Do Investors View Paid-In Capital as Liabilities or Equity? A Test of the "Earned Capital Approach"

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ABSTRACT

In contrast to current financial reporting standards, the "Earned Capital Approach" proposes classifying capital acquired from common shareholders ("paid-in capital") as liabilities rather than equity. We evaluate this proposed classification by examining whether equity investors distinguish between paid-in-capital and earned capital and view paid-in capital as liabilities, consistent with the Earned Capital Approach, or as equity, consistent with current financial reporting standards. We find that a firm's common shareholder risk increases as paid-in capital displaces earned capital in its capital structure, consistent with the theorized change in common shareholder risk as liabilities displace equity. Collectively, our evidence suggests that investors distinguish between paid-in capital and earned capital and view paid-in capital as liabilities. Our study therefore provides some support for the proposed liability-equity classification scheme under the Earned Capital Approach.

I. INTRODUCTION

The accounting profession has been mired in a longstanding debate over how to properly distinguish liabilities from equity for financial reporting purposes.[1] In a recent paper, Hill, Price, and Ruch (2021) offer a new approach (the "Earned Capital Approach") that classifies external capital (i.e., capital acquired by issuing claims) as liabilities and classifies earned capital (i.e., capital acquired by selling goods and services) as equity. However, the Earned Capital Approach diverges from current financial reporting standards in that it classifies external capital acquired from common shareholders (hereafter "paid-in capital") as liabilities rather than equity. In this study, we explore this controversial classification of paid-in capital by examining whether equity investors view paid-in capital as liabilities or equity.

[1] See Barth, Hodder, and Stubben (2013), Botosan, Koonce, Ryan, Stone, and Wahlen (2005), Cade, Koonce, and Mendoza (2019), Fargher, Sidhu, Tarca, and van Zyl (2019), Hopkins et al. (2009), Peasnell (2013), Ryan et al. (2001) and Wahlen et al. (1999).

Finance theory predicts that the risk to a firm's common shareholders ("common shareholder risk") increases as liabilities displace equity in its capital structure (e.g., Modigliani and Miller 1958; Hamada 1972, 1969; Rubinstein 1973; Bowman 1979; Christie 1982; Hong and Sarkar 2007; Barth et al. 2013). Because earned capital is classified as equity under both current financial reporting standards and the Earned Capital Approach, we use earned capital as the benchmark for equity classification. That is, we evaluate whether investors view paid-in capital as liabilities or equity by observing how common shareholder risk changes as paid-in capital displaces earned capital in the capital structure. We conclude that investors view paid-in capital as liabilities (equity) if common shareholder risk increases (decreases or does not change) as paid-in capital displaces earned capital.[2]

We analyze a sample of firms incorporated in the United States and listed on the NYSE, AMEX, and Nasdaq stock exchanges covering fiscal years 1971-2022. To test whether investors view paid-in capital as liabilities or equity, we regress changes in stock return volatility, our proxy for common shareholder risk, on changes in the ratios of debt to total assets and paid-in capital to total assets. Including the ratio of debt to total assets in the regression allows us to observe how common shareholder risk changes as paid-in capital displaces earned capital within a firm's capital structure. We find that changes in common shareholder risk are positively associated with changes in the ratio of paid-in capital to total assets, suggesting that common shareholder risk increases as paid-in capital displaces earned capital within a firm's capital structure.

As an additional test, we compare an alternative measure of financial leverage in which paid-in capital is classified as liabilities (i.e., an external capital-to-assets ratio) with a traditional

[2] Common shareholder risk is often referred to as "equity risk" in accounting and finance research (e.g., Barth et al. 2013). We avoid using the term "equity risk" in this paper so as not to confuse the term "equity" with the financial reporting classification with which this paper is concerned.

measure of financial leverage in which paid-in capital is classified as equity (i.e., a debt-to-assets ratio). While we find that changes in common shareholder risk are positively associated with changes in both financial leverage measures, we find that changes in common shareholder risk are more strongly associated with changes in the external capital-to-assets ratio than with the traditional debt-to-assets ratio. In other words, classifying paid-in capital as liabilities produces a measure of financial leverage that is more informative about common shareholder risk than does classifying paid-in capital as equity.

Overall, our findings suggest that investors view paid-in capital as liabilities rather than equity. In other words, the proposed classification of paid-in capital as liabilities under the Earned Capital Approach is consistent with how investors view paid-in capital. One possible concern about this conclusion is that it may seem counterintuitive for investors (i.e., common shareholders) to view their own claims as liabilities. However, consider that creditors, as a class of claimants, seemingly view their own claims as liabilities because, all else equal, credit risk increases with the amount of debt in a firm's capital structure. Therefore, it is plausible that classes of claimants, including common shareholders, could view their own claims as liabilities.

Our study has implications for financial statement users, academic researchers, and standard setters. For financial statement users, our findings suggest that drawing a distinction between paid-in capital and earned capital is informative about common shareholder risk, and in turn, raise the question of whether this distinction is underemphasized on the financial statements by virtue of the shared equity classification. When assessing common shareholder risk, financial statement users should consider the mix of external capital and earned capital in addition to the mix of creditor claims and shareholder claims.

For academic researchers, our study adds to a stream of research that provides evidence of an economic distinction between the paid-in capital and earned capital components of equity, which includes the "pecking order theory" in corporate finance (e.g., Myers 1984; Myers and Majluf 1984; Shyam-Sunder and Myers 1999), bankruptcy and credit risk (Altman 1968; Das, Hanouna, and Sarin 2009), propensity to pay cash dividends (H. DeAngelo, L. DeAngelo, and Stulz 2006), and future stock returns as predicted by the "book-to-market effect" (Ball, Gerakos, Linnainmaa, and Nikolaev 2020). Similarly, we provide evidence of an association between a firm's paid-in capital/earned capital mix and its common shareholder risk.

For standard setters, our findings challenge the near universally accepted premise underlying liability-equity classification debates that common stock claims are equity. Therefore, standard setters may want to reconsider whether common stock is an appropriate benchmark claim for equity classification when assessing the classification of hybrid securities that possess characteristics of both debt and common stock. However, we caution against drawing sweeping liability-equity classification inferences from our findings. A financial claim's relation with common shareholder risk is but one factor to consider in assessing its liability-equity classification.

This study proceeds as follows. In Section II, we discuss the motivation for our study. In Section III, we describe the design of our empirical tests. In Section IV, we provide details on the sample data and discuss the results of our empirical tests. In Section V, we report the results of additional analysis. In Section VI, we offer concluding remarks.

II. MOTIVATION

Hill et al. (2021) propose an alternative approach to distinguishing liabilities from equity, which they refer to as the "Earned Capital Approach." The distinction between liabilities and

equity under the Earned Capital Approach reflects a fundamental distinction between two sources of capital: (1) capital acquired from the issuance of claims on the firm's assets ("external capital") and (2) capital acquired from selling goods and services ("earned capital"). Specifically, external capital is classified as liabilities, whereas earned capital is classified as equity.[3]

To illustrate the balance sheet effects of the Earned Capital Approach, we can divide the "right-hand side" of the balance sheet into three components: (1) debt and operating liabilities (*DEBT*), (2) paid-in capital (*PIC*), and (3) earned capital (*EC*). *DEBT* includes all claims classified as liabilities under current financial reporting standards, *PIC* is the sum of the sum of common stock and additional paid-in capital less treasury stock,[4] and *EC* is the sum of retained earnings and accumulated other comprehensive income. Under current financial reporting standards, liabilities equal *DEBT*, whereas equity equals the sum of *PIC* and *EC*. Under the Earned Capital Approach, however, liabilities equal the sum of *DEBT* and *PIC* (i.e., external capital), whereas equity equals *EC*.

The liability-equity classification of paid-in capital is the primary classification difference between current financial reporting standards and the Earned Capital Approach. Therefore, to examine whether the Earned Capital Approach, relative to current financial reporting standards, more accurately reflects the way in which investors distinguish liabilities from equity, we focus our empirical analysis on how investors view paid-in capital. That is, do investors view paid-in capital as liabilities or equity?

[3] The Earned Capital Approach is rooted in the "entity concept," which asserts that the firm is an entity separate and distinct from its claimants, including its shareholders. In contrast, the approach of distinguishing creditors from owners is rooted in the "proprietary concept," which asserts that the firm is an extension of its owners. For further discussion of the entity and proprietary concepts, see Bird (1974), Clark (1993), Husband (1954), Li (1960), Lorig (1964), Meyer (1973), Paton (1922), Paton and Littleton (1940), Raby (1959), Seidman (1956), Sprouse (1957), Suojanen (1954), and van Mourik (2010).

[4] This treatment of treasury stock as a contra-paid-in capital account is consistent with prior studies that examine the distinction between earned capital and paid-in capital (e.g., Ball et al. 2020; DeAngelo et al. 2006).

Barth et al. (2013) suggest that one can determine whether investors view a financial claim as liabilities or equity by observing its association with common shareholder risk. They note that finance theory on capital structure predicts a positive relation between a firm's common shareholder risk and the extent to which its capital structure is comprised of liabilities (e.g., Modigliani and Miller 1958; Hamada 1972, 1969; Rubinstein 1973; Bowman 1979; Christie 1982; Hong and Sarkar 2007). Consequently, to determine whether investors view paid-in capital as liabilities or equity, we observe how a firm's common shareholder risk changes with the extent to which its capital structure is comprised of paid-in capital.

While our approach of examining the liability-equity classification of paid-in capital is similar to that of Barth et al. (2013), our focus on paid-in capital rather than employee stock options or some other hybrid claim necessitates a key difference. Specifically, Barth et al. (2013) adopt the premise that common stock is appropriately classified as equity because "there is no controversy about classifying common [stock] as equity" (p. 655). However, our focus on the liability-equity classification of paid-in capital precludes us from assuming that common stock is appropriately classified as equity. Therefore, we adopt an alternative premise in which we assume that *earned capital* is appropriately classified as equity. In our view, this assumption is reasonable because both the Earned Capital Approach and current financial reporting standards classify earned capital as equity. As a result, we use earned capital as the benchmark for equity classification. That is, we assess whether investors view paid-in capital as liabilities or equity by observing how common shareholder risk changes as paid-in capital displaces earned capital in the firm's capital structure.

We consider two alternative predictions for how common shareholder risk changes as paid-in capital displaces earned capital. First, if investors view paid-in capital as liabilities, we expect

to observe an increase in common shareholder risk as paid-in capital displaces earned capital in the firm's capital structure (i.e., liabilities displacing equity). This prediction is rooted in the observation that paid-in capital is a form of external capital. In general, the mix of external capital and earned capital in a firm's capital structure reflects the value of the outstanding claims on the firm's assets relative to the value of the resources the firm has on hand to meet the expectations underlying those claims. A claim (e.g., a bond or a share of stock) on the firm's assets represents the claimant's (e.g., the bondholder or the shareholder) expectation of future cash flows. In order to sustainably deliver these expected future cash flows to its claimants, the firm must earn resources from selling goods and services to its customers (i.e., accumulate earned capital). Said another way, the firm cannot sustainably deliver these expected future cash flows by simply issuing more claims on its assets (i.e., accumulating external capital).

Consequently, as the proportional amount of external capital in the firm's capital structure *increases*, the proportional amount of resources it has on hand to deliver the expected future cash flows to its claimants *decreases*. All else equal, the fewer resources a firm has on hand to deliver the expected future cash flows to its claimants, the lower the likelihood that it will be able to deliver those expected future cash flows. From a common shareholder's perspective, a lower likelihood that the firm will be able to deliver the expected future cash flows to its claimants translates to a higher risk of holding a share of the firm's common stock, or in other words, higher common shareholder risk.[5]

[5] Prior research in corporate finance generally supports the notion that there exists an economic distinction between external capital and earned capital. First, the "pecking order theory" in corporate finance (Myers 1984; Myers and Majluf 1984; Shyam-Sunder and Myers 1999) asserts that firms prefer to finance projects with "internal financing" (i.e., earned capital) over "external financing" (i.e., debt and paid-in capital). Additionally, among external financing options, the pecking order theory asserts that firms prefer financing with debt capital to financing with paid-in capital. That is, the pecking order theory asserts that earned capital and paid-in capital lie on opposite ends of firms' financing preferences, suggesting a considerable economic distinction between the two. Second, DeAngelo et al. (2006) find that a firm's decision to pay dividends is positively associated with the extent to which its stockholders' equity is comprised of earned capital as opposed to paid-in capital. Third, Altman (1968) finds that the ratio of retained earnings

Second, if investors view paid-in capital as equity, we expect to observe no change in common shareholder risk as paid-in capital displaces earned capital (i.e., equity displacing equity). This prediction is rooted in the possibility that, although paid-in capital is a form of external capital, its underlying expectations of future cash flows do not impose enough of a burden on the firm to impair its ability to deliver the expected future cash flows to its claimants. To illustrate this point, consider, for example, that the expected future cash flows underlying bondholder claims are fundamentally distinct from those underlying shareholder claims. Bondholder claims have a high degree of specificity with respect to the timing and amount of the expected future cash flows, whereas shareholder claims have almost no such specificity. As a result, the firm has considerably more flexibility in delivering the expected future cash flows to its shareholders than it does in delivering the expected future cash flows to its bondholders. One possible effect of this flexibility is that shareholders might view a firm's paid-in capital as substantially similar to its earned capital in terms of the likelihood that it will be able to deliver the expected future cash flows to its claimants. That is, shareholders might be indifferent to the mix of paid-in capital and earned capital in the firm's capital structure.[6]

The purpose of our empirical analysis is to determine which of these two predictions more accurately reflects the way in which investors view paid-in capital. Evidence consistent with the first prediction suggests that investors view paid-in capital as liabilities and is therefore consistent with the Earned Capital Approach. In contrast, evidence consistent with the second prediction

to total assets is negatively associated with the likelihood of bankruptcy, and Das et al. (2009) find that the Altman (1968) bankruptcy prediction variables are similarly associated with credit default swap spreads, including the ratio of retained earnings to total assets. Finally, Ball et al. (2020) find that earned capital, but not paid-in capital, explains the "book-to-market effect" observed in the cross-section of stock returns (e.g., Fama and French 1993). That is, the higher returns observed for high book-to-market firms relative to low book-to-market firms are explained by the extent to which a firm's book value of equity is comprised of earned capital rather than paid-in capital.

[6] A decrease in common shareholder risk as paid-in capital displaces earned capital is also consistent with equity classification. However, this would suggest that paid-in capital is less risky than earned capital to common shareholders, which we do not view as a plausible finding.

suggests that investors view paid-in capital as equity and is therefore consistent with current financial reporting standards.

III. METHODOLOGY

We measure common shareholder risk as the annualized standard deviation of a firm's daily stock returns during the period from the beginning of the fourth month of the fiscal year to the end of the third month of the subsequent fiscal year.[7, 8] We first test the prediction in finance theory that a firm's common shareholder risk increases as claims classified as liabilities under current financial reporting standards (i.e., debt and operating liabilities) displace what is classified as equity under current reporting standards (i.e., paid-in capital and earned capital) in its capital structure by regressing *changes* is common shareholder risk on *changes* in the ratio of debt and operating liabilities to total assets:

$$\Delta RISK_t = \alpha_0 + \alpha_1 \Delta DEBT\%_t + \Sigma \alpha_k \Delta Controls_t + \varepsilon \quad (1)$$

To test how a firm's common shareholder risk changes as paid-in capital displaces earned capital, we add a variable for *changes* in paid-in capital ratio variable (*PIC%*) to the regression model in Equation (1):

$$\Delta RISK_t = \beta_0 + \beta_1 \Delta DEBT\%_t + \beta_2 \Delta PIC\%_t + \Sigma \beta_k \Delta Controls_t + \varepsilon \quad (2)$$

Δ is the change operator and represents the difference between each variable's value for year *t* and its value for year *t-1*. *RISK* is the annualized standard deviation of daily stock returns

[7] Our inferences are unchanged if we use the annualized standard deviation of *monthly* stock returns as our measure of common shareholder risk.

[8] Finance theory identifies two types of common shareholder risk: (1) variability that occurs systematically with variability in the market returns ("systematic risk") and variability that occurs independent of variability in market returns ("idiosyncratic risk"). Our theoretical predictions extend to both systematic risk and idiosyncratic risk. Therefore, we present results for total common shareholder risk. In Section V, we present an analysis of alternative measures of common shareholder risk that include measures of systematic risk and idiosyncratic risk. Our inferences are consistent across measures of both systematic risk and idiosyncratic risk.

for year *t*, our proxy for common shareholder risk. *DEBT%* is the ratio of debt and operating liabilities to total assets at the end of year *t*. *PIC%* in Equation (2) is the ratio of paid-in capital to total assets at the end of year *t*.[9] Therefore, Δ*RISK*, Δ*DEBT%*, and Δ*PIC%* are the changes in *RISK*, *DEBT%*, and *PIC%*, respectively, for year *t*.[10]

Consistent with prior research, we predict that estimates of the α_1 coefficient in Equation (1) and the β_1 coefficient in Equation (2) will be positive and significant. If investors view paid-in capital as liabilities, we predict that the estimate of the β_2 coefficient in Equation (2) will be positive and significant. This would suggest that investors view financing with paid-in capital as riskier than financing with earned capital. Conversely, if investors view paid-in capital as equity, we predict that the estimate of the β_2 coefficient in Equation (2) will not be significantly different from zero. This would suggest that investors view financing with paid-in capital as no riskier than financing with earned capital. In other words, investors are indifferent as to whether a firm's capital structure is comprised of paid-in capital or earned capital.[11]

Controls in Equation (1) and (2) represent an array of control variables that prior research has found to be correlated with common shareholder risk. Following Ashbaugh-Skaife, Collins,

[9] Debt and operating liabilities are defined as the sum of total liabilities and redeemable non-controlling interest. Paid-in capital is defined as the sum of common stock, additional paid-in capital, and non-redeemable non-controlling interest less treasury stock. The paid-in capital variable is based on amounts reported on the balance sheet. However, it is important to note that reported amounts for paid-in capital may be distorted by stock repurchases in which the shares are held in treasury stock and stock dividends. Specifically, treasury stock causes reported paid-in capital to understate net capital invested by shareholders because distributions of income made *via* stock repurchases are charged to treasury stock instead of earned capital. Conversely, stock dividends cause reported paid-in capital to overstate net capital invested by shareholders because firms increase paid-in capital when firms record stock dividends even though no new investment has been received from shareholders. Our results are robust to using a paid-in capital variable adjusted for the cumulative effects of treasury stock and stock dividends.

[10] An alternative approach is to estimate the regression with levels variables and firm fixed effects. Our inferences are consistent using this approach (results available upon request).

[11] Because our tests focus on the mix of paid-in capital and earned capital, some may question why we do not include a variable for earned capital in Equation (2). Based on our variable definitions, the ratios of liabilities, paid-in capital, and earned capital to total assets sum to one; therefore, we must exclude the earned capital variable, which can be inferred once we know the ratios of liabilities to total assets and paid-in capital to total assets. That is, the earned capital ratio is a linear combination of the liabilities and paid-in capital ratios. Consequently, while Equation (2) is informative as to the common shareholder risk effect of displacing earned capital with paid-in capital, it is equivalently informative as to the common shareholder risk effect of the opposite: displacing paid-in capital with earned capital.

Kinney, and LaFond (2009) and Rajgopal and Venkatachalam (2011), we include control variables for firm size, operating performance, volatility of operations, the book-to-market ratio, stock return performance, and dividends. We measure firm size as the natural log of its market value of equity (*SIZE*), operating performance as the firm's return on assets for year *t* (*ROA*), volatility of operations as the 5-year standard deviation of *ROA* over the years *t* through *t-4* (*σROA*), the book-to-market ratio as the ratio of the firm's reported book value of equity to its market value of equity at the end of year *t* (*BTM*), stock return performance as the firm's annual buy-and-hold stock return for year *t* (*RET*), and dividends as an indicator variable equal to one if the firm declares dividends in year *t*, zero otherwise (*DIV*). Following Bartram, Brown, and Stulz (2019), we include a control variable for the firm's level of investment (*INV*), which is measured as the ratio of research and development and capital expenditures during year *t* to total assets at the end of year *t-1*. As indicated by the change operator (i.e., Δ*Controls*), all control variables are included in Equation (1) and (2) as the difference between the year *t* and year *t-1* values (e.g., Δ*SIZE*, Δ*BTM*).

We expect that larger, more profitable, and dividend-paying firms have lower common shareholder risk, all else equal. Therefore, we expect Δ*SIZE*, Δ*ROA*, and Δ*DIV* to be negatively associated with Δ*RISK*. We expect firms with more volatile operations and higher levels of investment to have higher common shareholder risk than do firms with less volatile operations and lower levels of investment. Accordingly, we expect Δ*σROA* and Δ*INV* to be positively associated with Δ*RISK*. Duffee (1995) finds that contemporaneous annual returns are positively associated with stock return volatility. Therefore, we expect Δ*RET* to be positively associated with Δ*RISK*. Following Ashbaugh-Skaife et al. (2009), we make no prediction on the association between Δ*BTM* and Δ*RISK*.

Finally, we compare a traditional measure of financial leverage in which paid-in capital is classified as equity with an alternative measure of financial leverage in which paid-in capital is classified as liabilities. On the one hand, an increase in common shareholder risk as paid-in capital displaces earned capital suggests that the traditional measure of leverage in which paid-in capital is classified as equity blurs the distinction between external capital and earned capital. On the other hand, an alternative measure of leverage in which paid-in capital is classified as liabilities blurs the distinction between creditor claims and shareholder claims. Thus, our comparison of leverage measures serves as a test of which distinction is more informative to investors in assessing common shareholder risk.

We modify Equation (2) by replacing the $\Delta DEBT\%$ and $\Delta PIC\%$ variables with leverage variables:

$$\Delta RISK_t = \gamma_0 + \gamma_1 \Delta LEV_t + \Sigma \gamma_k \Delta Controls_t + \varepsilon \quad (3)$$

We estimate Equation (3) once when *LEV* is the ratio of debt and operating liabilities to total assets (i.e., *DEBT%*) and once when *LEV* is the ratio of external capital to total assets (i.e., *EXT% = DEBT% + PIC%*). All other variables in Equation (3) are as previously defined in Equation (2). To determine which measure is more strongly associated with common shareholder risk, we compare the estimated γ_1 coefficient from Equation (3) when *LEV* is *DEBT%* with that when *LEV* is *EXT%*.

IV. RESULTS

Sample data and descriptive statistics

Our main sample consists of firms incorporated in the United States and listed on the NYSE, Nasdaq, and AMEX stock exchanges over fiscal years 1971-2023 with the data necessary

to calculate the regression variables defined in Equations (1), (2), and (3). We obtain financial statement data from Compustat and stock return data from CRSP. We exclude firm-year observations in which book value of equity is negative, additional paid-in capital is negative, the sum of common stock and additional paid-in capital is negative or greater than total assets, retained earnings is greater than total assets, there are outstanding preferred stock issuances,[12] book value of total assets less than $1 million, fiscal year-end closing stock price less than $1 per share, and firms in the financial services and utilities industries. Additionally, we exclude observations with values for continuous firm-specific regression variables greater than (less than) the 99th (1st) percentile. To calculate our stock return volatility variable, we require that firms have available returns data for each trading day of the annual return period. These restrictions yield a sample consisting of 78,015 firm-year observations for 8,442 different firms.

Table 1 presents descriptive statistics for the three balance sheet variables defined in Section II (*DEBT*, *PIC*, and *EC*) and the resulting liability-equity definitions under current financial reporting standards and the Earned Capital Approach. Statistics are presented as a percentage of total assets. Debt and operating liabilities represent a plurality of the mean capital structure in our sample (48.5% of total assets). Paid-in capital and earned capital constitute 23.4% and 28.1% of the mean capital structure in our sample, respectively. Combining the balance sheet items based on liability-equity classifications under current financial reporting standards yields a mean liability-equity mix of 48.5% to 51.5%. In contrast, combining the balance sheet items based on the liability-equity classifications under the Earned Capital Approach yields a liability-equity mix of 71.9% to 28.1%.

[12] We exclude firms with outstanding preferred stock issuances to ensure that we can attribute our results to paid-in capital from common shareholders. This eliminates the possibility that we observe a positive relation between common shareholder risk and paid-in capital that is attributable to debt-like characteristics of some preferred stock issuances.

Table 2 presents descriptive statistics (Panel A) and pairwise correlations (Panel B) for the regression variables in Equations (1), (2), and 3. In Panel A, we note that the mean (median) change in the debt and operating liabilities ratio is 0.4% (-0.1%) of total assets and the mean (median) change in the paid-in capital ratio is -1.1% (-0.6%) of total assets. In Panel B, we note that $\Delta DEBT\%$, $\Delta EXT\%$, ΔBTM, and $\Delta \sigma ROA$ are positively correlated with $\Delta RISK$, whereas $\Delta SIZE$, ΔROA, and ΔRET are negatively correlated with $\Delta RISK$. We note that $\Delta PIC\%$ is weakly correlated with $\Delta RISK$.

Regression results

Turning to the test of whether investors view paid-in capital as liabilities or equity, Table 3 displays the results from the estimation of the regression models from Equations (1) and (2). All *t*-statistics reported in this study are calculated using standard errors clustered by firm and year (Gow, Ormazabal, and Taylor 2010). As predicted and consistent with prior research, the coefficient on $\Delta DEBT\%$ is positive and significant in Equation (1) (*t*-statistic = 6.29). This suggests that common shareholder risk increases as debt and operating liabilities displace paid-in capital and earned capital in the capital structure (*t*-statistic = 6.29), or in other words, as liabilities displace equity as defined under current financial reporting standards. Similarly, the coefficient on $\Delta DEBT\%$ is positive and significant in Equation (2), which suggests that common shareholder risk increases as debt and operating liabilities displace *earned capital* in the capital structure (*t*-statistic = 9.28).

As to whether investors view paid-in capital as liabilities or equity, the coefficient on $\Delta PIC\%$ is positive and significant (*t*-statistic = 7.93). The observed coefficient on the paid-in capital variable suggests that common shareholder risk increases as paid-in capital displaces

earned capital within a firm's capital structure, which is consistent with investors viewing paid-in capital as liabilities rather than equity.

We note two additional findings from the results in Table 3 that are consistent with investors viewing paid-in capital as liabilities. First, the coefficient on Δ*DEBT%* is larger in the estimate of Equation (2) than in the estimate of Equation (1), which suggests that changes in debt and operating liabilities have a larger effect on common shareholder risk when they displace earned capital than when they displace an ambiguous mix of paid-in capital and earned capital (i.e., equity as defined under current financial reporting standards). Second, the coefficient on Δ*DEBT%* is not significantly different from the coefficient on Δ*PIC%* in either of the estimates of Equation (2), which suggests that debt and paid-in capital have similar effects on common shareholder risk when they displace earned capital. Accordingly, we conclude from the results presented in Table 3 that investors view paid-in capital as liabilities rather than equity, consistent with the proposed classification under the Earned Capital Approach.

Next, we compare alternative measures of financial leverage. Table 4 presents the results from the estimates of the regression model in Equation (3). We find that the estimated coefficients on both changes in the traditional measure of leverage (i.e., Δ*DEBT%*) and changes in the external capital measure of leverage (i.e., Δ*EXT%*) are positive and significant (*t*-statistics = 6.29 and 9.47, respectively). This suggests that both the distinction between a firm's creditor claims and its shareholder claims and the distinction between its external capital and earned capital are informative in assessing a firm's common shareholder risk.

In comparing the two coefficients, we find that changes in common shareholder risk are more strongly associated with changes in the external capital measure of leverage (coefficient = 0.169) than with changes in the traditional measure of leverage (coefficient = 0.090; difference *t*-

statistic = -4.95). This result is consistent with investors viewing paid-in capital as liabilities because it suggests that classifying paid-in capital as liabilities produces a measure of financial leverage that is more informative about common shareholder risk than does classifying paid-in capital as equity.

V. ADDITIONAL ANALYSIS

Alternative measures of common shareholder risk

To ensure that our results are not sensitive to our choice of common shareholder risk measure, we estimate Equation (2) with alternative common shareholder risk measures as response variables. We estimate two alternative measures derived from the four-factor model based on the Fama and French (1993) three-factor model plus the momentum factor from Carhart (1997) (the "four-factor model"):[13]

$$(R_{i,d} - R_{rf,d}) = \alpha + \beta_1(R_{m,d} - R_{rf,d}) + \beta_2 SMB_d + \beta_3 HML_d + \beta_4 MOM_d + \varepsilon \qquad (4)$$

$R_{i,d}$ is the stock return for firm i on day d, $R_{rf,d}$ is the risk-free rate of return on day d, $R_{m,d}$ is the market return on day d, SMB_d is the size factor, HML_d is the book-to-market factor, and MOM_d is the momentum factor.[14] We estimate Equation (4) for each firm-year observation over the period beginning on the first day of the fourth month of the firm's fiscal year t and ending on the last day of the third month of the firm's fiscal year $t+1$. Our alternative measures of common shareholder risk from Equation (4) are the annualized standard deviation of the residuals ($RISK^{ID}$), a measure of idiosyncratic risk, and the estimated β_1 coefficient ($RISK^{BETA}$), a measure of

[13] We obtain identical inferences if we derive the alternative measures from the Capital Asset Pricing Model regression:

$$(R_{i,d} - R_{rf,d}) = \alpha + \beta(R_{m,d} - R_{rf,d}) + \varepsilon$$

[14] We obtain data to construct the R_{rfd}, R_{md}, SMB, HML, and MOM variables from Kenneth French's website (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/index.html).

systematic risk. As predicted associations do not distinguish between systematic risk and idiosyncratic risk, we expect that changes in both the idiosyncratic and systematic risk measures (i.e., $\Delta RISK^{ID}$ and $\Delta RISK^{BETA}$) will be positively associated with changes in the paid-in capital ratio.

Table 5 presents the results of our estimates of Equation (2) with each of the alternative measures of common shareholder risk in place of our primary measure of common shareholder risk. The sample observations used to estimate Equation (2) with the alternative measures of common shareholder risk include firm-year observations that meet the criteria for inclusion in our main sample and firm-year observations with sufficient data to estimate Equation (4). This yields a sample of 76,850 firm-year observations. The results presented in Table 5 are consistent with those using our primary measure of common shareholder risk. The coefficient on $\Delta PIC\%$ is positive and significant for both alternative measures ($RISK^{ID}$ *t*-statistic = 9.35; $RISK^{BETA}$ *t*-statistic = 2.15). However, we note that the explanatory power of the model with $RISK^{BETA}$ as the dependent variable is considerably lower (Adjusted R^2 = 1.3%) than the model with $RISK^{ID}$ as the dependent variable (Adjusted R^2 = 26.8%). This suggests that our main results are primarily attributable to idiosyncratic risk.

Growth opportunities as an alternative explanation

We examine the possibility that the association between common shareholder risk and the mix of paid-in capital and earned capital is not a reflection of whether investors view paid-in capital as liabilities or equity, but rather a reflection of the relation between common shareholder risk and the extent to which a firm's market value is comprised of growth opportunities as opposed to assets in place (e.g., Myers 1977). For example, DeAngelo et al. (2006) assert that the paid-in

capital/earned capital mix is a proxy for the life-cycle stage at which it currently operates. That is, younger firms, presumably with more growth opportunities, are more reliant on external capital than are mature firms, presumably with fewer growth opportunities, and therefore, likely have more paid-in capital in their capital structures than do mature firms.

Pertinent to our study, however, is the fact that younger firms with more growth opportunities are presumably likely to have higher common shareholder risk than more mature firms with fewer growth opportunities. Consequently, the positive association between common shareholder risk and the paid-in capital/earned capital mix could simply reflect the fact that high paid-in capital firms tend to be younger firms with more growth opportunities that are inherently riskier. We address this concern in our research design by including control variables in our regression models that proxy for growth opportunities (e.g., size, book-to-market, profitability) and by estimating the regressions with changes variables. Nevertheless, we acknowledge that concerns may persist about the effect of growth opportunities on our results.

To investigate this alternative explanation further, we test whether the increase in common shareholder risk as paid-in capital displaces earned capital is observable across firms with different levels of growth opportunities. The conclusion that investors view paid-in capital as liabilities is supported if we continue to observe this result across different levels of growth opportunities. We consider four firm characteristics that proxy for growth opportunities: (1) profitability, (2) dividends, (3) the book-to-market ratio, and (4) firm age. For each characteristic, we split our sample into five partitions and estimate the regression model in Equation (2) across each partition.

We measure profitability as comprehensive income deflated by total assets. We partition the sample into profit and loss firms and partition the profit firms into quartiles of profitability where firms in the fourth (first) quartile are the most (least) profitable. We measure dividends as

the sum of traditional cash dividends and stock repurchase dividends (i.e., stock repurchase costs in excess of the original issuance price of the repurchased stock).[15] We partition the sample into firms that pay dividends and firms that do not and partition the dividend firms into quartiles of dividends as a percentage of total assets. The book-to-market ratio is the ratio of the book value of shareholders' equity to the market value of shareholders' equity. We partition the sample into quintiles of book-to-market ratio where firms in the fifth (first) quintile have the highest (lowest) book-to-market ratio. We measure firm age as the number of years between a firm's first year of available data on Compustat its fiscal year. We partition the sample into quintiles of age where firms in the fifth (first) quintile are the oldest (youngest) firms.

Table 6 presents the estimated regression coefficient on the paid-in capital ratio from the model in Equation (2) for each of the 20 sample partitions across the four firm characteristics. We observe positive and significant coefficient estimates across each of the 20 partitions. Because variation in these firm characteristics is restricted in these smaller partitions, the results in Table 6 suggest that increases in common shareholder risk as paid-in capital displaces earned capital cannot be dismissed as simply an association between common shareholder risk and growth opportunities.

VI. CONCLUSION

The Earned Capital Approach to distinguishing liabilities from equity proposes classifying paid-in capital as liabilities rather than equity (Hill et al. 2021). In this study, we evaluate this

[15] See the appendix for definition of DIV^{RP} variable. We include stock repurchase dividends because some firms that distribute income to shareholders choose to do so through stock repurchases rather than traditional dividends. We note 13,844 observations that pay stock repurchase dividends but not traditional dividends, and 2,826 observations in the highest quartile for total dividends do not pay traditional dividends (untabulated). These firms would be incorrectly classified as though they do not distribute income to shareholders if we base the partitions on traditional cash dividends. Nevertheless, we obtain identical inferences if we base the partitions on traditional cash dividends.

controversial classification of paid-in capital with empirical evidence. Finance theory on capital structure predicts that a firm's common shareholder risk increases as liabilities displace equity in its capital structure (e.g., Modigliani and Miller 1958; Hamada 1972, 1969; Rubinstein 1973; Bowman 1979; Christie 1982; Hong and Sarkar 2007; Barth et al. 2013). Using earned capital as the benchmark for equity classification, we examine how common shareholder risk changes as paid-in capital displaces earned capital in a firm's capital structure. If common shareholder risk increases, we conclude that investors view paid-in capital as liabilities, whereas if common shareholder risk does not change, we conclude that investors view paid-in capital as equity. Our findings are consistent with the former; a firm's common shareholder risk increases as paid-in capital displaces earned capital. Collectively, our evidence suggests that investors view paid-in capital as liabilities, consistent with the proposed classification under the Earned Capital Approach.

Our findings suggest that the distinction between paid-in capital and earned capital may be relevant to financial statement users, which raises the question of whether the distinction between paid-in capital and earned capital is underemphasized on the financial statements by virtue of their shared equity classification. Additionally, our evidence suggesting that investors view common stock as liabilities challenges the near universally accepted premise that common stock should be classified as equity.

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APPENDIX: VARIABLE DEFINITIONS

Balance sheet variables:

DEBT: Debt and operating liabilities; the sum of total liabilities (Compustat: *LT*) and redeemable non-controlling interest (Compustat: *MIB*).

PIC: Paid-in capital; the sum of common stock (Compustat: *CSTK*), additional paid-in capital (Compustat: *CAPS*), and nonredeemable noncontrolling interest (Compustat: *MIBN*) less treasury stock (Compustat: *TSTK*).

EC: Earned capital; the sum of retained earnings and accumulated comprehensive income (Compustat: *RE*).

Regression variables (levels):

RISK: Common shareholder risk; the annualized standard deviation of daily stock returns from the first day of the fourth month of fiscal year *t* to the last day of the third month of fiscal year *t+1*. Returns are obtained from CRSP (CRSP: *RET*).

DEBT%: Debt ratio; the ratio of debt and operating liabilities (*DEBT*) to total assets (Compustat: *AT*) at the end of year *t*.

PIC%: Paid-in capital ratio; the ratio of paid-in capital (*PIC*) to total assets (Compustat: *AT*) at the end of year *t*.

EXT%: External capital ratio; the sum of the debt and paid-in capital ratios (*DEBT%* + *PIC%*).

SIZE: Firm size; the natural log of the market value of equity at the end of fiscal year *t*. Market value of equity is the closing stock price at the end of fiscal year *t* (Compustat: *PRCC_F*) multiplied by common shares outstanding (Compustat: *CSHO*) at end of fiscal year *t*.

BTM: Book-to-market ratio; Book value of equity (Compustat: *CEQ*) divided by market value of equity (Compustat: *PRCC_F* x *CSHO*).

ROA: Return on assets; earnings before extraordinary items (Compustat: *IB*) for fiscal year *t* divided by book value of total assets (Compustat: *AT*) at the end of fiscal year *t*.

σROA: Standard deviation of *ROA* over fiscal years *t* through *t-4*.

INV: Investment; sum of capital expenditures (Compustat: *CAPX*) and research and development expense (Compustat: *XRD*) for year *t* divided by book value of total assets (Compustat: *AT*) at the end of year *t*.

RET: Annual buy-and-hold stock return for fiscal year *t*. Calculated with monthly stock returns (CRSP: *RET*) from the fourth month of fiscal year *t* and to the third fiscal month of year *t+1*.

DIV: Indicator variable equal to 1 if the firm declared common stock cash dividends (Compustat: *DVT*) or paid dividends on stock repurchases (DIV^{RP}; defined below) in year *t*; zero otherwise.

$RISK^{ID}$: Idiosyncratic common shareholder risk; the annualized standard deviation of the residuals from the following regression model from the first day of the fourth month of fiscal year *t* to the last day of the third month of fiscal year *t+1*:

$$(R_{i,d} - R_{rf,d}) = \alpha + \beta_1(R_{m,d} - R_{rf,d}) + \beta_2 SMB_d + \beta_3 HML_d + \beta_4 MOM_d + \varepsilon$$

Where $R_{i,d}$ is the stock return for firm *i* on day *d*, $R_{rf,d}$ is the risk-free rate of return on day *d*, $R_{m,d}$ is the market return on day *d*, SMB_d is the size factor, HML_d is the book-to-market factor, and MOM_d is the momentum factor. We obtain data to construct the R_{rfd}, R_{md}, *SMB*, *HML*, and *MOM* variables from Kenneth French's website: (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/index.html)

$RISK^{BETA}$: Systematic common shareholder risk; the β_1 coefficient the regression model in the $RISK^{ID}$ definition above.

Other variables:

CI: Comprehensive income; income before extraordinary items and discontinued operations (Compustat: *IB*) plus income from extraordinary items and discontinued operations (Compustat: *XIDO*) plus other comprehensive income (Compustat: *CICURR* + *CIDERGL* + *CIOTHER* + *CIPEN* + *CISECGL*).

DIV^{RP}: Dividends from stock repurchases for year *t*; the difference between the cost of a stock repurchase and the amount received at the original issuance of the repurchase shares. Estimated as the total cost of stock repurchases in year *t* (Compustat: *PRSTKC*) multiplied by one minus the ratio of the average issuance price of all outstanding shares at the end of year *t-1* (Compustat: (*CSTK* + *CAPS*)/*CSHO*) to the average daily stock price during year *t* (CRSP: *PRC*).

AGE: Firm age; the number of years between fiscal year *t* (Compustat: *FYEAR*) and the first year of available data on Compustat (Compustat: *YEAR1*).

Regression variables (changes)

Δ*RISK*: Change in common shareholder risk; Δ*RISK* for year *t* is *RISK* for year *t* less *RISK* for year *t-1*.

Δ*DEBT%*: Change in debt ratio; Δ*DEBT%* for year *t* is *DEBT%* at the end of year *t* less *DEBT%* at the end of year *t-1*.

Δ*PIC%*: Change in paid-in capital ratio; Δ*PIC%* for year *t* is *PIC%* at the end of year *t* less PIC*%* at the end of year *t-1*.

Δ*EXT%*: Change in external capital ratio; Δ*EXT%* for year *t* is *EXT%* at the end of year *t* less *EXT%* at the end of year *t-1*.

Δ*SIZE*: Change in firm size; Δ*SIZE* for year *t* is*SIZE* at the end of year *t* less *SIZE* at the end of year *t-1*.

Δ*BTM*: Change in book-to-market ratio; Δ*BTM* for year *t* is *BTM* at the end of year *t* less *BTM* at the end of year *t-1*.

Δ*ROA*: Change in return on assets; Δ*ROA* for year *t* is *ROA* for year *t* less *ROA* for year *t-1*.

Δ*σROA*: Change in the standard deviation of *ROA*; Δ*σROA* for year *t* is the standard deviation of *ROA* over fiscal years *t* through *t-4* less standard deviation of *ROA* over fiscal years *t-1* through *t-5*.

Δ*INV*: Change in investment; Δ*INV* for year *t* is *INV* for year *t* less *INV* for year *t-1*.

Δ*RET*: Change in annual return; Δ*RET* for year *t* is *RET* for year *t* less *RET* for year *t-1*.

Δ*DIV*: Change in *DIV*; Δ*DIV* for year *t* is *DIV* for year *t* less *DIV* for year *t-1*. It is equal to 1 if the firm declared common stock cash dividends in year *t* but not in year *t-1*, equal to -1 if the firm declared common stock cash dividends in year *t-1* but not in year *t*, and equal to zero if the firm declared common stock cash dividends in both years *t* and *t-1* or did not declare common stock cash dividends in either years *t* or *t-1*.

$\Delta RISK^{ID}$: Change in idiosyncratic common shareholder risk; $\Delta RISK^{ID}$ for year *t* is $RISK^{ID}$ for year *t* less $RISK^{ID}$ for year *t-1*.

$\Delta RISK^{BETA}$: Change in systematic common shareholder risk; $\Delta RISK^{BETA}$ for year *t* is $RISK^{BETA}$ for year *t* less $RISK^{BETA}$ for year *t-1*.

Table 1: Descriptive statistics (balance sheet variables)

	Mean	Std Dev	P25	P50	P75
		N = 78,015			
Balance sheet items (as reported)					
Debt and operating liabilities (*DEBT*)	0.485	0.197	0.341	0.490	0.622
Paid-in capital (*PIC*)	0.234	0.235	0.079	0.187	0.354
Earned capital (*EC*)	0.281	0.258	0.121	0.285	0.449
Current financial reporting standards					
Liabilities: *DEBT*	0.485	0.197	0.341	0.490	0.622
Equity: *PIC* + *EC*	0.515	0.197	0.378	0.510	0.659
Earned Capital Approach					
Liabilities: *DEBT* + *PIC*	0.719	0.258	0.551	0.715	0.879
Equity: *EC*	0.281	0.258	0.121	0.285	0.449

Description: This table presents descriptive statistics for the balance sheet variables defined in Section II. Variables are scaled by total assets at the end of year *t*. See the appendix for variable definitions.

Table 2: Descriptive statistics and correlations (regression variables)
Panel A: Descriptive statistics

	Mean	Std Dev	P25	P50	P75
			N = 78,015		
Δ*RISK*	-0.002	0.156	-0.082	-0.006	0.073
Δ*DEBT%*	0.004	0.067	-0.031	-0.001	0.034
Δ*PIC%*	-0.011	0.062	-0.031	-0.006	0.009
Δ*EXT%*	-0.007	0.069	-0.042	-0.012	0.021
Δ*SIZE*	0.023	0.424	-0.223	0.039	0.276
Δ*BTM*	0.031	0.418	-0.065	0.009	0.113
Δ*ROA*	-0.005	0.065	-0.029	-0.001	0.020
Δ*σROA*	-0.002	0.021	-0.006	0.000	0.005
Δ*INV*	-0.005	0.058	-0.020	-0.001	0.015
Δ*RET*	-0.008	0.790	-0.381	-0.017	0.357
Δ*DIV*	0.187	0.425	0.000	0.000	0.000

Panel B: Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Δ*RISK*	–	0.12	0.02	0.14	-0.35	0.26	-0.13	0.08	-0.02	-0.10	-0.01
(2) Δ*DEBT%*	0.12	–	-0.43	0.59	-0.18	-0.01	-0.23	0.09	0.09	-0.01	0.01
(3) Δ*PIC%*	0.00	-0.40	–	0.47	0.00	-0.01	-0.12	0.08	-0.08	0.02	-0.13
(4) Δ*EXT%*	0.12	0.61	0.34	–	-0.18	-0.02	-0.33	0.16	0.02	0.01	-0.11
(5) Δ*SIZE*	-0.30	-0.17	-0.01	-0.16	–	-0.58	0.33	-0.08	0.09	0.31	0.01
(6) Δ*BTM*	0.25	-0.03	-0.01	-0.01	-0.80	–	-0.13	0.02	-0.02	-0.24	0.01
(7) Δ*ROA*	-0.11	-0.19	-0.09	-0.26	0.34	-0.21	–	-0.20	0.14	0.06	-0.01
(8) Δ*σROA*	0.07	0.06	0.06	0.10	-0.07	0.02	-0.15	–	-0.03	-0.01	-0.05
(9) Δ*INV*	-0.02	0.10	-0.12	0.03	0.09	-0.04	0.19	-0.04	–	-0.09	0.01
(10) Δ*RET*	-0.13	-0.03	0.03	-0.02	0.32	-0.32	0.08	-0.01	-0.11	–	-0.02
(11) Δ*DIV*	-0.01	0.01	-0.15	-0.12	0.01	0.01	-0.01	-0.03	0.01	-0.01	–

Description: This table presents descriptive statistics (Panel A) and pairwise correlations (Panel B) for the regression variables. Pearson (Spearman) correlations are presented above (below) the diagonal. See the appendix for variable definitions.

Table 3: Regressions of changes in common shareholder risk on changes in debt and paid-in capital ratios

Equation (1): $\Delta RISK_t = \alpha_0 + \alpha_1 \Delta DEBT\%_t + \Sigma \alpha_k \Delta Controls_t + \varepsilon$

Equation (2): $\Delta RISK_t = \beta_0 + \beta_1 \Delta DEBT\%_t + \beta_2 \Delta PIC\%_t + \Sigma \beta_k \Delta Controls_t + \varepsilon$

	Coefficient (t-stat)	
Equation:	(1)	(2)
$\Delta DEBT\%$	0.090	0.167
	(6.29)***	(9.28)***
$\Delta PIC\%$		0.171
		(7.93)***
$\Delta SIZE$	-0.070	-0.068
	(-11.50)***	(-11.27)***
ΔBTM	0.018	0.020
	(5.73)***	(6.38)***
ΔROA	-0.033	0.001
	(-1.80)*	(0.03)
$\Delta \sigma ROA$	0.320	0.286
	(9.19)***	(8.98)***
ΔINV	0.007	0.006
	(0.51)	(0.37)
ΔRET	0.009	0.008
	(2.51)**	(2.30)**
ΔDIV	-0.005	-0.002
	(-2.60)***	(-1.26)
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
N	78,015	78,015
Adjusted R^2	35.1%	35.5%

Description: This table presents the estimates from the regression models in Equation (1) and (2). *t*-statistics are calculated with standard errors clustered by firm and year. See the appendix for variable definitions.
***, **, * Significant at α-level 0.01, 0.05, and 0.10, respectively.

Table 4: Regressions of changes in common shareholder risk on changes in alternative measures of financial leverage

Equation (3): $\Delta RISK_t = \gamma_0 + \gamma_1 \Delta LEV_t + \Sigma \gamma_k \Delta Controls_t + \varepsilon$

	Coefficient (t-stat)		
LEV:	*DEBT%*	*EXT%*	Difference
Δ*LEV*	0.090	0.169	-0.079
	(6.29)***	(9.47)***	(-4.95)***
Δ*SIZE*	-0.070	-0.068	-0.002
	(-11.50)***	(-11.36)***	(-4.53)***
Δ*BTM*	0.018	0.020	-0.002
	(5.73)***	(6.42)***	(-4.03)***
Δ*ROA*	-0.033	0.001	-0.034
	(-1.80)*	(0.04)	(-6.38)***
Δ*σROA*	0.320	0.286	0.034
	(9.19)***	(8.97)***	(5.12)***
Δ*INV*	0.007	0.005	0.002
	(0.51)	(0.34)	(1.15)
Δ*RET*	0.009	0.008	0.001
	(2.51)**	(2.30)**	(4.36)***
Δ*DIV*	-0.005	-0.002	-0.003
	(-2.60)***	(-1.25)	(-7.64)***
Industry fixed effects	Yes	Yes	
Year fixed effects	Yes	Yes	
N	78,015	78,015	
Adjusted R^2	35.1%	35.5%	

Description: This table presents the estimates from the regression model in Equation (3) for two alternative measures of financial leverage: (1) the traditional measure (*DEBT%*) and (2) the external capital measure (*EXT% = DEBT% + PIC%*). *t*-statistics are calculated with standard errors clustered by firm and year. See the appendix for variable definitions.

***, **, * Significant at α-level 0.01, 0.05, and 0.10, respectively.

Table 5: Regressions of changes in alternative measures of common shareholder risk on changes in debt and paid-in capital ratios

Equation (2): $\Delta RISK^{ALT}_t = \beta_0 + \beta_1 \Delta DEBT\%_t + \beta_2 \Delta PIC\%_t + \Sigma \beta_k \Delta Controls_t + \varepsilon$

	Coefficient (t-stat)	
$RISK^{ALT}$:	$RISK^{ID}$	$RISK^{BETA}$
$\Delta DEBT\%$	0.153	0.083
	(9.35)***	(2.15)**
$\Delta PIC\%$	0.162	0.114
	(8.13)***	(2.17)**
$\Delta SIZE$	-0.068	0.070
	(-13.97)***	(5.89)***
ΔBTM	0.022	-0.006
	(7.17)***	(-0.75)
ΔROA	-0.019	0.363
	(-1.04)	(8.28)***
$\Delta \sigma ROA$	0.259	0.438
	(8.57)***	(3.57)***
ΔINV	-0.005	0.040
	(-0.41)	(0.74)
ΔRET	0.013	0.007
	(4.96)***	(1.07)
ΔDIV	-0.002	-0.012
	(-1.21)	(-2.50)**
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
N	76,850	76,850
Adjusted R^2	26.8%	1.3%

Description: This table presents the estimates from the regression model in Equation (2) for two alternative measures of common shareholder risk. $RISK^{ALT}$ represents one of the two alternative measures: (1) $RISK^{ID}$ is the annualized standard deviation of the residuals obtained from estimating Equation (4), (2) $RISK^{BETA}$ is the β_1 coefficient obtained from estimating Equation (4). *t*-statistics are calculated with standard errors clustered by firm and year. See the appendix for variable definitions.
***, **, * Significant at α-level 0.01, 0.05, and 0.10, respectively.

Table 6: Common shareholder risk regressions across firm characteristics

Equation (2): $\Delta RISK_t = \beta_0 + \beta_1 \Delta DEBT\%_t + \beta_2 \Delta PIC\%_t + \Sigma \beta_k \Delta Controls_t + \varepsilon$

	Profitability (Comp. income as a % of total assets):				
	Loss firms	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Δ*PIC%* coeff.	0.130	0.115	0.141	0.227	0.105
(t-stat)	(4.14)***	(3.58)***	(4.89)***	(9.18)***	(4.35)***
Adjusted R^2	40.3%	35.1%	34.1%	33.8%	31.2%
N	13,137	16,219	16,220	16,220	16,219
	Dividends (as a % of total assets):				
	No dividends	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Δ*PIC%* coeff.	0.212	0.186	0.169	0.089	0.058
(t-stat)	(8.31)***	(5.45)***	(5.27)***	(2.97)***	(3.11)***
Adjusted R^2	33.5%	38.9%	39.4%	37.8%	39.6%
N	24,149	13,466	13,467	13,467	13,466
	Book-to-market ratio:				
	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Δ*PIC%* coeff.	0.105	0.111	0.143	0.189	0.243
(t-stat)	(6.06)***	(4.40)***	(4.69)***	(6.40)***	(7.74)***
Adjusted R^2	32.5%	33.1%	34.4%	36.5%	40.7%
N	15,603	15,603	15,603	15,603	15,603
	Age:				
	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Δ*PIC%* coeff.	0.209	0.172	0.200	0.157	0.095
(t-stat)	(7.54)***	(5.14)***	(5.71)***	(5.03)***	(3.19)***
Adjusted R^2	29.6%	35.0%	36.6%	36.2%	46.4%
N	14,031	18,027	14,577	15,272	16,108

Description: This table presents the paid-in capital ratio coefficient estimates from the regression model in Equation (2) across four sets of firm characteristics: (1) profitability, (2) dividends, (3) book-to-market ratio, and (4) age. Profitability is comprehensive income as defined in the appendix (*CI*) as a percentage of total assets. Dividends are traditional cash dividends (Compustat: *DVT*) plus dividends from stock repurchases as defined in the appendix (DIV^{RP}) as a percentage of total assets. Book-to-market ratio is the ratio of the book value of equity to the market value of equity as defined in the appendix (*BTM*). Age is the number of years between the current fiscal year (Compustat: *FYEAR*) and the first fiscal year of available data on Compustat (Compustat: *YEAR1*) as defined in the appendix (*AGE*).

***, **, * Significant at α-level 0.01, 0.05, and 0.10, respectively.