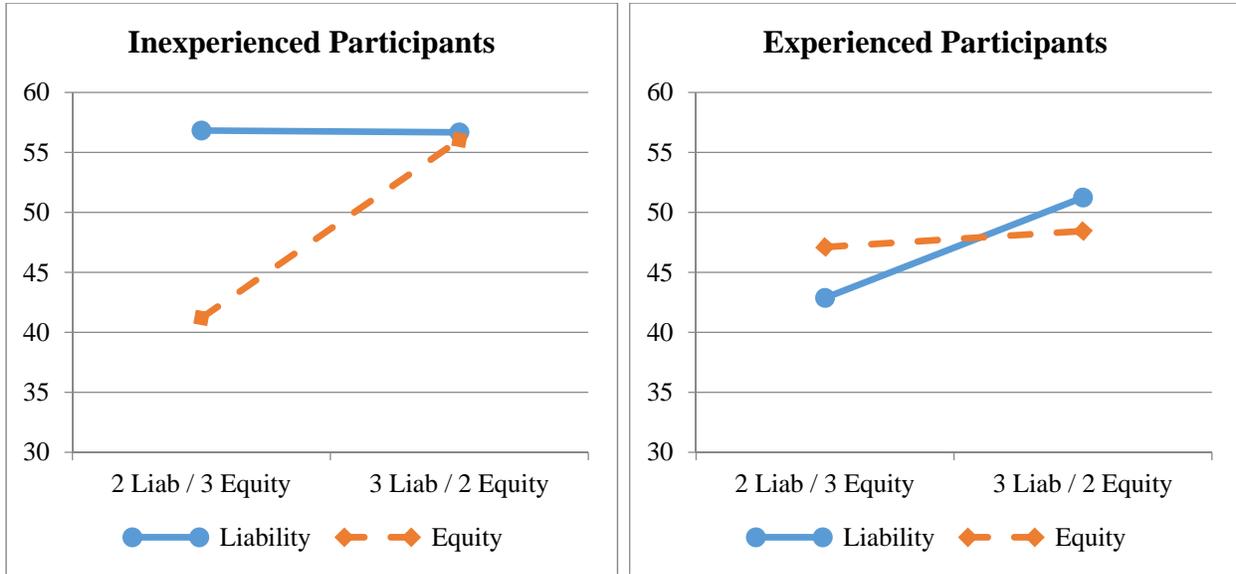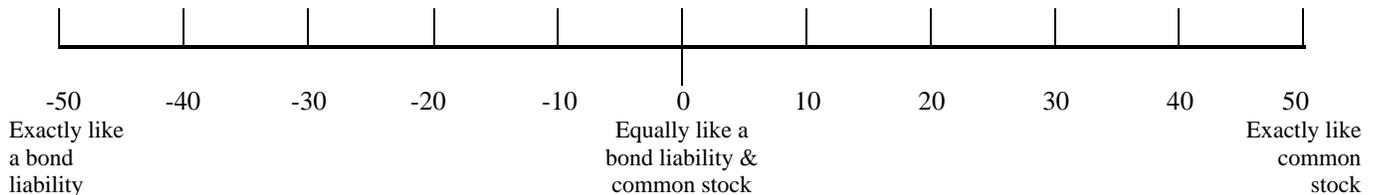

Panel B: Balance Sheet Strength
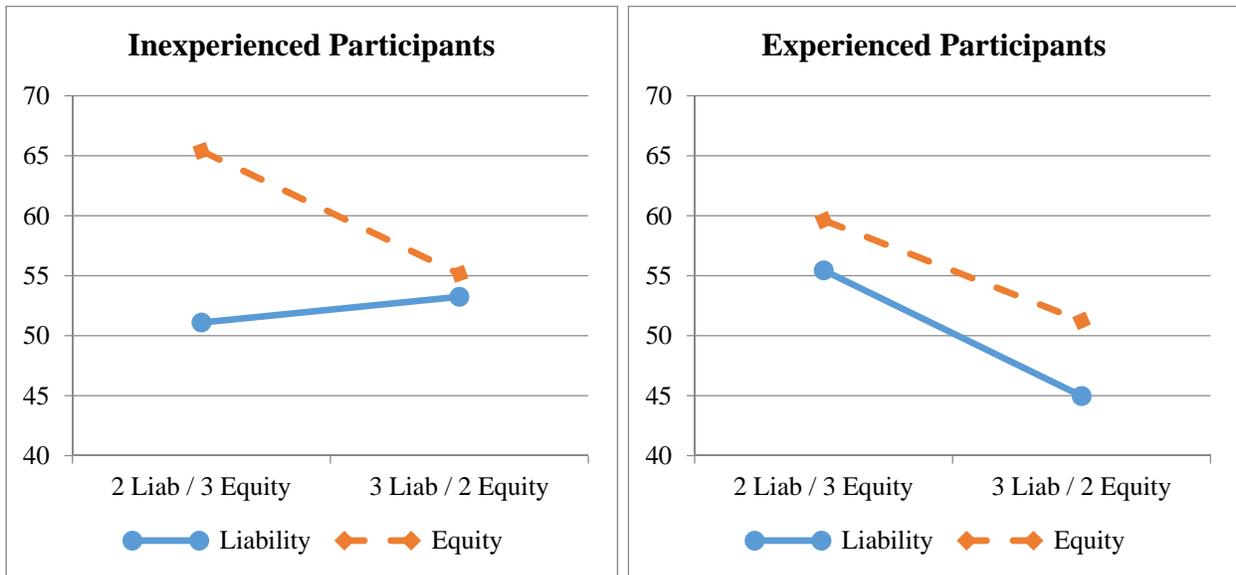
Note: This figure shows the pattern of cell means for two creditworthiness judgments—vulnerability to default (Panel A) and balance sheet strength (Panel B). Descriptive statistics and statistical tests for these measures are presented in Table 1.

