The Time Series of the Clean Surplus Relation*

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Abstract

We document a substantial weakening of the clean surplus relation over time, suggesting that firms' other comprehensive income has nowadays become much more economically significant. Importantly, we also find that this trend helps to explain two prominent puzzles about the temporal variation in the relevance of firm- and market-level earnings: (1) the decline in the relevance of firms' earnings and (2) the switch in the relation between the market's earnings and its returns from negative to positive.

Keywords: time series, clean surplus relation, other comprehensive income, firm- and market-level earnings, stock and market returns, relevance.

JEL classification: G12, G14, M41.

1. Introduction

Current accounting-based valuation models evolve primarily around those of Ohlson (1995) and Vuolteenaho (2002). One of the key assumptions in both of these models is that the clean surplus relation (hereinafter, CSR) always holds. This relation assumes that all changes in book values of equity are recorded in the income statement and it is formally given by Equation (1):

$$B_t = B_{t-1} + E_t - D_t, \tag{1}$$

where B_t is book value of equity at the end of period t, and E_t and D_t are earnings and dividends, respectively, in period t. Despite its intuitive appeal, however, due to the existence of other comprehensive income (i.e., accounting items that affect book values of equity, but not the income statement; hereinafter, OCI), the CSR can be severely violated in reality (the case of Silicon Valley Bank is a popular recent example). While the empirical validity of this relation in the cross section of firms has been studied before (see Black (2016) for a review of this literature), to our knowledge, evidence on the changes in it over time is still missing. Hence, in this paper, we examine empirically the time series of the CSR and its implications for several of the most puzzling findings in the prior literature on the relevance of firm- and market-level earnings.

To this end, we use quarterly data on all firms listed on the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX) and NASDAQ, from the first quarter of 1980 to the first quarter of 2019. Our first major finding is that the CSR has weakened substantially during this period. In particular, we estimate the average deviation from the theoretical ideal in Equation (1) to have increased from 16% in the 1980s to 42% in the 2010s. Put otherwise, the magnitude of OCI as a proportion of the magnitude of total comprehensive income (which includes net income (hereinafter, NI) as well) has, on average, more than doubled. We also find that this accounting item has become more pervasive (and not just in the finance industry, as commonly believed). Specifically, between the first and the second half of our sample period, the percent of firms with near-zero OCI has declined from 45 to 30. At the same time, there has been a notable rise in the percentage of firms with all the other values of this variable's distribution. Overall, these results suggest that, over time, the economic importance of OCI has grown.

Motivated by these findings, in our subsequent analyses, which are performed first on a firm level, we begin with an inspection of the temporal variation in the persistence of the changes in OCI (we also compare this variation to that for NI).[1] Our results here reveal that the implications of both of these accounting items' current changes for their future changes are almost fully unravelled within four quarters, where their first and fourth lags are the most influential. Namely, as in the prior literature, whereas the changes in NI autocorrelate positively with their first lags and negatively with their fourth lags (see, e.g., Bernard & Thomas, 1990; Kothari et al., 2006), the changes in OCI are negatively autocorrelated with both their first and fourth lags. More importantly, however, we discover that the changes in both of these accounting items, but especially the former, have become less persistent from the earlier to the later half of our sample

[1] Throughout this paper, unless stated otherwise, following the prior literature (e.g., Kothari et al., 2006), we work with the changes in OCI that are deseasonalized and scaled. In particular, for firm i at the end of quarter t, the change in OCI is defined as the ratio of the difference between the OCI at the end of quarters t and $t-4$ to the book value of common equity at the end of quarter $t-4$. The changes in NI are defined correspondingly.

period, indicating that their predictability has decreased over time (i.e., their current values are nowadays less informative than in the past about their future values).

Equipped with this knowledge, we then investigate the time-related variability in the relevance of OCI (we again contrast this variability with that for NI as well),[2] where we regress stock returns on the changes in the two accounting items of our interest simultaneously, thereby effectively running a so-called horse race for their statistical and economic significance. In doing so, we explore contemporaneous quarterly returns and, given the autocorrelation structures described above, future returns over periods of one to four quarters. For our entire sample period, we observe that the changes in both NI and OCI are associated with such returns in a statistically and economically meaningful way. Specifically, on average, a one standard deviation increase in these two accounting items is associated with a positive contemporaneous return of 3.24% and 0.48% per quarter, respectively. Over the next four quarters, however, although we find evidence in line with the prior literature on the post-earnings-announcement drift that stock prices continue to move in the direction of the changes in NI (see Fink (2021) for a review of this literature), we detect a partial reversal in the returns associated with the changes in OCI. That is, on average, a one standard deviation increase in the former is associated with a positive return of 0.96% per year, whereas such an increase in the latter is associated with a negative return of −0.72% per year.[3] Strikingly, however, between the two halves of our sample period, in terms of both of these contemporaneous and future returns, while the statistical and economic importance of OCI has remained roughly the same, that of NI has diminished considerably. This suggests that, over time, OCI has become more relevant than NI, which raises the question of whether the waning of the CSR has directly contributed toward the already well-documented decline in this accounting item's relevance (see, e.g., Barth et al., 2023; Francis & Schipper, 1999).

To shed light on this question, we move our analyses to a market level, where we once again commence with an examination of the temporal variation in the persistence of the changes in the two accounting items of our interest. This time, however, we look into the time series of their cross-sectional market-wide equal- and value-weighted means. In general, the results from these analyses reveal several patterns. First, the average changes in both of the accounting items autocorrelate positively with their first lags, but negatively with their fourth lags (note the difference here with the changes in firm-level OCI which, as mentioned above, are negatively autocorrelated with both their first and fourth lags). Second, over time, they have both become more persistent with respect to their first lags, but less persistent with regard to their fourth

[2] We adopt Barth et al.'s (2001) definition of the relevance of accounting information, according to which such information is relevant if it has a statistically reliable association with stock returns. As explained by these authors, the only inference that can be made with this definition is whether or not the accounting information under study is correlated with or reflects the information that is actually used by investors. Indeed, drawing any other inferences, such as about the usefulness of the accounting information in estimating intrinsic values, is impossible, which is why the prior literature in this area has typically not done so (see Barth et al. (2001) for more details).

[3] There are at least two possible, albeit not mutually exclusive, explanations for the results regarding the changes in OCI. On the one hand, investors may not completely understand the time-series properties of those changes. That is, upon observing the changes in OCI in quarter t, they could fail to adequately revise their expectations for its changes in quarters $t + 1$ through $t + 4$. Consequently, stock prices would not fully reflect the implications of the current changes in this accounting item for its future changes (meaning that stocks would be mispriced and their returns would be predictable). On the other hand, the changes in OCI could be negatively related to discount rates. In that case, if this accounting item increases, stock prices would first increase, but then they would decrease, which is precisely what we find. Nonetheless, although we believe that identifying the exact underlying mechanism behind these results is important, we leave this issue for future research, as it is beyond the scope of this paper.

lags. Finally, all of these results seem to be driven by large firms.

More importantly, in these analyses, to capture the time-related variation in the relevance of NI, as our dependent variable, we exploit the time series of the estimated coefficients from cross-sectional regressions of the contemporaneous quarterly returns on the changes in this accounting item. In contrast, the main independent variable is the time series of the cross-sectional market-wide equal- or value-weighted mean of the absolute value of OCI, which we use to measure the temporal variability in the degree of the deviations from the CSR. Our results here indicate a robust statistically and economically notable negative relation between these two variables, driven by small firms. In particular, on average, a one standard deviation increase in the latter variable is associated with a 4.98% decrease in the former one. These results emerge after controlling for time trends, several stock market and economy characteristics (related to tangible assets, losses, recessions, growth and interest rates, and sentiment) and various potential risk factors. Therefore, they are consistent with our prediction above that the weakening of the CSR has been, at least in part, responsible for the drop in the relevance of NI over time.

We propose two distinct yet mutually nonexclusive channels through which these results could arise. The first one is more straightforward, since a weaker CSR implies a greater magnitude of OCI, which, in turn, implies a less complete NI, as the former includes all of the items that are excluded from the latter. Conversely, the second channel involves an increasing magnitude of OCI being reclassified (or "recycled") to NI over time. Note that, despite its controversial nature, this accounting practice has been allowed by regulators and the accounting standard-setting boards. Notwithstanding, the relevance of NI could have been affected negatively through both of these channels, even though their net effects would have depended not only on the magnitude of OCI, but also on the economic rationale behind this accounting item and its components.

In our final analyses, we examine whether the waning of the CSR helps in explaining the switch over time in the relation between market-level earnings changes and returns from negative to positive. Contrary to the evidence on a firm level, beginning with the seminal paper of Kothari et al. (2006), a substantial body of literature documents that, on a market level, there was a negative relation between the changes in earnings and returns up until the late 1990s (see, e.g., Ball et al., 2009; Gallo et al., 2016; Sadka & Sadka, 2009).[4] Since then, however, several papers find that this relation has turned positive (see, e.g., Sadka et al., 2022; Zolotoy et al., 2017).

Three different and possibly complementary explanations for these findings have been usually explored, all of which are based on Campbell's (1991) decomposition of the realized returns in period t (R_t) into their three components: (1) the changes in the present value of the expected future cash flows in period t (typically referred to as the cash flow news, N_t^{cf}), (2) the changes in the present value of the expected returns in period t (normally called the discount rate news, N_t^r), and (3) the expected returns in period t at the beginning of period t ($\mathbb{E}_{t-1}(R_t)$). Given this decomposition of R_t, Hecht and Vuolteenaho (2006) note that its covariance with the changes in earnings (ΔE_t) can also be decomposed into three components, as in Equation (2):

$$\mathrm{Cov}(\Delta E_t, R_t) = \mathrm{Cov}(\Delta E_t, N_t^{cf}) - \mathrm{Cov}(\Delta E_t, N_t^r) + \mathrm{Cov}(\Delta E_t, \mathbb{E}_{t-1}(R_t)). \tag{2}$$

[4] The main finding in this literature pertains to contemporaneous returns. Driven by small firms in particular, however, Kothari et al. (2006) and Sadka and Sadka (2009), for example, also document negative, though statistically less meaningful, future returns as well, most of which are realized in quarters $t + 1$ and $t + 4$.

The first term on the right-hand side of this equation, $\text{Cov}(\Delta E_t, N_t^{cf})$, is generally believed to be positive, since earnings should be positively related to cash flows (see Sloan (1996) for firm-level evidence consistent with this reasoning). In contrast, the second term, $\text{Cov}(\Delta E_t, N_t^r)$, could be positive or negative. On the one hand, as suggested by Cochrane (2005), if investors consume more when earnings are higher, for them to be induced to save more, expected returns would need to be higher as well. On the other hand, expected returns could be countercyclical if investors' risk aversion is inversely related with the state of the economy; that is, if it is higher during recessions (when earnings are lower) and lower during expansions (when earnings are higher). Finally, the third term, $\text{Cov}(\Delta E_t, \mathbb{E}_{t-1}(R_t))$, could also be positive or negative. According to Sadka and Sadka (2009), this would depend on the predictability of the changes in earnings, which they decompose into their expected and unexpected components, where only the former should matter for the sign of this term (since the latter should be unrelated to expected returns). Thus, although it seems intuitive that there would be a positive relation between expected earnings changes and expected returns, Sadka and Sadka (2009) propose that this need not be the case if investors can reliably predict the earnings changes. For instance, if investors expect higher earnings and, hence, more wealth in a given period, then they may become less risk averse and they may expect lower returns at the beginning of that period. Overall, therefore, the total covariance between the changes in earnings and realized returns in Equation (2) would be determined by the relative importance (i.e., the sign and the magnitude) of these three terms.

In these analyses, we regress the time series of the value-weighted market returns on the time series of the cross-sectional market-wide equal- or value-weighted mean of the changes in the two accounting items of our interest. Even though we do not detect any notable results involving the contemporaneous quarterly returns, our findings regarding the future four-quarter returns are particularly interesting. Specifically, we first confirm the results from the prior literature by showing that the sign of the statistically discernible estimated coefficient on the average changes in NI has indeed flipped from negative to positive between the two halves of our sample period. More importantly, we then demonstrate that, while controlling for the average changes in OCI does not explain the statistical significance of the average changes in NI in the earlier half, it does so in the later half.[5] As before, all of these findings appear to be driven by small firms.

We again offer two distinct though mutually nonexclusive explanations for these results, both of which are within the context of the third channel described above and are predicated on the temporal variation in (1) the *predictability* of the changes in NI and/or (2) the *ability* of investors to predict those changes. So, on the one hand, as shown here and in Sadka et al. (2022), NI's changes have indeed become less predictable. Since OCI is typically thought of as being less predictable than NI, one reason for this could be that the magnitude of OCI being reclassified to NI has risen over time. On the other hand, as the economic importance of OCI has increased, it is possible that investors' ability to predict the changes in NI has deteriorated. This could

[5]Apart from these results, it is worth noting that, in contrast to our results on a firm level, whereas the estimated coefficient on the average changes in OCI for the first half of our sample period is statistically unimportant, the one for the second half of that period is not only statistically reliable, but it is also positive. These results could arise because investors do not fully understand the time-series properties of the changes in OCI and/or because those changes are positively related to discount rates. However, since the latter explanation is inconsistent with our firm-level findings (see footnote 3), our preferred explanation is the former one. Nevertheless, as before, we stress that the identification of the precise underlying mechanism driving these results is outside the scope of this paper.

be so if, over time, they have started to allocate some of their fairly constant resources (e.g., time and/or attention) to predicting the changes in a larger number of accounting items, such as NI and OCI. In other words, whereas investors in the 1980s and the 1990s could have focused mainly on predicting the changes in one accounting item (i.e., only NI), those in the 2000s and the 2010s could have done so for two accounting items (i.e., both NI and OCI). Although this change may seem small, it is important to note that, for it to occur, investors would first need to learn the time-series properties of the changes in OCI and then to use their knowledge to predict those changes, neither of which is likely to be a trivial task, especially for individual investors, who are, on average, likely to have less resources (e.g., knowledge, data and/or technology) than institutional investors (see, e.g., Barber & Odean, 2008). Under all these conditions, the weakening of the CSR would have had an adverse effect on the predictability of the changes in NI and/or on investors' ability to predict those changes, which could be the reason why the sign of the third term in Equation (2) has potentially switched over time from negative to positive.

Our paper contributes to several streams of literature. First, it contributes to the literature on the CSR (or the literature on the so-called dirty surplus, OCI). Indeed, whereas the empirical validity of this relation in the cross section of firms has been studied in the past (see Black (2016) and the references therein), to our knowledge, no paper has, thus far, examined the changes in it over time. Hence, we believe that this paper is the first to document and quantify those changes.

Second, our paper complements the literature on the temporal variation in the relevance of the earnings of firms (see, e.g., Barth et al., 2001, 2023; Brown et al., 1999; Collins et al., 1997; Francis & Schipper, 1999; Gu & Lev, 2017; Holthausen & Watts, 2001; Lev & Zarowin, 1999; Sadka et al., 2022; Shao et al., 2021). This literature has usually explored whether and, if so, to what extent this variation has been affected by the time-related variability in investors' noninformation-based trading (Dontoh et al., 2004) and stock market participation (Anchev & Lapanan, 2023) or in firms' intangible assets and extraordinary items (Collins et al., 1997), accounting conservatism (Balachandran & Mohanram, 2011), institutional and macroeconomic environments (Hail, 2013), mismatching of revenues and expenses (Oh & Penman, 2023), and listing cohorts (Srivastava, 2014). We are not, however, aware of a paper that has investigated the role in this respect of the time series of the CSR. Thus, this paper offers a new potential explanation for the previously documented decrease over time in the relevance of firms' earnings.

Finally, our paper adds to the literature on the relation between the market's earnings and its returns. The papers within this literature have typically examined if this relation can be explained by discount rates (Kothari et al., 2006), the predictability of earnings (Sadka & Sadka, 2009), monetary policies (Gallo et al., 2016), the measurement of earnings (Choi et al., 2016), macroeconomic and market conditions (Zolotoy et al., 2017), as well as the real economic output, the composition of economic activity and the accounting measurement rules (Kim et al., 2020). It is our understanding, however, that none of these papers have explored the implications of the time series of the CSR for the shift in this relation over time from negative to positive.

2. Empirical Analyses

2.1. Cross-Sectional Time-Series Analyses

2.1.1. Data

For our cross-sectional time-series analyses, we use data from the Center for Research in Security Prices (CRSP) and Compustat. In doing so, we use observations at the end of calendar quarters. When merging firms' stock market data with their quarterly accounting data, we assume that the latter become publicly available three months after each firm's fiscal quarter-end. Consequently, at the end of calendar quarter t, we use the quarterly accounting data on firm i from its fiscal quarter that ends three to six months before the end of calendar quarter t.

Using these data, we first calculate the four variables of our interest (i.e., the levels of and the changes in NI and OCI). For firm i at the end of quarter t, the denotations and the definitions of these variables are as follows (see also the Appendix). The level of NI, denoted $\mathrm{NI}_{i,t}$, is defined as the ratio of the earnings before extraordinary items and after preferred dividends (Compustat variable IBCOMQ) at the end of quarter t to the mean of the book value of common equity (Compustat variable CEQQ) at the end of quarters t and $t-1$. In contrast, we define the change in NI, denoted $\Delta\mathrm{NI}_{i,t}$, as the ratio of the difference between the earnings before extraordinary items and after preferred dividends at the end of quarters t and $t-4$ to the book value of common equity at the end of quarter $t-4$. The corresponding definitions regarding OCI, denoted $\mathrm{OCI}_{i,t}$ and $\Delta\mathrm{OCI}_{i,t}$, are identical to those for NI, except that OCI is now used in the numerators.

When it comes to this accounting item, we would ideally like to have data on it from firms' financial reports. However, such data are available through Compustat only from the second quarter of 2005 onward. Given that the purpose of our paper is to examine the time series of the CSR, we believe that a much longer time series is needed to be able to make any meaningful inferences. Therefore, we follow Vuolteenaho (2002) and Cohen et al. (2003), who provide a formula for the clean surplus return on equity (ROE_t^{cs}), which is given by Equation (3):

$$ROE_t^{cs} = \frac{TCI_t}{B_{t-1}} = \frac{(1+R_t)\times M_{t-1} - D_t}{M_t} \times \frac{B_t}{B_{t-1}} - \left[1 - \frac{D_t}{B_{t-1}}\right], \tag{3}$$

where B_t and D_t are the same as in Equation (1), R_t is the same as in Equation (2), TCI_t is total comprehensive income in period t and M_t is market value of equity at the end of period t. This equation adjusts changes in book values of equity for dividends and share issuances and repurchases, and it allows us to first estimate total comprehensive income and then OCI (since the latter equals the former minus NI), which we use in the calculations of $\mathrm{OCI}_{i,t}$ and $\Delta\mathrm{OCI}_{i,t}$.[6]

Lastly, we form our sample of firms, which contains firms with primary common equity traded on the NYSE, AMEX and NASDAQ, from the end of the first quarter of 1980 to the end of the first quarter of 2019. These firms are required to have nonnegative book values of common equity and nonmissing values on our four key variables. After imposing these requirements, our final sample consists of 623,076 firm-quarter observations, covering 17,778 firms over 157 quarters.

[6] When estimating Equation (3), we define R_t as $\mathrm{RET}_{i,t}$ (calculated without excluding any monthly returns), M_t as $\mathrm{M}_{i,t}$, D_t as the product of $\mathrm{M}_{i,t-1}$ and the difference between $\mathrm{RET}_{i,t}$ and the corresponding return without dividends (CRSP variable RETX), and B_t as Compustat variable CEQQ. See the Appendix for more details.

2.1.2. Descriptive Statistics and Correlations

Table 1 presents descriptive statistics and correlations for our cross-sectional time-series data.

[Table 1 about here]

The descriptive statistics are presented in Panel A, where the presented statistics are the time-series means of the cross-sectional statistics. The means of $\mathrm{NI}_{i,t}$ and $\mathrm{OCI}_{i,t}$ are -0.01 and 0.02, respectively. The medians of these two variables, however, suggest that the former is negatively skewed, whereas the latter is positively skewed. In contrast, the mean and the median of $\Delta\mathrm{NI}_{i,t}$ are both zero. While this is also the case with the median of $\Delta\mathrm{OCI}_{i,t}$, its mean is 0.01.

Panel B presents Pearson correlations. The presented correlations here are the time-series means of the cross-sectional correlations, and they indicate a weak negative association between $\mathrm{NI}_{i,t}$ and $\mathrm{OCI}_{i,t}$ and between $\Delta\mathrm{NI}_{i,t}$ and $\Delta\mathrm{OCI}_{i,t}$. With the exception of $\mathrm{TCI}_{i,t}$ and $\Delta\mathrm{TCI}_{i,t}$, neither $\mathrm{OCI}_{i,t}$ nor $\Delta\mathrm{OCI}_{i,t}$ is particularly correlated with any of the other firm characteristics.

2.1.3. Time Series of the CSR

In this section, we examine the time series of the CSR. Specifically, we first measure the average deviations from this relation in the cross section of firms (i.e., at the end of each period). Then, we construct a time series of those deviations to explore whether and how they have changed over time. Thus, at the end of quarter t, we first estimate a regression model as in Equation (4):

$$\mathrm{TCI}_{i,t} = \alpha + \beta\mathrm{NI}_{i,t} + \varepsilon_{i,t}. \tag{4}$$

If the CSR holds on average, then the estimated coefficient on $\mathrm{NI}_{i,t}$ (i.e., $\hat{\beta}$) should be equal to one. This would mean that, on average, $\mathrm{NI}_{i,t}$ equals $\mathrm{TCI}_{i,t}$ and $\mathrm{OCI}_{i,t}$ equals zero. Otherwise, any difference of this coefficient from one (whether positive or negative) represents the average deviation from the CSR, where the magnitude of the latter is that of the former. Since Equation (4) is estimated at the end of each quarter, we use the time series of the absolute values of those differences to identify the potential temporal variation in the average deviations from the CSR.

The results from estimating Equation (4) are presented in Figure 1, where Graph A presents the time series of the estimated coefficients on $\mathrm{NI}_{i,t}$, whereas Graph B presents the time series of the absolute values of the differences of those coefficients from one. As can be seen in the former graph, over time, the coefficients appear to have decreased. More importantly, from the latter graph, we can see that their absolute differences from one seem to have increased with time. We test for both of these trends formally, by separately regressing the two time series in Figure 1 on our time variable, t (which contains all of the 157 quarters from the first quarter of 1980 to the first quarter of 2019). The t-statistics for the estimated coefficients on this variable are -5.80 and 7.00, respectively (these t-statistics are calculated using Newey and West (1987) standard errors with a maximum lag order of four quarters). Therefore, they confirm that the CSR has weakened over time. Indeed, the results in Graph B indicate that, while the average deviation from this relation in the 1980s has been 16%, in the 2010s, it has more than doubled, to 42%.

[Figure 1 about here]

Taken together, these results suggest that, over time, the magnitude of $\mathrm{OCI}_{i,t}$ as a proportion of the magnitude of $\mathrm{TCI}_{i,t}$ has, on average, risen considerably. Graph A in Figure 2, which presents the time series of the median absolute ratio of $\mathrm{OCI}_{i,t}$ to $\mathrm{TCI}_{i,t}$, illustrates this more explicitly. It is worth noting that the estimates presented above about the average deviations from the CSR during the 1980s and the 2010s are confirmed almost precisely. Equally important, Graph B presents the time series of the median absolute $\mathrm{NI}_{i,t}$ and $\mathrm{OCI}_{i,t}$, where it can be seen not only that the latter variable has indeed grown, but also that the former one has declined.

[Figure 2 about here]

Next, we investigate the changes over time in the pervasiveness of OCI. For this purpose, Figure 3 presents histograms of the absolute $\mathrm{OCI}_{i,t}$ for the first and the second halves of our sample period, where the gray and the transparent bars represent the earlier and the later half of that period, respectively (for clarity, we limit the x-axes to 0.30, which is the 90th percentile of the absolute $\mathrm{OCI}_{i,t}$'s overall distribution). In Histogram A, which includes all industries, all of the transparent bars are taller than the gray bars, except for the leftmost pair of bars, which pertains to near-zero $\mathrm{OCI}_{i,t}$ and for which the situation is reversed (i.e., the gray bar is taller than the transparent one). These results indicate that, from the first to the second half of our sample period, while the percent of firms with virtually zero $\mathrm{OCI}_{i,t}$ has decreased from 45 to 30, the percentage of firms having this accounting item further away from zero has notably increased.

[Figure 3 about here]

Finally, the same pattern appears in Histogram B, where the finance industry is excluded, and in Histogram C, which includes only that industry (the industries are determined using the first two digits of the Standard Industrial Classification code). This is important because the finance industry has been typically thought of as having abnormally high absolute OCI, primarily due to its unrealized gains and losses on available-for-sale securities, which, on average, over different periods during the last 20–30 years, have constituted around 14–18% of banks' total assets (Barth et al., 2017; Boulland et al., 2019; Laux & Leuz, 2010). Despite this, however, our analyses suggest neither that the increase in the prevalence of OCI has been driven by the finance industry nor that this industry has had an unusually high absolute OCI. For example, among all of the four largest industries (manufacturing, utilities, finance and services), the median absolute $\mathrm{OCI}_{i,t}$ has been 0.01 in the 1980s. In contrast, the corresponding figures for the 2010s are 0.02, 0.01, 0.01 and 0.02, respectively. Overall, therefore, it seems that OCI has indeed become widespread and that the finance industry is not peculiar when it comes to this accounting item.

2.1.4. Persistence of NI and OCI on a Firm Level

Motivated by the findings in Section 2.1.3., we now explore the temporal variation in the persistence of the changes in NI and OCI, by estimating the regression model in Equation (5):

$$\Delta\mathrm{TCI}_{i,t} = \alpha + \sum_{j=1}^{4} \beta_j \Delta\mathrm{NI}_{i,t-j} + \sum_{j=1}^{4} \gamma_j \Delta\mathrm{OCI}_{i,t-j} + \varepsilon_{i,t}. \tag{5}$$

Apart from estimating this model for our entire sample period, we also estimate it for two, almost equal, subperiods, one from 1980Q1 to 1998Q4 and another one from 1999Q1 to 2019Q1. We present the results from these analyses in Table 2, where all of the models are first estimated at the end of each quarter. The presented coefficients are then the time-series means of the estimated coefficients. The t-statistics (presented in parentheses) are based on the time series of the estimated coefficients and they are calculated using Newey-West standard errors, adjusted for heteroskedasticity and an autocorrelation with a maximum lag order of four quarters. The gray and pink shadings indicate that the presented coefficients for the two halves of the sample period are statistically different from each other at the 5% and 10% levels, respectively.

[Table 2 about here]

In line with the prior literature (e.g., Bernard & Thomas, 1990; Kothari et al., 2006), while the first three autocorrelations of $\Delta\text{NI}_{i,t}$ are positive (and receding), the fourth autocorrelation is negative. In particular, for our full sample, the estimated coefficients on the first three lags of this variable are 0.25 (t-statistic = 12.88), 0.14 (t-statistic = 11.25) and 0.09 (t-statistic = 8.59), respectively, whereas the one on its fourth lag is -0.39 (t-statistic = -16.47). More critically, between the two halves of our sample period, the magnitudes of all of these coefficients have decreased, with the differentials between the coefficients on the first and the second lags of $\Delta\text{NI}_{i,t}$ being statistically notable as well. For instance, the coefficient on the first lag of this variable is 0.30 (t-statistic = 9.10) for the earlier half of the sample period, but 0.20 (t-statistic = 12.24) for its later half, leading to a statistically discernible differential at the 1% level of 0.10. These results suggest that the persistence, and hence the predictability, of NI have declined over time.

To a certain degree, the same can be said about OCI. Namely, for our full sample, while only the second autocorrelation of $\Delta\text{OCI}_{i,t}$ is statistically insignificant, the estimated coefficients on the first, third and fourth lags of this variable are -0.13 (t-statistic = -15.64), 0.04 (t-statistic = 7.04) and -0.33 (t-statistic = -30.56), respectively. All of these coefficients have remained quite stable from the first to the second half of our sample period, except for the one on the fourth lag of $\Delta\text{OCI}_{i,t}$, which has slightly decreased in magnitude in a statistically meaningful way at the 1% level, from -0.35 (t-statistic = -19.00) to -0.31 (t-statistic = -27.00). Thus, over time, OCI's persistence and predictability seem to have also declined, albeit somewhat moderately.

2.1.5. Relevance of NI and OCI on a Firm Level

Considering the results in Section 2.1.4., in this section, we study the time-related variability in the relevance of the changes in NI and OCI. When defining the relevance of accounting information, we follow Barth et al. (2001), who deem any such information to be relevant if it has a statistically discernible association with stock returns. As highlighted by these authors, the only inference that researchers can draw with this definition is whether or not the accounting information in question correlates with or reflects the information that investors use. In fact, making any other inferences is impossible, as the information that is viewed as relevant and used by investors is, at least to us as researchers, unobservable. With this in mind, it is important to emphasize that, for us to be able to make inferences about the relevance of certain accounting information, it is not necessary for investors to use that accounting information. Rather, it suffices that the accounting information represents and summarizes the information used by investors.

Guided by Barth et al.'s (2001) definition, we estimate a regression model as in Equation (6):

$$\text{RET}_{i,t:t+q} = \alpha + \beta\Delta\text{NI}_{i,t} + \gamma\Delta\text{OCI}_{i,t} + \varepsilon_{i,t}, \tag{6}$$

where $q = 0, \ldots, 4$. Hence, we inspect contemporaneous quarterly stock returns and future stock returns over periods of one to four quarters. These variables are defined as item 9 in Section A.1. of the Appendix, but without excluding any monthly returns. The results from our analyses here are presented in Table 3 (where all models are estimated using the same procedure as in Table 2).

[Table 3 about here]

The estimated coefficient on $\Delta\text{NI}_{i,t}$ in Model 1 is 0.27 (t-statistic = 8.14), indicating that, for our full sample, a one standard deviation increase in this variable is, on average, associated with a quarterly contemporaneous return of 3.24%. Consistent with the prior literature on the post-earnings-announcement drift (see Fink, 2021), the coefficients from the corresponding Models 4, 7, 10 and 13 are 0.09 (t-statistic = 5.39), 0.12 (t-statistic = 4.45), 0.10 (t-statistic = 3.33) and 0.08 (t-statistic = 2.05), respectively, confirming that, over the next four quarters, stock prices continue to move in the same direction as the changes in NI. What is striking, however, is that, between the two halves of our sample period, the economic significance of the results with respect to $\Delta\text{NI}_{i,t}$ has attenuated substantially. That is, all of the coefficients on this variable for the second half of the sample period are markedly lower than those for its first half and, except for the ones in Models 14 and 15, they are all statistically different from each other at the 1% level. Moreover, in Models 12 and 15, the coefficients on $\Delta\text{NI}_{i,t}$ are statistically unimportant, suggesting that NI has lost its relevance over time for future three- to four-quarter stock returns.

In contrast to these results, the estimated coefficient of 0.02 (t-statistic = 3.28) on $\Delta\text{OCI}_{i,t}$ in Model 1 implies an average contemporaneous return of 0.48% per quarter for a one standard deviation increase in this variable over our full sample. Interestingly, however, all of the other coefficients from the corresponding models are negative: −0.00 (t-statistic = −0.78) in Model 4, −0.01 (t-statistic = −2.16) in Model 7, −0.02 (t-statistic = −3.09) in Model 10 and −0.03 (t-statistic = −3.72) in Model 13. This last coefficient, for example, indicates that, on average, a one standard deviation increase in $\Delta\text{OCI}_{i,t}$ is associated with a future return of −0.72% per year (or −0.18% per quarter). Thus, it seems that stock prices initially increase with OCI, but over the next four quarters, this increase appears to be, at least in part, reversed. Equally, if not more important, while nearly all of the coefficients on $\Delta\text{OCI}_{i,t}$ for the earlier half of the sample period are statistically reliable at the 5% level, this is the case with only one of the coefficients on this variable for the later half of that period (i.e., the one in Model 15; note that the coefficients in Models 3 and 12 are statistically notable, but at the 10% level). Notwithstanding, none of these coefficients are statistically distinguishable from each other at the conventional levels, which leads us to conclude that, over time, the relevance of OCI has remained more or less the same.

2.2. Time-Series Analyses

2.2.1. Data, Descriptive Statistics, Trends and Correlations

We now move on to our two-part time-series analyses, where we first investigate if the weakening of the CSR over time has directly contributed toward the decrease in the relevance of NI. