THE STOCK MARKET VALUATION OF EARNINGS AND BOOK VALUE: SOME INTERNATIONAL EVIDENCE

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Abstract

Using knowledge of the institutional differences between the accounting systems in Germany, France, and the U.K., this paper predicts how the relative valuation roles of earnings and book value vary across countries. The first hypothesis states that, because of the predominant investor focus in the U.K. and the creditor focus and tax-book conformity in Germany and France, the relative explanatory power for price of earnings is larger than that of book value in the U.K., and vice versa in Germany and France. The empirical results confirm the prediction in the U.K. but not in Germany or France. Based on the differences in conservatism in the German, French, and U.K. accounting systems, the second hypothesis predicts that in a regression of price on earnings and book value, the coefficients are larger in Germany and France than in the U.K. The evidence supports this prediction for the book value coefficient but not for the earnings coefficient. The paper demonstrates that these results remain unaltered after controlling for cross-sectional variation in valuation multiples and explanatory power for price of earnings and book value.

I Introduction

The focus of this study is on the combined valuation of earnings and book value. These "bottom line" accounting numbers fulfill an important role in recent theoretical and empirical financial accounting research. First, earnings and book value are key variables in the theoretical accounting valuation model setting developed by Feltham and Ohlson (1995) [FO]. Second, a number of recent empirical papers have focused on the empirical relation between price (and returns) and both accounting variables.[1] This paper studies the valuation roles of earnings and book value from an international perspective by examining the accounting systems of Germany, France, and the U.K.

I adopt the view of prior research (Barth, Beaver, and Landsman [BBL] 1996) that a financial statement item is value relevant if it is priced in a valuation equation in a predicted way. This means that an accounting variable is value relevant if it is correlated with information used by investors in determining share prices (conditional on the other value relevant variables included in the valuation relation).[2]

The hypotheses are based on two accounting aspects that relate to the valuation of earnings and book value: 1) the relative value relevance of balance sheet and income statement information, and 2) the degree of accounting conservatism. Although these accounting aspects are being studied in the context of the U.S. capital market, this research addresses them in the setting of the accounting systems of Germany, France, and the U.K.[3] The key step in the development of the hypotheses is using knowledge of the main institutional differences between the accounting systems in Germany, France, and the U.K. to predict how the relative valuation roles of earnings and book value vary across countries. The institutional settings in Germany, France, and the U.K. provide a potentially richer context than the U.S. capital market setting. The international setting allows me to study not only the cross-country effects on the valuation of earnings and book value induced by differences in accounting practices across countries, but also the within-country effects of certain cross-sectional factors. The three countries form a suitable group for the analysis since, although the security markets organizations and accounting systems are considerably different, the countries' underlying economies are similar.

I develop two hypotheses in this paper. The first hypothesis focuses on the relative value relevance of earnings and book value. In other words, the hypothesis relates to the relative

explanatory power for price of earnings and book value. I predict that, due to the predominant investor focus in the U.K. and the creditor focus and tax-book conformity in the Continental countries, the relative explanatory power for price of earnings will be larger than the explanatory power for price of book value in the U.K., whereas the opposite will hold in the Continental countries. I measure this explanatory power with association measures (e.g., R^2) based on regressions of price on book value and earnings.

The second hypothesis relates to the effect of conservatism on the valuation multiples of earnings and book value. A conservative accounting method is defined as one that reports less cumulative earnings at any point in time than an alternative method. Under a more conservative method expenses are recognized more quickly and the revenue recognition is postponed longer. Conservatively measured (operating) assets and conservatively measured earnings are predicted to receive a relatively higher valuation multiple. Based on the observation that the degree of conservatism in the Continental accounting systems is higher than in the U.K. system, I predict that in a regression of price on earnings and book value, the coefficients will be larger in the Continental countries than in the U.K.

A special feature of this paper is that its research design additionally addresses cross-sectional variation in valuation multiples and explanatory power for price of earnings and book value in the international setting. Prior comparative international accounting studies have largely ignored this cross-sectional variation in their research design. When comparisons are made between countries, these prior studies partially address this cross-sectional variation by choosing a matched sample design (based on, for example, size or industry). This paper extends the previous work in the following ways. First, it considers the impact of a larger set of within-country cross-sectional factors. Generally the matched sample design of prior studies is based on one or two factors. Second, it documents the within-country variation in valuation multiples of earnings and book value as a function of cross-sectional factors. Third, it tests the hypothesis that cross-country effects will continue to hold after taking into account the within-country cross-sectional factors.

Two main conclusions concerning the relative value relevance of earnings and book value and conservatism emerge from the analyses. First, the evidence suggests that overall book value is relatively less value relevant than earnings in the U.K., as predicted in the hypothesis.[4] For

German and French firms the statistical tests generally indicate that there is no difference in value relevance between earnings and book value. In spite of the creditor focus of the Continental accounting systems, investors do not find book value more value relevant than earnings.

Second, the effects of conservatism are reflected in the valuation multiples of book value: the multiples in France or Germany are significantly higher than in the U.K., which is consistent with the hypothesis of a higher degree of conservatism in France and Germany. The evidence on the effects of conservatism on earnings is mixed. The valuation multiple on earnings in Germany is statistically indistinguishable from those in France, whereas the earnings multiple in the U.K. is *larger* than in Germany and France. The results suggest that the differences between the book value coefficients are mainly driven by differences in conservatism, whereas other factors determine the differences between the earnings coefficients. I attempt to specify these factors by incorporating the following within-country cross-sectional factors in the analysis: 1) size, 2) industry, 3) permanence of earnings, 4) risk, and 5) growth.

The analyses document the existence of within-country variation in the stock market valuation of earnings and book value as a function of the mentioned set of cross-sectional factors. This variation is consistent across countries. However, the conclusions regarding the cross-country differences in value relevance of earnings and book value remain unaltered after taking into account these within-country factors. A corollary of these results is that the cross-sectional factors included in this study do not offer an answer as to why the earnings coefficient is larger in the U.K. than in the Continental countries.

The remainder of the paper is organized as follows. Section I presents the research design. Section III discusses the data, samples and descriptive statistics. Section IV presents the results of the analyses. Section V concludes.

II Research Design

This section of the paper consists of three parts. First, I discuss the valuation model upon which the tests are based. Next, I develop the hypotheses. Finally, I present the statistical methods upon which the tests are based.

Valuation Model

This study adopts a measurement perspective on accounting to evaluate the value relevance of earnings and book value. The valuation framework adopted is based on the theoretical work by Ohlson (1995) and FO (1995). The model in these papers expresses stock price as a function of accounting variables as follows:

$$P_{it} = bv_{it} + \sum_{\tau=1}^{\infty}(1+r)^{-\tau}E_t[ni^a_{it+\tau}] \tag{1}$$

where P_{it} is the share price of firm i at time t; ni^a_{it} are the abnormal earnings per share of firm i at time t, , i.e., $ni^a_{it} = ni_{it} - rbv_{it-1}$; bv_{it} is the book value per share of firm i at time t; r is required return on equity (considered non-stochastic and identical across firms).[5]

Based on eq. (1) Ohlson further derives a valuation relation that expresses price in terms of earnings and book value.[6] The empirical analogue of that equation can be written as:

$$P_{it} = \gamma_0 + \gamma_1 bv_{it} + \gamma_2 ni_{it} + \epsilon_{1it} \tag{2}$$

where the variables are the same as in the previous equations and ϵ_{1it} is the error term.

Both equations express the market value of the firm as a function of its recognized and *unrecognized* net assets on a per-share basis. Referring to eq. (1), bv_{it} represents the recognized net assets per share and the summation term captures the *unrecognized* portion of the firm's net assets per share. This unrecognized portion of net assets exists because book value does not capture the value of excess present value projects and growth options under the historical cost system. Following BBL (1996), earnings can be seen as a proxy for the *unrecognized* net assets of the firm in eq. (2).[7]

The model has been adopted in empirical studies, mainly in a U.S. context.[8] I also estimate "restricted" versions of eq. (2):

$$P_{it} = \alpha_0 + \alpha_1 bv_{it} + \epsilon_{2it} \tag{3}$$

$$P_{it} = \beta_0 + \beta_1 ni_{it} + \epsilon_{3it} \tag{4}$$

The variables are the same as in eq. (2) and $\epsilon_{(2,3),it}$ are zero mean error terms. Eq. (3)-(4) allow me to assess whether earnings have incremental value relevance have over book value and vice versa (see below).

I adopt the definition that earnings and book value are value relevant if they are priced in the valuation equation in a predicted way. In other words, earnings and book value are value relevant if they are correlated with information used by investors in determining share prices. Therefore, both the coefficients on earnings and book value in eq. (2) and the R^2 of eq. (2) provide evidence pertaining to the value relevance of earnings and book value. Under the null hypothesis of *no* value relevance of book value and earnings, γ_1 and γ_2 are zero.

In addition, based on a comparison of the R^2 of eq. (2) and those of eq. (3) and (4), I study the incremental explanatory power of earnings and book value for price (see below).

The next section develops the two main hypotheses of the study.

Hypothesis Development

In this study, the focus is on the valuation of earnings and book value. In every accounting setting in the world, a firm's financial statements include a balance sheet and an income statement. As BBL (1997) point out, this suggests that accounting regulators (around the world) believe that both components of the financial statements are of importance: both the balance sheet and the income statement contain value relevant information *incremental* to each other. Nevertheless, it was not until recently that both theoretical and empirical accounting research started studying the complementary role of balance sheet and income statement information.[9] The main conclusion that follows from this research carried out in the context of the U.S. capital market, is that *both* earnings and book value are generally value relevant, i.e., both γ_1 and γ_2 are significantly different from zero.[10] Additionally, this research explores the conditions under which earnings and book value are relatively more value relevant, i.e., explain proportionally more of the variation in the market value of the firm. BBL (1997) study how the financial health of the firm affects the valuation multiples and the explanatory power for price of earnings and book value. Their analysis shows that as the financial health of a firm decreases, book value captures the value of the firm and earnings does not contain any information about the firm's value incremental to book value. Burgstahler and Dichev (1997) investigate how the relation between current earnings and book value (or return-on-equity (ROE)) influences the valuation roles of earnings and book value. They demonstrate that value is a *convex* function of earnings and book value. The relative value relevance of earnings and book value depends on their rel-

ative levels: both the earnings and the book value multiple vary with ROE. Collins, Maydew, and Weiss [CMW] (1997) investigate the changes in the value relevance of earnings and book value over the past forty years in the the U.S. capital market setting. They document that the combined value relevance of earnings and book value has increased slightly and that the value relevance of book value has increased relative to the value relevance of earnings. Possible explanation for the latter result are the increased incidence of negative earnings, the increasing magnitude of non-recurring items in earnings, and the change in average firm size over time. Based on the findings in these studies I incorporate cross-sectional determinants of the value relevance of earnings and book value in the research design of this study (see below).

The primary purpose of this study is to extend the prior research by investigating the complementary valuation role of earnings and book value in an *international* accounting setting. In particular, I study the issue in the accounting setting of three countries of the European Union [EU]: Germany, France, and the U.K. Although a larger set of countries could have been chosen, the focus is on these three EU countries for reasons of economic comparability.[11] Also, restricting attention to these three countries is not a serious limitation because they represent the largest economies with the largest stock markets in the EU. More important though for the study of the valuation role of earnings and book value is the fact that the accounting systems of Germany, France, and the U.K. are representative for the Anglo-Saxon (in the U.K.) and the Continental accounting model (in Germany and France). The main institutional differences between the accounting systems in the three countries can be recast in terms of two accounting themes related to the valuation of earnings and book value. These accounting themes serve as the basis for the hypotheses in this study: 1) the relative value relevance of balance sheet and income statement information, and 2) the degree of accounting conservatism.

In the following section, I discuss the main institutional differences between the accounting settings in Germany, France, and the U.K. Next, I link these differences to the accounting themes of interest and I formulate the hypotheses.

Institutional Differences Between National Accounting Systems in the EU.

Accounting in the EU is regulated by means of the company law Directives. Of particular relevance are the fourth and the seventh Directives. The fourth Directive determines the form

and the general rules of accounting in the EU. Its focus is primarily on the individual company accounts. The seventh Directive focuses on the consolidated accounts. The Directives are incorporated in the national law of the EU member states. Because there exist important differences between the accounting systems and philosophies of the member states of the EU, the Directives are compromise solutions. They specify a general set of rules with options which allow the member states a lot of flexibility when integrating the Directives into their national law. Empirical evidence in Joos and Lang (1994) suggests that the enactment of the Directives has not reduced existing accounting differences between Germany, France, and the U.K. These differences seem to be driven by two major factors.[12] Also, it should not go unmentioned that the institutional frameworks of these countries, in particular those of the Continental countries are undergoing important changes (see for example The Economist (1996)). The following discussion however is relevant for the sample period.

Providers of finance: investor versus creditor focus.

Different traditions in business finance exist in Germany, France, and the U.K. Whereas in Germany and France self-financing and debt are the major sources of financing for firms, in the U.K. firms rely more on equity capital. As a consequence, the financial system in the U.K. is characterized by an important role for the equity market and widespread ownership of shares. Franks (1997) reports that in a sample of large U.K. firms in 1990 84% of shares are widely held. In this system with widespread ownership, characterized by considerable information asymmetry between management and shareholders, the firms are pressured by the latter to disclose information. Financial statements are therefore mainly being issued with the objective of providing information for investors in the capital market (Schuetze 1994). This characteristic is generally referred to as the *investor focus* of an accounting system.

In contrast, two reasons lead to a *creditor focus* of the German accounting system. First, equity financing is far less important for German firms than for U.K. firms. According to Ordelheide and Pfaff (1994) debt or loan capital represents 40% of the balance sheet total of German firms and within the debt category, bank credit is the most important category (11%). In addition, self-financing (mostly provisions) represents approximately 30% of the sources of finance of German firms (1994, 37). In this setting of reduced equity capital importance, two

groups of stakeholders in the firms, i.e., the banks and the employees of the firm, influence the business and accounting policy of German firms via their representation on the supervisory board. This board not only oversees the activities of the executive board but also influences the accounting policy of the firm and the appropriation of net income. German law specifies that the executive and supervisory board adopt the annual accounts of the firm. In particular, the members of the supervisory board can retain up to half of the earnings for the purposes of self-financing of the firm without asking the shareholders. A consequence of this rule is that the other half possibly might need to be paid out to shareholders. Management and other related parties therefore have an incentive to compute earnings conservatively so as to reduce the level of possible payouts.[13] Additionally, banks influence firm policy via their direct ownership of shares and via the proxy voting system. This system allows banks to vote on behalf of small shareholders who have deposited their shares at the banks and who assign their vote to the bank. De facto, it appears that most small shareholders do not themselves vote at general shareholders' meetings. Second, Franks (1997) provides evidence on the ownership structures in a sample of large quoted German firms (over the period 1990-91) and concludes that the ownership structure of these firms is characterized by either large-block family or intercorporate ownership. Strikingly, in nearly 85% of the firms in his German sample there was at least one shareholder owning more than 25%. Only 15% of the shares in his sample are widely held. This particular feature of the German financial system reduces greatly the information role of the financial statements of German companies simply because the major voting parties obtain their information via insider channels.

Similar to Germany, France is often categorized in the group of countries with a *creditor focus* of the accounting system due to a relatively restricted role for the equity market in the financial system. Traditionally in France, firms have either been family-owned and/or have preferred to grow through debt rather than through equity, since the latter means losing control over the firm (Scheid and Walton 1992, 69). However, the situation in France differs from the one in Germany because the banks fulfill a less important role in the financial system than in Germany for three reasons: 1) the government provides a lot of debt financing for firms, 2) banks do not take equity stakes in their clients as in Germany, 3) banks do not influence business and accounting policy via representation on supervisory boards. Additionally, since the latter half of the eighties French

the latter half of the eighties French firms are increasingly relying on equity capital rather than on debt to finance their operations. The evidence for France in Franks (1997) shows that 21% of shares in his French sample of firms are widely held. Still almost 80% of the French firms had at least one shareholder with more than 25% ownership (predominantly intercorporate ownership). Nevertheless, the accounting system in France is shifting towards an investor focus as demonstrated by the development of a *dual accounting system*: firms are allowed to adopt accounting practices in their consolidated statements that are not allowed in their individual firm accounts. The main motivation for this rule is to allow firms to communicate information to their investors by means of the consolidated accounts. Therefore, although France is similar to Germany regarding the way business finance was organized traditionally, it is less extreme in terms of the influence of creditors on business and accounting policy.

To summarize, the combination of the reduced importance of equity financing and a set of characteristics of the German and French financial-economic systems induces a *creditor focus* in the accounting system, characterized by a lack of transparency in the annual accounts, conservative measurement of earnings and book value, and a focus on capital maintainance via self-financing.

Tax-book conformity.

In the U.K., the tax rules are independent of the accounting rules. However, in Germany and France, a required conformity between financial and tax accounts, i.e., the tax-book conformity, exists. The different business finance traditions are partially responsible for the tax-book conformity difference between the U.K. and the Continental countries. First, because of the limited information role of financial statements in the Continental countries financial reporting was developed mainly for other purposes, such as for example tax collection. Second, the difference in ownership structure of the firms implies that the financial reporting cost of following tax rules for earnings measurement is relatively low in the Continental countries. Wolfson (1993, 320) notes that one observes tax-book conformity in countries where the cost of communicating information about firm value through channels other than financial reporting is low because of concentrated ownership and control.

In general, this tax-book conformity provides management with an incentive to minimize

income to avoid paying taxes. Otherwise put, the tax-book conformity is a major cause of the conservative bias in the Continental accounting systems. The conformity however is restricted to the individual company accounts in both countries. Otherwise put, the consolidated accounts in Germany and France are not bound by tax regulations. Consequently, in theory the consolidated accounts can be used to communicate information to the shareholders without tax consequences. In practice, this can lead to inconsistencies between individual and consolidated accounts, especially in France where managers can adopt certain accounting rules in the consolidated accounts that are not permitted in the individual accounts.

The next section discusses how these two institutional differences are related to the accounting themes of interest and the main hypotheses.

Main Hypotheses

I develop two hypotheses. The first hypothesis focuses on the relative explanatory power for price of earnings and book value and relates to the accounting theme of the relative value relevance of balance sheet and income statement information. The second hypothesis focuses on the valuation multiples of each of the accounting variables and considers the effects of conservatism in the accounting system. Both institutional differences discussed above influence each of the hypotheses.

Relative value relevance of earnings and book value.

The valuation model adopted in an earlier section expresses price as a function of the recognized and the *unrecognized* net assets of the firm.[14] Following BBL (1997), I see earnings as a proxy for the latter in eq. (2). Within this context, I expect that the institutional differences discussed earlier influence the relative explanatory power for price of earnings and book value. In particular, I hypothesize that the creditor focus of the Continental accounting systems reduces the value relevance of earnings relative to book value for two reasons. First, the earlier discussion suggests that protecting the creditors of the firm is considered at least as important an objective of accounting as providing information for investors in Germany and France. I therefore assume that, when a Continental manager is faced with an accounting choice, he or she will opt for the method that provides more protection for creditors, e.g., via a reduction of dividend payout,

even if it means distorting or reducing the value relevance of earnings. In addition, due to the limited disclosure, especially in Germany, in the financial statements as a consequence of the reduced information role of the financial statements, investors cannot unravel the possibly distorting impact of the accounting choices made by managers on earnings. Second, the assets of the firm are seen as the collateral of the loans and other debts of the firm (Biener 1994, 14), and this emphasizes the balance sheet focus of the Continental systems. In addition, the tax-book conformity in the Continental countries gives managers an incentive to measure earnings such that their information role is impaired.

In contrast, due to the predominance of equity financing in the U.K. and the resulting investor focus of the U.K. accounting system, managers of U.K. firms do not face incentives to impair the information role of earnings so as to protect creditors (or other stakeholders) or to avoid paying taxes (Wolfson 1993).

For these reasons, I predict that earnings are a better proxy for the unrecognized net assets of firms in the U.K. than in the Continental countries, *ceteris paribus*. Consequently, I expect that earnings will have a larger explanatory power for price relative to book value in the U.K. and vice versa in the Continental countries, *ceteris paribus*. Clearly, the explanatory power for price is related to the magnitude of the valuation multiples of earnings and book value. I focus on the valuation multiples in the second hypothesis that explicitly considers the effects of conservatism. I study the issues separately because it is not a priori clear that conservatism will influence the explanatory power for price of earnings and/or book value. For example, if investors see through the conservatism in earnings and book value, they will simply attribute higher valuation multiples to both accounting variables.[15] The explanatory power for price however will remain unaltered. Implicitly, by focusing separately on the two aspects, I am assuming that conservatism is not the only factor driving the differences between the explanatory power for price of earnings and book value in the U.K. and the Continental countries.

The formulation of hypothesis H1 summarizes the previous discussion:

Hypothesis H1: Relative value relevance of earnings and book value. *Due to 1) the difference in focus of the accounting systems in the U.K. and in the Continental countries, and 2) the tax-book conformity in the Continental countries, earnings will have a larger explanatory power for price relative to book value in the U.K. and vice versa in the Continental countries,*

ceteris paribus. I measure the explanatory power with association measures (e.g., R^2) based on regressions of price on book value and/or earnings (2)-(4).

The hypothesis is one-sided, i.e., directional. The *null hypothesis* is that there is no difference in the relative explanatory power for price of earnings and book in the accounting systems of Germany, France, and the U.K.

Conservatism.

The second hypothesis considers the effects of conservatism in the accounting system on the valuation coefficients of book value and earnings in eq. (2). The earlier discussion on the institutional differences suggests that the Continental accounting system exhibits a higher degree of conservatism than the U.K. system for two reasons. First, the creditor focus of the Continental systems is characterized by a concern for capital maintenance. Second, the tax-book conformity leads to a conservative earnings calculation to minimize taxes.[16]

FO (1995) establish the theoretical result that conservatively measured operating assets receive a higher valuation multiple in their valuation framework. In the empirical specification eq. (2), this will lead to a relatively higher valuation coefficient on book value, since book value captures the operating assets. If the stock market is aware of the conservatism in earnings, I expect that conservatively measured earnings will also receive a relatively higher valuation coefficient.

Hypothesis H2: Conservatism. *Due to the higher degree of conservatism in the Continental accounting system than in the U.K. accounting system, I expect that the valuation coefficients on earnings and book value in regression (2) will be higher in the Continental countries than in the U.K., ceteris paribus.*

The hypothesis is again directional. The *null hypothesis* is that there is no difference in the valuation coefficients across the accounting systems of Germany, France, and the U.K.

Cross-sectional variation in valuation coefficients and explanatory power for price of earnings and book value

The hypotheses formulated earlier ignore possible cross-sectional variation in valuation coefficients and explanatory power for price of earnings and book value. However, previous U.S.-based studies document the existence of this type of cross-sectional variation. In this paper, I provide additional evidence on this cross-sectional variation in an international setting. Prior comparative international accounting research has to a large extent ignored this cross-sectional variation. Typically, these studies partially address the problem by choosing a matched sample design when testing hypotheses across countries. I extend the previous work as follows. First, I consider the impact of a larger set of cross-sectional factors. Generally the matched sample design of prior studies is based on one or two factors (e.g., size or industry). Second, I document the variation in valuation multiples of earnings and book value as a function of cross-sectional factors in the international samples. Third, I test the hypothesis that the predictions of the two hypotheses continue to hold after controlling for the cross-sectional factors.

I introduce five cross-sectional factors in the analysis which have been shown to influence the valuation multiples and explanatory power for price of earnings and book value: 1) size, 2) industry, 3) permanence of earnings, 4) risk, and 5) growth. To control for the effect of these cross-sectional factors, I partition the individual country samples based on the distributions of proxies for these cross-sectional factors (see below). Per proxy, I therefore obtain a set of subsamples within each country-sample. To evaluate the prediction of hypothesis H1, I estimate the regressions in each of the subsamples and compare the R^2 across subsamples. To measure the impact of conservatism on the coefficients while controlling for the cross-sectional factors, I estimate pooled regressions with indicator country intercepts and slopes and indicator intercepts and slopes for all cross-sectional factors.

Although the choice of cross-sectional factors is guided by recent U.S. capital market research, the European samples suffer from important data constraints that determine the choice of proxies for these factors (see below). I therefore replicate the analysis in a U.S. sample to get an indication of how well the proxies capture the factors of interest.[17]

The next section presents the statistical methods applied to evaluate the predictions in the hypotheses.

Statistical Methods

In this section I discuss the statistical tests I carry out to evaluate the predictions made in the hypotheses. The tests focus both on the explanatory power for price of earnings and book value, and on the valuation coefficients of earnings and book value.

Explanatory power for price of earnings and book value

To evaluate the relative explanatory power for price of earnings and book value, I carry out two tests. First, following CMW (1997), I decompose the R^2 of regression eq. (2) to evaluate the incremental explanatory power for price of earnings and book value. Second, I carry out the Vuong likelihood ratio test (Vuong 1989) to compare the R^2 of eq. (3) directly to the R^2 of eq. (4). Hereafter, I will refer to the regressions (2)-(4) as follows: regression (2) corresponds to BV/NI, regression (3) to BV, and regression (4) to NI. The R^2 are labelled correspondingly.

R^2 *decomposition and two-step regression* t *test*

The concept of the R^2 decomposition and the incremental R^2 was introduced by Theil (1971) and recently applied by CMW (1997). The incremental R^2 are computed as follows. Consider the three regressions (2)-(4) and their respective R^2: $R^2_{BV/NI}$, R^2_{BV}, and R^2_{NI}. As regressions (3) and (4) are *nested* within (2), it is possible to decompose $R^2_{BV/NI}$ as follows:

$$R^2_{BV/NI} = R^2_{IBV} + R^2_{INI} + R^2_C \tag{5}$$

R^2_{IBV} is the incremental book value R^2, defined as $R^2_{IBV} = R^2_{BV/NI} - R^2_{NI}$. R^2_{INI} is the incremental earnings R^2, or $R^2_{INI} = R^2_{BV/NI} - R^2_{BV}$. R^2_C represents the explanatory power of components common to both book value and earnings. The t tests of the book value and earnings coefficients in regression (2) evaluate the statistical significance of R^2_{IBV} and R^2_{INI}.

Vuong likelihood ratio test

Vuong (1989) develops a likelihood ratio test that compares the fit of two *non-nested* models. I carry out the test to compare the fit of regression (3) to that of regression (4). The test is designed for model selection without presuming under the null that either model is "true". A detailed presentation of the test is given in Vuong (1989) and Dechow (1994) describes an application of the test in an accounting context. Based on the log-likelihood functions of each of

the regressions, I construct a Z statistic that compares the explanatory power of the regressions (3) and (4). Under the *null hypothesis* of no difference in explanatory power, the distribution of Z converges in distribution to a standard normal distribution (see Vuong (1989, 318): Theorem 5.1).

The Vuong test and the R^2 decomposition t tests complement each other. It is possible that the t tests indicate that *both* earnings and book value have incremental explanatory power for price but that the Vuong test does not reject the null of equality of R^2_{BV} and R^2_{NI}. This is because the Vuong test does not differentiate between the components of R^2_{BV} and R^2_{NI}. The R^2 decomposition and associated t test measure whether earnings or book value have *any* incremental explanatory power for price, whereas the Vuong test measures whether the difference in incremental explanatory power for price is different.

Coefficients

To evaluate the impact of conservatism on the valuation coefficients of earnings and book value, I estimate pooled regressions with indicator country intercepts and slopes. Germany is the reference country, i.e., the French and U.K. slopes are incremental to the German slopes. The t statistics on the incremental country slope coefficients measure the statistical significance of the impact of conservatism on the valuation coefficients. The t statistics are based on White's heteroscedasticity-consistent standard errors (see also section IV).

III Data and Samples

Data for the European samples are obtained from the *Global Vantage Industrial Commercial Database* from 1982 through 1993. This database provides annual financial statement data and monthly prices. The focus of the study is on common stock valuation so all other equity issues, e.g., preferred stock, are deleted from the sample. In addition, only firms with fully consolidated accounts were retained in the samples. Because the EU legislation of interest concerns only industrial companies, I do not include financial companies (e.g., banks, insurance companies) in the samples. As mentioned, I also select a benchmark U.S. sample. Data for this U.S. sample

are obtained from the *Compustat PC Plus Database.* The sample covers the period 1975-1994. I collect the same data items in the U.S. sample and I also exclude financial companies from the U.S. sample.

Following Kothari and Zimmerman (1995, 164) I delete the largest and smallest 1% of observations for each variable from the sample. In addition, I delete firms with negative book values. The sample sizes after deletion of outliers are 1,298 firm-years for Germany, 1,605 firm-years for France, and 5,665 firm-years for the U.K. The number of firms in the samples is 198 for Germany, 258 France, and 869 for the U.K. The corresponding numbers for the U.S. sample are 46,195 firm-years and 5,382 firms.

Earnings are defined before extraordinary items and discontinued operations and book value is defined as common equity. Price is as of six months after year-end to ensure that the annual report is available to investors. As there exist considerable scale differences across the three European samples, I use per-share values of earnings, book value and equity market values to reduce the presence of heteroscedastic disturbances (Kothari and Zimmerman, 1995).

Table 1 contains descriptive statistics for the samples and shows that the German firms are larger than the firms in the other samples. Table 2 shows univariate Pearson correlations between price, earnings and book value, all expressed on a per-share basis. Concerning the European samples, three observations can be made. First, the correlations between price and both earnings and book value are the lowest in Germany. Surprisingly they are the largest in France. Second, in the U.K., the correlation between price and earnings is higher than the correlation between price and book value. The opposite holds in the Continental countries. Third, in all three countries, there exists a large correlation between earnings and book value (p values $= 0.00$). This is important for the interpretation of some of the regression statistics. Whereas this multicollinearity does not influence the interpretation of the R^2 of the regressions, it does affect the t statistics of the coefficient estimates. These should therefore be interpreted with this observation in mind. The Pearson correlations in the U.S. sample indicate that the correlation between price and book value is higher than the correlation between price and earnings, a pattern that confirms the results in CMW (1997). In addition, earnings and book value are highly correlated as well in the U.S. sample.

IV Results

I present three sets of empirical results in this section. First, I discuss the results of cross-country tests that do not take into account the cross-sectional factors earlier mentioned. I refer to these results as the benchmark results. Second, I present the results of the analyses that incorporate the cross-sectional factors. Third, I present the results of specification tests I carried out.

Benchmark results

Hypothesis H1: Relative value relevance of earnings and book value

Table 3 contains the results that relate to the prediction in hypothesis H1. The first hypothesis states that earnings will have a larger explanatory power for price relative to book value in the U.K. and that this pattern will be reversed in the Continental countries. The results in the table support this prediction: earnings explain price better than book value in the U.K. and this pattern is reversed in Germany and France.

The table further reports the results of the R^2 decomposition t tests and the Vuong test. I report the results from the incremental R^2 analysis as follows. Since the order of magnitude of R^2 across countries is different, I scale both R^2_{IBV} and R^2_{INI} by $R^2_{BV/NI}$. The numbers in the *Incremental* R^2 BV-column are $((R^2_{BV/NI} - R^2_{NI})/R^2_{BV/NI}) * 100$ and those in the *incremental* R^2 NI-column as $((R^2_{BV/NI} - R^2_{NI})/R^2_{BV/NI}) * 100$. The *incremental* R^2 t columns report the t statistics on the book value and earnings coefficients in regression (2) in each of the country samples. The results of the incremental R^2 analysis show that in Germany the (proportional) incremental explanatory power of book value is more than twice as large as the one of earnings. This pattern is strongly reversed in the U.K. In France both variables achieve comparable incremental explanatory power. The *incremental* R^2 t tests indicate that in the Continental countries both accounting variables exhibit incremental explanatory power. In the U.K. on the other hand, according to the *incremental* R^2 t test only earnings have incremental explanatory power for price.

The results of the Vuong test show that the difference between R^2_{NI} and R^2_{BV} is *not* significant in Germany nor in France, but it is in the U.K. The U.K. result is consistent with the prediction of hypothesis H1. The evidence in the Continental countries is in the predicted direction but is

not significant. Otherwise put, the results for France and Germany show that, in spite of the creditor focus of the Continental accounting systems and its distorting influence on earnings, investors consider the information in earnings value relevant in addition to the information in book value.

Hypothesis H2: Conservatism

Table 4 presents evidence on the effect of conservatism on the valuation coefficients of earnings and book value. The prediction of hypothesis H2 states that if conservatism determines the earnings and book value coefficients in regression (2), then the Continental coefficients will be larger than the corresponding U.K. coefficients.

Panel A of table 4 presents the individual country slopes. The prediction of hypothesis H2 is confirmed so far as the book value coefficients are concerned. France and Germany obtain higher book value coefficients than the U.K. The prediction is not borne out by the data with respect to the earnings coefficients: the earnings coefficient is highest in the U.K. and lowest in Germany. Panel B reports the incremental slopes of France and the U.K. relative to the German country slope (the columns *Ger-Fra* and *Ger-U.K*).[18] The t tests indicates that the incremental French slopes are not significant. The t statistic on the incremental U.K. book value slope is highly significant, as predicted in the hypothesis. The incremental U.K. earnings slope is not significant.

An explanation for the results might be that the book value coefficients are *mainly* driven by differences in the degree of conservatism between the three accounting systems whereas the earnings coefficients are mainly influenced by other factors (e.g. risk). This possibility will be addressed below.

At this point, the concern might exist that the benchmark results are overstated (or in some cases understated) because within-country cross-sectional variation in valuation coefficients and explanatory power for price of earnings and book value is not taken into account. In the benchmark analyses, these variables constitute omitted variables. The results in the next section address this concern.

Control for cross-sectional factors

As discussed previously, I introduce the following cross-sectional factors in the analysis: 1) size, 2) industry, 3) permanence of earnings, 4) risk, and 5) growth.

Size. The proxy for size is the market value of equity of the firm. I partition the samples based on the quartiles of the distribution of market value of the firms in U.S. dollars *pooled* across Germany, France, and the U.K. The advantage of this partition is that it compares firms of a similar size across the three countries, i.e., in each of the four size groups the firms are of the same order of size across the three country samples.[19]

Industry. For the sake of parsimony and due to a lack of observations, the data are combined into three industry groups. The definition of industry is based on the SIC-codes of the firms in the sample. Following Warfield and Wild (1992), I consider three industry groups: SIC code industries 1 and 2 (e.g., mining, construction), SIC code industries 3 (durables manufacturers) and SIC code industries 4 through 7 (utilities, retail/wholesale and services). Table 5 shows the industry composition of the three European samples and the U.S. sample. The German sample is dominated by the durables manufacturing group whereas the samples in France and the U.K. contain a higher percentage of retail/wholesale and service companies. The U.S. sample contains relatively less firms with SIC code 1 and 2.[20]

Permanence of earnings. I partition the samples based on the sign and the magnitude of the *change* of earnings into groups with permanent and transitory earnings.[21] I use this criterion since it is universally applicable across the European samples without presuming any underlying model for earnings: the proxy does not impose any structure on the earnings process. Based on two recent studies (Basu 1995 and Barth et al. 1997) that provide evidence that the sign of earnings changes can be used to detect transitory and permanent components of earnings, I expect that negative and/or large earnings changes indicate transitory earnings.

Risk. The standard deviation of monthly price changes during the year is the proxy for risk (Barth and Sweeney 1995). The samples are partitioned based on the quartiles of the distribution of this standard deviation. I use a security-based risk measure rather than an accounting-based measure because the latter might be influenced by the differences that exist between the accounting systems.[22] In addition, I do not use *beta* as risk measure because an increasing number of studies on size, price-earnings, price-to-book or other anomalies have

demonstrated that *beta* might not capture risk of the firm adequately.

Growth. Growth in this paper refers to the asset expansion of the firm (Beaver and Ryan 1996). I partition the sample based on the quartiles of the distribution of three-year historical growth in sales. I use sales rather than total assets or book value of equity because I expect that the latter two accounting measures will be more affected by differences across the accounting systems than the former.[23]

As mentioned, I test the empirical validity of these proxies in the U.S. sample. I expect that the cross-sectional factors will influence the stock market valuation of earnings and book value in the same direction in each country. The question of interest is whether the previously reported evidence relating to the predictions of the hypotheses changes after controlling for the cross-sectional factors.

Hypothesis H1: Relative value relevance of earnings and book value

I estimate the R^2 of regressions (2)-(4) in each of the subsamples defined by the proxies. For the sake of parsimony, I present the results of these analyses as follows. To provide evidence on the validity of the proxies, I first report the pattern of the R^2 of the regressions in the U.S. sample in table 6. Next, I discuss the results in the European samples. Because the patterns of the R^2 in each of the European samples are largely similar to that in the U.S. sample, I limit this discussion to those aspects that relate to the prediction in hypothesis H1.

Panel A of table 6 confirms the results of the CMW study (1997) in the pooled U.S. sample: book value provides more explanatory power for price than earnings. Panel B shows that the relative explanatory power for price of earnings and price is a function of the size of the company. In particular, although book value obtains the highest explanatory power in all size groups, it clearly dominates earnings for the smaller firms. This can be seen from the incremental R^2.[24] Based on the discussion in BBL (1997), this result is consistent with size being a proxy for the financial health of the firm, as is often suggested in the finance literature. In addition, it seems that the accounting variables explain price better for smaller firms than for larger firms. An explanation for this pattern is that size is a proxy for the information environment of the firm. Accounting variables are relatively more important for smaller firms than for larger

firms. Panel C shows that the pattern of R^2 of the three regressions is similar across the industry groups. This lack of variation is probably due to the fact that I consider only three industry groups, that are still heterogeneous. As mentioned, the choice is dictated by the data limitations of the European samples. Panel D shows that the relative explanatory power for price of earnings and book value is a function of the size and magnitude of earnings changes, i.e., the degree of permanence of earnings. In the group with large negative earnings changes book value has the highest incremental explanatory power for price, consistent with the idea that earnings are predominantly transitory in this group. In the subsample with small positive earnings changes, this pattern changes: earnings dominate book value in terms of explanatory power for price. Overall, the results suggest that both the sign and the magnitude of earnings changes provide evidence on the permanence of the earnings number. The results in panel E show that the explanatory power for price of earnings and book value is a function of risk as well. In the subsample with the highest risk (group 1) book value clearly dominates earnings. As the subsamples become less risky, earnings gains in explanatory power for price relative to book value. This is consistent with the impact of financial health on the relative explanatory power for price of earnings and book value, as less risky firms tend to be financially healthier. Earnings as a proxy for the unrecognized net assets are more value relevant for these firms than for the riskier ones. Finally, the results in panel F indicate that growth influences the explanatory power for price of earnings and book value. The pattern of incremental R^2 suggests that earnings obtain relatively larger explanatory power for price as firms grow more.[25] This is again consistent with the idea that earnings are a proxy for the unrecognized net assets of the firm. When firm-growth is stronger and the unrecognized net assets explain a larger part of the variation in the value of the firm, earnings gain in explanatory power relative to book value.

The evidence in table 6 illustrates that the proxies chosen generally capture the underlying cross-sectional factors. In terms of the prediction of hypothesis H1, the (unreported) analyses in the European samples indicate that the benchmark results are generally unaffected by the within-country cross-sectional factors. Overall, earnings dominate book value in terms of explanatory power for price in the U.K. In the Continental countries, both earnings and book value exhibit incremental explanatory power for price and the differences between R^2_{BV} and R^2_{NI} are generally not significant. In other words, although the cross-sectional factors influence the relative value

relevance of earnings and book value within each country, the cross-country benchmark results pertaining to the prediction of hypothesis H1 remain the same.

Hypothesis H2: Conservatism

To test whether the cross-sectional factors have an impact on the valuation coefficients of earnings and book value, I include them as indicator variables in the regression (2) in both the U.S. sample and the pooled European samples. Table 7 reports the results for the U.S. sample. The first line of the table shows the reference coefficients for book value and earnings. All other coefficients are incremental slopes. The results in the BV column show that permanence of earnings has a significant impact on the book value coefficients in the expected direction: the book value coefficients are largest where earnings are more transitory ($-/Large$ group). The results in the NI column indicate that size, permanence of earnings, risk, and growth have a significant influence on the earnings coefficients. In each of these cases the signs of the incremental slopes are in the expected direction: the earnings coefficients increase with size, permanence of earnings, and growth and decrease with risk. Additionally, the generally opposite patterns of book value and earnings coefficients illustrate that both variables fulfill a complementary role: price is a *weighted* (or *convex*) function of book value and earnings (Burgstahler and Dichev 1997).

Table 8 contains the results of the analysis in the pooled European sample. The German country coefficients are the reference coefficients and the coefficients of France and the U.K. are incremental slopes. Three observations concerning these incremental country slopes can be made. First, the prediction relating to the book value coefficient is strongly borne out by the data: the difference between the U.K. and German coefficients is negative and significant. Second, the incremental slopes for France are not significant. Unreported analysis show that the differences between France and the U.K. are similar to those between Germany and the U.K. Third, the results rejects the prediction that the larger extent of conservatism in the German accounting system leads to higher earnings coefficients in Germany than in the U.K. As in table 4, the incremental earnings coefficient for the U.K. is positive. In contrast to the result in table 4, the incremental slope is statistically significant here. A corollary of this result is that the cross-sectional factors included in this study do not offer an answer as to why the earnings coefficient is larger in the U.K. than in the Continental countries.

The table further shows that size and to a lesser extent growth influence the book value coefficients in a significant way. The incremental cross-sectional earnings coefficients are generally *not* significant in the presence of the incremental country slopes (one exception is the fourth incremental risk slope).

Specification tests

I additionally carry out two specification tests to verify the robustness of the previously discussed results.[26]

PRESS

The $PRESS$ statistic offers a second view on the fit of regressions (2)-(4). $PRESS$ is defined as the sum of the predicted residuals of the regression: $PRESS = \sum_i e_{(i)}^2$. A predicted residual $e_{(i)}$ is defined for each observation i as the difference between the actual value of the observation and its fit by a model estimated without that particular observation. A simple relation between the "regular" and the predicted residual of each observation exists: $e_{(i)} = \frac{e_i}{1-h_{ii}}$ where h_{ii} is the ith diagonal element of the so-called "hat-matrix": $H = X(X'X)^{-1}X'$ (Weisberg 1985). From the definition of $PRESS$, it follows that models with a good fit have small $PRESS$ values. $PRESS$ is essentially a cross-validation measure and therefore an important validation check of the results based on the comparison of the R^2 of the regressions. $PRESS$ compares models *within* a particular (sub)sample. Table 9 presents some of the results of the $PRESS$ analysis. To facilitate comparison across models, I scale the $PRESS$ value of the BV and NI regressions by the $PRESS$ value of the BV/NI regression within each (sub)sample. The interpretation of the numbers in table 9 is that a smaller value corresponds to a better fit. Also, a value larger than *one* indicates that the fit of the model (BV or NI) is worse than that of the BV/NI regression in that particular sample.

The results in table 9 confirm the benchmark R^2 results reported earlier in tables 3 and 6. In particular, panel A shows that the book value regression obtains a better fit than the earnings regression in the U.S. sample. Both values are higher than *one* meaning that regression (2) obtains the best fit of all three. This suggests that both earnings and book value contain complementary explanatory power for price.

The results in panel B for the European samples also confirm earlier results. In the Continental countries, the book value regression obtains a better fit than the earnings regression and all *PRESS* value are larger than one. In the U.K., the *PRESS* value of the NI regression is lowest which confirms that earnings have larger explanatory power for price than book value. Also, the *PRESS* value of the NI regression is 1.00, which means that its fit is no worse than the fit of regression (2). This confirms the result of the two-step regression t test in table 3 that indicated that book value has no incremental explanatory power for price in the U.K.

I carried out similar *PRESS* analyses in all subsamples based on the proxies for the cross-sectional factors. The results of this analysis confirm the tenor of the benchmark results.

Newey-West standard errors

A second specification test addresses possible inference problems related to the valuation coefficients in eq. (2). These problems occur for two reasons: 1) the regression is estimated in samples that are pooled both over time and in the cross-section, and 2) the variables are defined in "levels" and not in "changes". This setting leads to several econometric problems concerning the estimation of the standard errors of the coefficients: 1) heteroskedasticity of the residuals, 2) autocorrelation of the residuals, and 3) cross-correlation of the residuals.

To deal with the first problem, I base the main inferences on White's (1980) heteroskedasticity-consistent standard errors.[27] However, the White standard errors only address heteroscedasticity in the residuals. As the samples are pooled over time, the issue of autocorrelation of the errors is also important. Newey and West (1987) address this problem and derive an estimator that is both heteroscedasticity and autocorrelation consistent. In other words, the Newey-West estimator extends the White estimator and allows the researcher to make inferences about the coefficients in the model without specifying the form of the heteroscedasticity or the autocorrelations. To apply the Newey-West methodology, it is necessary to choose a number of lags, say L, beyond which it is expected that the autocorrelations of errors are essentially zero, or at least small enough to ignore. In this study I set L equal to three.[28]

The results in table 10 show that the t_{NW} statistics based on the Newey-West standard errors are always smaller than those based on the White standard errors t_W (see table 4). However, none of the results changes. The incremental U.K. slope on book value remains highly

statistically significant.

Finally, although the Newey-West standard errors are able to handle both heteroscedasticity and autocorrelation of residuals, they do not solve the problem of the cross-correlation of residuals (see the extensive discussion in Bernard (1987)). One reason why the residuals may be cross-correlated is that the samples contain firm-year observations from the same time-period and industries. It is likely that economy- or industry-wide events influence the firms simultaneously. I therefore estimated all models both with fixed year-effects and with fixed year- and industry-effects. The results of both estimations are qualitatively similar. Throughout the study I report the results of the fixed year-effect estimations as I study industry as a separate variable of interest. Even after including year-effects, it is possible that there exists cross-correlation between residuals. Therefore the reported standard should be interpreted with this caveat in mind.

V Conclusion

In this study, I focus on the stock market valuation of earnings and book value in an international context, i.e., the accounting setting of Germany, France, and the U.K. In particular, I study two accounting aspects that relate to the valuation of earnings and book value: 1) the relative value relevance of balance sheet versus income statement information, and 2) the degree of accounting conservatism. The development of the hypotheses is based on the recasting of the main institutional differences between the accounting systems in Germany, France, and the U.K. in terms of these accounting aspects. I formulate two hypotheses in this paper. The first hypothesis (H1) focuses on the relative value relevance of book value and earnings. I predict that, due to the predominant investor focus in the U.K. and the creditor focus in the Continental countries, the explanatory power of earnings for price will be larger than the explanatory power of book value for price in the U.K., whereas the opposite will hold in the Continental countries. The second hypothesis (H2) relates to the effect of conservatism on the valuation multiples of earnings and book value. Based on the observation that the degree of conservatism in the Continental accounting systems is higher than in the U.K. system, I predict that in a regression of price on earnings and book value, the coefficients will be larger in the Continental countries

than in the U.K.

The results show that book value is less value relevant than earnings in the U.K., as predicted in hypothesis H1. In Germany and France though, the tests detect no difference in value relevance between earnings and book value. In spite of the creditor focus of the Continental accounting systems investors do not consider book value to be *more* value relevant than earnings. Both accounting variables exhibit significant incremental value relevance. Therefore, although the creditor focus and the tax-book conformity in the Continental accounting systems may distort earnings, investors believe that earnings contain value relevant information incremental to book value.

Relating to the second hypothesis H2, the empirical results show that the effects of conservatism are reflected in the valuation multiples of book value as predicted. The multiples in France or Germany are significantly higher than in the U.K., which is consistent with the hypothesis of a higher degree of conservatism in France and Germany. However, the evidence on the effects of conservatism on earnings is mixed. Whereas the German earnings valuation multiple is statistically indistinguishable from the French one, the U.K. earnings multiple is *larger* than in Germany. Conservatism does not seem to drive the difference between the earnings multiples.

The study additionally addresses cross-sectional variation in valuation multiples and explanatory power for price of earnings and book value in the international setting. The results of the analyses document the existence of within-country variation in the valuation of earnings and book value as a function of a set of cross-sectional factors. This variation is consistent across countries. However, the conclusions regarding the cross-country differences in value relevance of earnings and book value remain unaltered after taking into account these within-country factors.

A corollary of the results is that the cross-sectional factors included in this study do not explain why book value does not provide more explanatory power for price than earnings in the Continental countries or why the earnings coefficient is larger in the U.K. than in the Continental countries. Clearly, the conclusions in the study are conditional upon the factors considered in the research design. Future research should address the impact of other factors not included in this study. The discussion in section II suggested that the differences in business finance are the most important cause for the traditional differences between the accounting systems

of the countries studied. Recently it has been argued that the Continental firms are shifting towards more equity financing and therefore towards the U.S.-U.K. model. It is therefore of particular relevance to study the impact of both ownership structure and investor composition, i.e., the relative importance of foreign versus domestic investors in a company's stock on the value relevance of earnings and book value in these countries. The data used in this study do not allow an in-depth study of these factors. Although size is probably capturing some of the effects of these factors, more research is needed to determine the effects of these factors.

Notes

[1] E.g., Barth, Beaver, and Landsman (1997), Burgstahler, and Dichev (1997), Collins, Maydew, and Weiss (1997), Easton and Harris (1991), Penman (1995).

[2] Value relevance of a financial statement variable is reflected in the valuation multiple that the variable attains in a valuation equation: under the null hypothesis of *no* value relevance, an accounting variable has a valuation multiple of zero.

[3] I use the term Continental to refer to both Germany and France.

[4] "In the U.K." is interpreted here as "for U.K. firms" or "under U.K. GAAP". A similar remark holds for Germany and France.

[5] The derivation of the model is based on 1) the dividend discount model, 2) the clean surplus relation, i.e., $bv_{it} = bv_{it-1} + ni_{it} - d_{it}$ where d_{it} are the dividends per share of firm i at time t, and 3) the definition of abnormal earnings. See Ohlson (1995) for more details.

[6] The derivation of this equation is based on specific assumptions about the time-series properties of the abnormal earnings (Ohlson 1995).

[7] This view is consistent with the FO valuation setting.

[8] Both eq. (1) and (2) that the clean surplus relation [CSR] holds. However, it is likely that the CSR is *not* satisfied in the European context (see below and Barth and Clinch (1996)). Nevertheless, the specification in eq. (2) has been used in several contexts and in particular recent research has indicated that both the balance sheet and the income statement contain value relevant information not captured by the other (E.g., BBL (1997), Burgstahler, and Dichev (1997), Collins et al. (1997). In addition, O'Hanlon (1995) reports that a possible violation of CSR does not affect the results based on eq. (2) in a U.K.-based study.

[9] BBL (1997, 1) correctly point out that a comprehensive analysis of the functions of balance sheet and income statement would have to consider *all* assets and liabilities and *all* components of the income statement. However, a more modest first step in the exploration of the roles of both components of the financial statements can limit its focus to the two summary measures

of balance sheet and income statement, i.e., book value and earnings.

[10] From a theoretical standpoint, the model developed by Ohlson (1995) and FO (1995) establishes the link between stock price and both earnings and book value.

[11] In their study on differences in price-earnings [PE] and price-book [PB] ratios, Joos and Lang (1994) explore the possibility that macro-economic indicators might be responsible for differences in distributions of the ratios across countries. In particular, in the spirit of French and Poterba (1991) they consider macro-economic proxies for discount rates and expected growth, real interest rates and expected growth rates in real national products. The analysis of the latter shows that there is no significant difference between the median expected growth rates of the three countries over the period studied. Recent growth estimates yield the same result. In addition that there is little evidence of lower interest rates in Germany than in the U.K. (Joos and Lang 1994, 156) and no specific pattern over time which would explain their results.

[12] A number of sources give overviews of the important differences in accounting systems in the EU and across the world (e.g., Alexander and Archer (1991), Mueller et al. (1991), Nobes and Parker (1995)). I only present a brief discussion of the institutional differences. I refer the interested reader to the previously mentioned sources or to Joos (1997).

[13] Ordelheide and Pfaff (1994, 49) point out that *"The presumption is that the employees, like the company's bank, (...) have an interest in a high level of self-financing. The banks for their part are bound to be anxious to reduce their credit risk; for the employees it is a question of influencing decisions that could affect employment."*

[14] I argue in the section on the valuation model that the unrecognized net assets exist because book value does not capture the value of excess present value projects and growth options under the historical cost system. They therefore exist in both the Continental and the U.K. accounting systems. In Germany and France, the conservative accounting methods (e.g., accelerated depreciation) are likely to be an additional prominent reason for the existence of these unrecognized net assets.

[15] In this study, I assume that the respective stock markets are efficient and that prices

efficiently summarize value relevant information in each of the three European capital markets studied. Other studies that adopt this approach in an international accounting setting involving the countries in the sample are Alford et al. (1993), Harris et al. (1995), and Joos and Lang (1994). The characteristics and efficiency of European stock markets have also been examined in previous research (Hawawini (1984) or Baumol and Malkiel (1993) among others).

[16] Examples of conservative accounting practices in both the German and French accounting system are: 1) the adoption of accelerated depreciation methods; 2) the valuation of receivables taking into account "all known risks" which involves reporting a lump-sum allowance for doubtful accounts in recognition of the "general risk" inherent in receivables; 3) non-recognition of unrealized gains (e.g., foreign exchange).

[17] I do not formally test the differences between the U.S. accounting system and any of the three European accounting systems studied. It might be that the underlying economies in the U.S. and the EU are not similar enough to warrant drawing conclusions about differences if these were to show up in the tests. In other words, possible results might be driven by factors other than differences in the accounting systems.

[18] For the sake of parsimony, I only report the results of tests that use the German earnings and book value coefficients as reference coefficients.

[19] In addition, I consider two additional partitioning schemes. The first is based on the quartiles of the distribution of market value of equity of the firms *within* each sample. The advantage of this partition is that it does allow me to detect within-country effects of size. The second is based on the quartiles of the distribution of sales within each country sample. The results of the analyses based on these partitions are qualitatively similar to those reported.

[20] I carried out additional analyses with a finer industry partition, based on BBL (1997). However, the results relating to the predictions in the hypotheses do not change.

[21] There exist several proxies for permanence of earnings in the accounting literature. For example, Kormendi and Lipe (1987) present a general framework where the persistence of earnings is derived from a general time series process of changes in earnings. Unfortunately, due to

data limitations, it is not feasible to estimate time series estimates in the European samples.

[22] Although it still may seem valid to use an accounting-based measure since the partitions are defined within each country-sample, i.e., German companies are compared to each other and not to French or British companies, it is possible that the accounting issues involved make the chosen variable unsuitable as a risk measure. For example, Alford (1992) uses total assets as his measure for risk. This measure is expected to be influenced by the different degrees of conservatism that exist across the accounting systems. Another example is the use of the standard deviation of earnings changes per company over the last, say, n years as risk measure. This measure is used by Barth et al. (1997). Although this is a valid measure in the context of their paper, earnings are heavily influenced by the characteristics of the accounting system. For example, it is often argued that German companies engage in substantial income smoothing. If the extent of income smoothing is different across German companies due to factors unrelated to risk, the volatility of earnings changes is not a good proxy for risk.

[23] As part of their analysis, Joos and Lang (1994, 158) study the variation in components of net income as a function of measurement differences across the accounting systems of Germany, France, and the U.K. Their findings suggest that although sales might be influenced by differences in revenue recognition across the accounting systems, the distribution of sales does not differ much across the three countries. The largest differences in accounting measurement show up on the expense side of the income statement (e.g., operating expenses, depreciation).

[24] CMW (1997) obtain a similar result.

[25] The result in subsample 4, i.e., the firms with the highest growth, appears somewhat anomalous.

[26] In addition to these methodological specification tests, I also considered the impact on the results of the presence of firms with negative earnings in the sample. The concern exists that these observations influence the outcome of the analyses. I therefore re-estimate the regressions in restricted samples that contain only non-negative earnings observations. The results of these analyses indicate that, in general, the qualitative implications of the results previously presented concerning the predictions in both hypotheses H1 and H2 do not change after deletion of the

negative earnings observations.

[27] Barth and Kallapur (1996) report that even in the case of homoscedastic residuals, White heteroscedasticity-consistent standard errors are accurate. The authors therefore recommend basing inferences on White standard errors even though heteroskedasticity tests might not reject homoscedasticity. Kothari and Zimmerman (1995) conclude that an important drawback of using price models rather than return models is that price models are often misspecified due to heteroskedasticity. They also recommend using White standard errors to deal with this misspecification problem.

[28] This choice is partly driven by the computer-intensive nature of the estimation. I estimated some results with L set to different values and the results qualitatively remained the same.

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TABLE 1

Descriptive Statistics for Sample Firms[a]

	# Obs.	Mean	Q1	Median	Q3
Market Value of Equity ($ millions)					
Germany	1,298	1313.90	147.26	367.72	1089.24
France	1,605	787.76	99.41	279.04	709.04
U.K.	5,665	822.65	54.88	151.17	494.63
U.S.	46,195	737.55	18.44	72.58	343.05
Book Value of Equity ($ millions)					
Germany	1,298	759.70	71.51	172.23	487.03
France	1,605	469.23	71.32	161.07	377.71
U.K.	5,665	434.81	31.36	77.22	271.02
U.S.	46,195	379.16	12.43	45.10	183.13
Earnings ($ millions)					
Germany	1,298	61.25	3.52	11.63	37.56
France	1,605	54.37	4.62	16.54	47.68
U.K.	5,665	56.82	3.61	10.33	35.32
U.S.	46,195	46.62	0.25	3.72	20.62

[a] The data for the international samples are from *Global Vantage* and are pooled over 1982-1993. The U.S. sample are collected from *PC Plus Compustat* and are pooled over 1975-1994. Market value of equity is the market value of outstanding equity six months following fiscal year-end in millions of U.S. dollars. Book value of equity is common equity in millions of U.S. dollars. Earnings are net income before extra-ordinary items in millions of U.S. dollars. Per-share values are computed using the number of outstanding common shares. Outliers have been deleted as indicated in the text.

TABLE 2

Univariate Pearson Correlations[a]

	# Obs.	Price-NI	Price-BV	NI-BV
Germany	1,298	0.36	0.42	0.44
France	1,605	0.69	0.71	0.66
U.K.	5,665	0.62	0.46	0.69
U.S.	46,195	0.53	0.68	0.54

[a] The data for the international samples are from *Global Vantage* and are pooled over 1982-1993. The U.S. sample are collected from *PC Plus Compustat* and are pooled over 1975-1994. Price per share is the stock price of equity six months following fiscal year-end. Book value per share is equity divided by the number of common shares. Earnings per share is net income before extra-ordinary items divided by the number of common shares. All numbers are in the original currency. Outliers have been deleted as indicated in the text.

TABLE 3

Regression Results: Assocation Measures and Hypothesis Tests[a]

European Samples: Benchmark Results

		R^2			*Incr.* R^2		*Incr.* R^2 t^c		*Vuong*[d]
	# Obs.	BV/NI	BV	NI	BV[b]	NI[b]	BV	NI	BV-NI
Ger	1,298	0.21	0.18	0.13	39.50	17.89	5.46	4.91	0.10
Fra	1,605	0.59	0.50	0.48	18.53	15.90	9.91	8.77	0.33
U.K.	5,665	0.39	0.21	0.39	0.44	45.93	0.95	15.10	0.00

[a] All data are from *Global Vantage* and are pooled over 1982-1993. Outliers have been deleted as indicated in the text. The models estimated are:

$$\begin{aligned} \text{BV/NI: } P_{it} &= \gamma_0 + \gamma_1 ni_{it} + \gamma_2 bv_{it} + \epsilon_{1it} \\ \text{BV: } P_{it} &= \alpha_0 + \alpha_1 bv_{it} + \epsilon_{2it} \\ \text{NI: } P_{it} &= \beta_0 + \beta_1 ni_{it} + \epsilon_{3it} \end{aligned}$$

where P_{it} = share price of firm i at time t; ni_{it} = earnings per share of firm i at time t; bv_{it} = book value per share of firm i at time t; $\epsilon_{(1,2,3),it}$ = error terms.

[b] The values reported are: BV: $((R^2_{BV/NI} - R^2_{NI})/R^2_{BV/NI}) * 100$ and NI: $((R^2_{BV/NI} - R^2_{BV})/R^2_{BV/NI}) * 100$

[c] The incremental R^2 t test evaluates the significance of the incremental R^2. The t values reported are based on regression BV/NI in the separate samples.

[d] The Vuong test is a likelihood ratio test that compares the explanatory power of the BV and NI regressions. The values reported are the p values of a hypothesis test that both R^2 are the same.

TABLE 4
Regressions Results: Coefficients[a]
European Samples: Benchmark Results

Panel A: Country Slopes[b]				
	BV	t_W	NI	t_W
Germany	0.87	5.46	4.03	4.91
France	0.86	9.91	4.46	8.77
U.K.	0.04	0.95	5.20	15.10

Panel B: Incremental Country Slopes[c]				
	BV	t_W	NI	t_W
Ger-Fra	-0.01	-0.05	0.43	0.44
Ger-U.K.	-0.83	-5.10	1.17	1.31

[a] All data are from *Global Vantage* and are pooled over 1982-1993. Outliers have been deleted as indicated in the text.
[b] The country regressions are fixed effect regressions with fixed year-effects:

$$P_{it} = \sum_{\#years} \gamma_j + \gamma_1 bv_{it} + \gamma_2 ni_{it} + \epsilon_{1it}$$

where P_{it} = share price of firm i at time t; ni_{it} = earnings per share of firm i at time t; bv_{it} = book value per share of firm i at time t; $\epsilon_{1,it}$ = error term.
t_W statistics are based on White's (1980) heteroscedasticity-consistent standard errors.
[c] The cross-country regressions are fixed effect regressions with fixed year/country-effects:

$$\begin{aligned} P_{it} \quad = \quad & \sum_{\#years \times \#countries} \alpha_j + \alpha_1 bv_{it} + \alpha_2 (bv_{it} \times DUMFRA) + \alpha_3 (bv_{it} \times DUMUK) + \\ & \beta_1 ni_{it} + \beta_2 (ni_{it} \times DUMFRA) + \beta_3 (ni_{it} \times DUMUK) + \epsilon_{2it} \end{aligned}$$

where P_{it} = share price of firm i at time t; ni_{it} = earnings per share of firm i at time t; bv_{it} = book value per share of firm i at time t; DUMFRA (DUMUK) is a dummy variable which takes on the value of 1 if a firm is from France (the U.K.); $\epsilon_{2,it}$ = error term. TABLE 4 reports the number of observations per regression.
The coefficients in this panel are *relative* to the coefficient from Germany. The t test tests the differences in slopes between France (Ger-Fra) or the U.K. (Ger-U.K.) and Germany.
t_W statistics are based on White's (1980) heteroscedasticity-consistent standard errors.

TABLE 5

SIC Code Industry Groupings[a]

	SIC-codes	Composition of Samples			
		Germany	*France*	*U.K.*	*U.S.*
1	1000-2999	26.67	34.27	34.49	24.97
2	3000-3999	53.78	30.03	28.72	34.18
3	4000-7999	19.49	35.70	36.78	40.83

[a] The data for the international samples are from *Global Vantage* and are pooled over 1982-1993. The U.S. sample are collected from *PC Plus Compustat* and are pooled over 1975-1994. The numbers in the table are percentages of the country samples.

TABLE 6

Regression Results: Assocation Measures and Hypothesis Tests

U.S. Sample[a]

Panel A: Benchmark Result

		R^2			*Incr.* R^2		*Incr.* R^2 t[c]		*Vuong*[d]
	# Obs.	BV/NI	BV	NI	BV[b]	NI[b]	BV	NI	BV-NI
Pooled	46,195	0.50	0.46	0.28	43.20	7.55	24.44	21.28	0.00

Panel B: Size Partition[e]

		R^2			*Incr.* R^2		*Incr.* R^2 t[c]		*Vuong*[d]
	# Obs.	BV/NI	BV	NI	BV[b]	NI[b]	BV	NI	BV-NI
1	23,074	0.53	0.52	0.14	73.11	2.14	41.07	7.93	0.00
2	7,907	0.51	0.47	0.30	41.41	8.65	7.24	7.91	0.00
3	6,930	0.42	0.41	0.20	52.76	3.46	23.82	7.25	0.00
4	8,284	0.31	0.28	0.18	43.02	9.02	31.34	17.22	0.00

Panel C: Industry Partition[f]

		R^2			*Incr.* R^2		*Incr.* R^2 t[c]		*Vuong*[d]
	# Obs.	BV/NI	BV	NI	BV[b]	NI[b]	BV	NI	BV-NI
1	11,539	0.49	0.45	0.28	43.42	7.71	31.70	12.38	0.00
2	15,793	0.50	0.46	0.27	45.20	8.41	9.21	12.80	0.00
3	18,863	0.52	0.48	0.30	41.88	6.44	30.72	12.78	0.00

Panel D: Permanence of Earnings Partition[g]

		R^2			*Incr.* R^2		*Incr.* R^2 t[c]		*Vuong*[d]
	# Obs.	BV/NI	BV	NI	BV[b]	NI[b]	BV	NI	BV-NI
-/Small	7,123	0.54	0.50	0.43	20.02	6.59	15.20	9.48	0.00
-/Large	8,742	0.50	0.50	0.01	98.86	0.24	31.22	3.68	0.00
+/Small	12,666	0.52	0.46	0.49	6.61	12.58	11.42	17.21	0.00
+/Large	11,047	0.49	0.45	0.37	25.15	8.54	19.90	6.97	0.00

Panel E: Risk Partition[h]

		R^2			*Incr.* R^2		*Incr.* R^2 t[c]		*Vuong*[d]
	# Obs.	BV/NI	BV	NI	BV[b]	NI[b]	BV	NI	BV-NI
1	11,549	0.48	0.47	0.13	72.19	2.23	8.83	15.60	0.00
2	11,548	0.48	0.44	0.23	51.90	6.96	13.90	18.27	0.00
3	11,548	0.45	0.40	0.26	41.77	10.71	26.48	9.62	0.00
4	11,550	0.44	0.38	0.30	30.96	12.93	26.38	5.45	0.00

Panel F: Growth Partition[i]

		R^2			*Incr.* R^2		*Incr.* R^2 t[c]		*Vuong*[d]
	# Obs.	BV/NI	BV	NI	BV[b]	NI[b]	BV	NI	BV-NI
1	8,077	0.60	0.56	0.21	64.72	5.55	48.71	9.17	0.00
2	8,077	0.52	0.47	0.33	37.24	10.38	31.66	14.84	0.00
3	8,077	0.47	0.41	0.35	25.13	13.44	18.52	17.37	0.00
4	8,077	0.49	0.46	0.34	30.25	7.05	15.80	7.78	0.00

[a] The U.S. sample data are from *Compustat PC Plus* and are pooled over 1976-1994. Outliers have been deleted as indicated in the text. The European samples data are from *Global Vantage* and are pooled

over 1982-1993. Outliers have been deleted as indicated in the text. The models estimated are:

$$\begin{aligned} \text{BV/NI: } P_{it} &= \gamma_0 + \gamma_1 ni_{it} + \gamma_2 bv_{it} + \epsilon_{1it} \\ \text{BV: } P_{it} &= \alpha_0 + \alpha_1 bv_{it} + \epsilon_{2it} \\ \text{NI: } P_{it} &= \beta_0 + \beta_1 ni_{it} + \epsilon_{3it} \end{aligned}$$

where P_{it} = share price of firm i at time t; ni_{it} = earnings per share of firm i at time t; bv_{it} = book value per share of firm i at time t; $\epsilon_{(1,2,3),it}$ = error terms.

[b] The values reported are: NI: $((R^2_{BV/NI} - R^2_{BV})/R^2_{BV/NI}) * 100$ and BV: $((R^2_{BV/NI} - R^2_{NI})/R^2_{BV/NI}) * 100$.

[c] The incremental R^2 t test evaluates the significance of the incremental R^2. The t values reported are based on regression BV/NI in the separate samples.

[d] The Vuong test is a likelihood ratio test that compares the explanatory power of the BV and NI regressions. The values reported are the p values of a hypothesis test that both R^2 are the same.

[e] The size groups are based on the quartiles of the pooled distribution of market value of equity measured in U.S. dollars in the European samples. The groups are ordered from small to large.

[f] The industry groups are based on the SIC-codes of the firms. See TABLE 5.

[g] – indicates negative earnings changes, + positive earnings changes. Small and large values are determined relative to the median of the earnings changes.

[h] Risk is defined as the standard deviation of monthly returns. The groups are ordered from high risk to low risk.

[i] Growth is defined as the three year historical growth in sales. The groups are order from low growth to high growth.

TABLE 7
Regression Results: Coefficients
U.S. Sample[a]

	Sign?[b]	BV[c]	t_W	Sign?[b]	NI[c]	t_W
		0.12	2.12		2.21	6.20
Size 2	-	0.24	1.16	+	0.27	7.21
Size 3	-	-0.27	-1.14	+	0.49	12.12
Size 4	-	0.05	0.26	+	0.76	18.72
Ind 2	?	-0.01	-0.48	?	-0.23	-1.21
Ind 3	?	-0.10	-4.70	?	-0.38	-1.93
-/Large	+	0.16	4.62	-	-2.09	-7.19
+/Small	-	-0.10	-2.21	+	1.40	3.78
+/Large	?	0.05	1.30	?	-0.47	-1.34
Risk 2	-	-0.01	-0.65	+	0.42	1.53
Risk 3	-	-0.03	-0.93	+	0.75	2.93
Risk 4	-	-0.02	-0.37	+	0.90	3.42
Growth 2	-	-0.01	-0.35	+	0.46	2.23
Growth 3	-	-0.10	-3.84	+	0.93	4.51
Growth 4	-	0.02	0.76	+	0.05	0.21

[a] All data are from *Compustat PC Plus* and are pooled over 1976-1994. Outliers have been deleted as indicated in the text. The regression is estimated with fixed year-effects:

$$P_{it} = \sum_{\#years} \alpha_i + \alpha_1 bv_{it} + \sum_{\#partitions} \sum_{\#groups} \alpha_{2jk}(bv_{it} \times DUMPART_{jk}) + \beta_1 ni_{it} + \sum_{\#partitions} \sum_{\#groups} \beta_{2jk}(ni_{it} \times DUMPART_{jk}) + \epsilon_{1it}$$

where P_{it} = share price of firm i at time t; ni_{it} = earnings per share of firm i at time t; bv_{it} = book value per share of firm i at time t; DUMPART is an indicator variable for the partition; j is the number of partitions and k the number of groups in the separate partitions; ϵ_{1it} = error term. The regression is based on 31,354 observations. The total R^2 of the regression is 0.64.
The size groups are based on the quartiles of the pooled distribution of market value of equity measured in U.S. dollars in the European samples. The groups are ordered from small to large.
The industry groups are based on the SIC-codes of the firms. See TABLE 5.
– indicates negative earnings changes, + positive earnings changes. Small and large values are determined relative to the median of the earnings changes.
Risk is defined as the standard deviation of monthly returns. The groups are ordered from high risk to low risk.
Growth is defined as the three year historical growth in sales. The groups are order from low growth to high growth.
[b] The *Sign?* columns show the expected sign of the coefficients.
[c] The coefficients (with the exception of the ones in the first row) are *relative* to the first row coefficients. In other words, the table reports incremental slopes.
t_W statistics are based on White's (1980) heteroscedasticity-consistent standard errors.

TABLE 8
Regression Results: Coefficients
European Samples[a]

	Sign?[b]	BV[c]	t_W	Sign?[b]	NI[c]	t_W
		0.53	1.88		1.43	0.65
France	?	0.20	1.28	?	-0.33	-0.38
U.K.	-	-0.54	-3.66	-	2.17	2.35
Size 2	-	0.56	3.02	+	1.12	0.72
Size 3	-	0.64	4.83	+	1.14	0.95
Size 4	-	0.39	3.82	+	1.45	1.53
Ind 2	?	-0.21	-1.52	?	-1.36	-1.20
Ind 3	?	-0.12	-0.77	?	-0.09	-0.07
-/Large	+	-0.04	-0.23	-	-0.82	-0.49
+/Small	-	-0.14	-0.50	+	2.68	1.22
+/Large	?	0.35	1.46	?	-1.76	-0.95
Risk 2	-	-0.20	-1.54	+	1.84	1.92
Risk 3	-	-0.10	-0.70	+	2.03	1.61
Risk 4	-	-0.26	-1.63	+	3.47	2.02
Growth 2	-	0.20	1.81	+	-0.98	-0.78
Growth 3	-	0.38	2.39	+	-0.61	-0.45
Growth 4	-	0.16	1.09	+	0.82	0.67

[a] All data are from *Global Vantage* and are pooled over 1982-1993. Outliers have been deleted as indicated in the text. The cross-country regressions are fixed effect regressions with fixed year-effects:

$$\begin{aligned} P_{it} = & \sum_{\#years \times \#countries} \alpha_i + \alpha_1 bv_{it} + \alpha_2(bv_{it} \times DUMFRA) + \alpha_3(bv_{it} \times DUMUK) + \\ & \sum_{\#partitions} \sum_{\#groups} \alpha_{4jk}(bv_{it} \times DUMPART_{jk}) + \beta_1 ni_{it} + \beta_2(ni_{it} \times DUMFRA) + \\ & \beta_3(ni_{it} \times DUMUK) + \sum_{\#partitions} \sum_{\#groups} \beta_{4jk}(ni_{it} \times DUMPART_{jk}) + \epsilon_{1it} \end{aligned}$$

where P_{it} = share price of firm i at time t; ni_{it} = earnings per share of firm i at time t; bv_{it} = book value per share of firm i at time t; DUMFRA (DUMUK) is a dummy variable which takes on the value of 1 if a firm is from France (the U.K.); DUMPART is an indicator variable for the partition; j is the number of partitions and k the number of groups in each separate partition; ϵ_{1it} = error term. The regression is based on 4,738 observations. The total R^2 of the regression is 0.84.
The size groups are based on the quartiles of the pooled distribution of market value of equity measured in U.S. dollars. The groups are ordered from small to large.
The industry groups are based on the SIC-codes of the firms. See TABLE 5.
– indicates negative earnings changes, + positive earnings changes. Small and large values are determined relative to the median of the earnings changes.
Risk is defined as the standard deviation of monthly returns. The groups are ordered from high risk to low risk.

Growth is defined as the three year historical growth in sales. The groups are order from low growth to high growth.

[b] The *Sign?* columns show the expected sign of the coefficients.

[c] The coefficients (with the exception of those of Germany) are *relative* to the German coefficients. In other words, the table reports the incremental slopes.

t_W statistics are based on White's (1980) heteroscedasticity-consistent standard errors.

TABLE 9

Regressions Results: PRESS Values[a]

Panel A: U.S. Sample[b]			
	# Obs.	BV[c]	NI[c]
	46,195	1.08	1.43

Panel B: European Samples[b]			
	# Obs.	BV[c]	NI[c]
Germany	1,298	1.04	1.10
France	1,605	1.23	1.26
U.K.	5,665	1.29	1.00

[a] *PRESS* is the sum of the squared predicted residuals from a regression model.
[b] The data for the international samples are from *Global Vantage* and are pooled over 1982-1993. The U.S. sample data are collected from *PC Plus Compustat* and are pooled over 1975-1994. Outliers have been deleted as indicated in the text.
[c] The models estimated are:

$$\begin{aligned} \text{BV/NI: } P_{it} &= \gamma_0 + \gamma_1 ni_{it} + \gamma_2 bv_{it} + \epsilon_{1it} \\ \text{NI: } P_{it} &= \alpha_0 + \alpha_1 ni_{it} + \epsilon_{2it} \\ \text{BV: } P_{it} &= \beta_0 + \beta_1 bv_{it} + \epsilon_{3it} \end{aligned}$$

where P_{it} = share price of firm i at time t; ni_{it} = earnings per share of firm i at time t; bv_{it} = book value per share of firm i at time t; $\epsilon_{(1,2,3),t}$ = error terms. Within each sample, the *PRESS* value of the NI and BV regressions are scaled by the PRESS value of the BV/NI regression. The interpretation of the numbers in the table are that a smaller value corresponds with a better fit and a value larger than *one* indicates that the fit of the model is worse than that of the BV/NI regression in that particular partition.

TABLE 10
Regressions Results: Coefficients
Newey-West Standard Errors[a]

Panel A: Country Slopes[b]

	BV	t_W	t_{NW}	NI	t_W	t_{NW}
Germany	0.87	5.46	5.08	4.03	4.91	3.87
France	0.86	9.91	8.78	4.46	8.77	6.82
U.K.	0.04	0.95	0.77	5.20	15.10	12.75

Panel B: Incremental Country Slopes[c]

	BV	t_W	t_{NW}	NI	t_W	t_{NW}
Ger-Fra	-0.01	-0.05	-0.05	0.43	0.44	0.35
Ger-U.K.	-0.83	-5.10	-4.70	1.17	1.31	1.04

[a] All data are from *Global Vantage* and are pooled over 1982-1993. Outliers have been deleted as indicated in the text.
[b] The country regressions are fixed effect regressions with fixed year-effects:

$$P_{it} = \sum_{\#years} \gamma_j + \gamma_1 bv_{it} + \gamma_2 ni_{it} + \epsilon_{1it}$$

where P_{it} = share price of firm i at time t; ni_{it} = earnings per share of firm i at time t; bv_{it} = book value per share of firm i at time t; $\epsilon_{1,it}$ = error term.
t_W statistics are based on White's (1980) heteroscedasticity-consistent standard errors.
t_{NW} statistics are based on Newey-West (1987) heteroscedasticity and autocorrelation consistent standard errors.
[c] The cross-country regressions are fixed effect regressions with fixed year/country-effects:

$$\begin{aligned} P_{it} \quad = \quad & \sum_{\#years \times \#countries} \alpha_j + \alpha_1 bv_{it} + \alpha_2 (bv_{it} \times DUMFRA) + \alpha_3 (bv_{it} \times DUMUK) + \\ & \beta_1 ni_{it} + \beta_2 (ni_{it} \times DUMFRA) + \beta_3 (ni_{it} \times DUMUK) + \epsilon_{2it} \end{aligned}$$

where P_{it} = share price of firm i at time t; ni_{it} = earnings per share of firm i at time t; bv_{it} = book value per share of firm i at time t; DUMFRA (DUMUK) is a dummy variable which takes on the value of 1 if a firm is from France (the U.K.); $\epsilon_{2,it}$ = error term. TABLE 4 reports the number of observations per regression.
The coefficients in this panel are *relative* to the coefficient from Germany. The t test tests the differences in slopes between France (Ger-Fra) or the U.K. (Ger-U.K.) and Germany.
t_W statistics are based on White's (1980) heteroscedasticity-consistent standard errors.
t_{NW} statistics are based on Newey-West (1987) heteroscedasticity and autocorrelation consistent standard errors.