FIGURE 2
Example of a Hybrid Instrument Used in Experiment Two

Security # 1

1. The security **does not have a fixed maturity date**.

2. The holders of the security **have priority** over common stockholders in a liquidation.

3. The holders of the security **do not have voting rights**.

4. If repaid, the security will be **settled in cash**.

5. The payments to security holders **do not depend on the firm making profits**.

Where does Security # 1 fall along the liability-equity continuum?

```
|    |    |    |    |    |    |    |    |    |    |
-50  -40  -30  -20  -10   0   10   20   30   40   50
Exactly like              Equally like a              Exactly like
a bond                    bond liability &               common
liability                 common stock                    stock
```

Note: This figure provides an example of one of the 16 instruments that participants evaluated in Experiment Two. The five features for each instrument were either more liability-like or more equity-like as determined by the experimental design.

TABLE 1
Experiment One Results

Panel A: Descriptive Statistics for Vulnerability to Default Measure – Mean (standard deviation)

Features	Inexperienced Participants			Experienced Participants		
	Liability	Equity	Row Means	Liability	Equity	Row Means
2 Liability/3 Equity	56.83 (16.35) n=18	41.21 (14.82) n=19	48.81 (17.28) n=37	42.88 (19.06) n=41	47.12 (17.54) n=41	45.00 (18.32) n=82
3 Liability/2 Equity	56.68 (18.88) n=19	56.05 (21.54) n=19	56.37 (19.98) n=38	51.25 (15.72) n=40	48.45 (17.14) n=40	49.85 (16.40) n=80
Column Means	56.76 (17.45) n=37	48.63 (19.73) n=38		47.01 (17.88) n=81	47.78 (17.25) n=81	

Panel B: Analysis of variance results and follow-up simple main effect tests

Source	df	M.S.	F-Statistic	p-value
Features	1	1905.70	6.13	0.01
Classification	1	702.53	2.26	0.13
Experience	1	1423.29	4.58	0.03
Features × Classification	1	202.29	0.65	0.42
Experience × Classification	1	1003.20	3.23	0.07
Experience × Features	1	79.84	0.26	0.61
Experience × Features × Classification	1	1555.09	5.00	0.03
Error	229	310.88		

Panel C: Follow-up statistical tests by experience level

Source	Inexperienced Participants				Experienced Participants			
	df	M.S.	F-Statistic	p-value	df	M.S.	F-Statistic	p-value
Features	1	1011.40	3.09	0.08	1	952.52	3.14	0.04[a]
Classification	1	1237.78	3.78	0.03[a]	1	23.73	0.07	0.80
Features × Classification	1	1052.88	3.21	0.08	1	502.29	1.66	0.20
Error	71	327.67			158	303.33		

Panel D: Descriptive Statistics for Balance Sheet Strength Measure – Mean (standard deviation)

Features	Inexperienced Participants			Experienced Participants		
	Liability	Equity	Row Means	Liability	Equity	Row Means
2 Liability/3 Equity	51.11 (15.45) n=18	65.42 (11.96) n=19	58.46 (15.39) n=37	55.46 (15.21) n=41	59.63 (16.30) n=41	57.55 (15.80) n=82
3 Liability/2 Equity	53.26 (18.24) n=19	55.16 (15.82) n=19	54.21 (16.87) n=38	44.98 (17.29) n=40	51.25 (16.19) n=40	48.11 (16.94) n=80
Column Means	52.22 (16.74) n=37	60.29 (14.78) n=38		50.28 (17.01) n=81	55.49 (16.69) n=81	

Panel E: Analysis of variance results and follow-up simple main effect tests

Source	df	M.S.	F-Statistic	p-value
Features	1	2331.99	9.07	<0.01
Classification	1	2274.74	8.85	<0.01
Experience	1	595.06	2.31	0.13
Features $\times$ Classification	1	340.50	1.32	0.25
Experience $\times$ Classification	1	106.22	0.41	0.52
Experience $\times$ Features	1	370.91	1.44	0.23
Experience $\times$ Features $\times$ Classification	1	675.19	2.63	0.11
Error	229	257.14		

Panel F: Follow-up statistical tests by experience level

Source	Inexperienced Participants				Experienced Participants			
	df	M.S.	F-Statistic	p-value	df	M.S.	F-Statistic	p-value
Features	1	308.22	1.28	0.26	1	3605.71	13.64	<0.01[a]
Classification	1	1230.22	5.10	0.01[a]	1	1104.60	4.18	0.04
Features $\times$ Classification	1	722.12	2.99	0.09	1	44.83	0.17	0.68
Error	71	241.14			158	264.33		

Note: This table reports the results of Experiment One, which investigates how the features and classification of a newly-issued hybrid financial instrument affects participants' assessments of the company's creditworthiness. We manipulate the features of a hybrid instrument between-participants at two levels, with the five features of the instrument either indicating that the instrument is more equity-like (2 Liability/3 Equity condition) or that the instrument is more liability-like (3 Liability/2 Equity condition). Classification is also manipulated between-

participants at two levels with the hybrid instruments either being classified as a liability or as equity. Participants are either inexperienced or experienced finance professionals. The dependent measure in Panels A, B and C (D, E and F) is judged vulnerability to default (balance sheet strength). Participants judge the company's vulnerability to default on a 101-point scale with endpoints of 0 (100), labeled as "much less vulnerable" ("much more vulnerable"). Participants judge the effect of the issuance on the balance sheet on a 101-point scale with endpoints of 0 (100), labeled as "creates much weaker balance sheet" ("creates much stronger balance sheet"). Panel A (D) reports the descriptive statistics for the vulnerability to default (balance sheet strength) score, while Panels B and C (E and F) report the ANOVA results and the follow-on statistical tests by experience level for these measures. [a] One-tailed equivalent given our directional predictions.

TABLE 2
Experiment Two Results

Panel A: Descriptive statistics

Instrument Number	Maturity	Priority	Voting	Settle	Profit	Mean (std dev.)
1	E	L	L	L	L	-21.18 (23.08)
2	L	E	L	L	L	-14.43 (23.46)
3	L	L	E	L	L	-26.69 (20.77)
4	E	E	E	L	L	13.36 (25.61)
5	L	L	L	E	L	-21.66 (22.99)
6	E	E	L	E	L	14.04 (22.59)
7	E	L	E	E	L	8.21 (21.61)
8	L	E	E	E	L	9.30 (18.07)
9	L	L	L	L	E	-22.89 (20.76)
10	E	E	L	L	E	15.57 (23.07)
11	E	L	E	L	E	14.43 (21.18)
12	L	E	E	L	E	13.34 (19.64)
13	E	L	L	E	E	12.57 (16.81)
14	L	E	L	E	E	7.70 (22.98)
15	L	L	E	E	E	3.85 (23.49)
16	E	E	E	E	E	40.14 (11.85)

Panel B: Analysis of variance results

Source	Num *df* / Den *df*	F-value	Two-tailed p-value
Maturity	1/55	105.03	<0.01
Priority	1/55	120.39	<0.01
Voting	1/55	86.20	<0.01
Settlement	1/55	41.44	<0.01
Profit	1/55	97.05	<0.01
Maturity × Priority	1/55	2.56	0.12
Maturity × Voting	1/55	0.18	0.67
Maturity × Settlement	1/55	0.09	0.77
Maturity × Profit	1/55	2.35	0.13
Priority × Voting	1/55	0.00	1.00
Priority × Settlement	1/55	3.87	0.05
Priority × Profit	1/55	3.80	0.06
Voting × Settlement	1/55	0.95	0.33
Voting × Profit	1/55	2.48	0.12
Settlement × Profit	1/55	4.18	0.05

Note: This table reports the results of Experiment Two, which examines how the specific features of hybrid instruments affect experienced users' judgments of the instruments' similarity to traditional liabilities or traditional equity. Participants in Experiment Two evaluate 16 hybrid instruments that differ with respect to five separate features. For each instrument, participants indicate on a 101-point scale whether the instrument is more like a liability or more like equity. Scale endpoints of -50 (50) are labeled "exactly like a bond liability" ("exactly like common stock"). Panel A presents the descriptive statistics and Panel B reported the results of a repeated measures ANOVA.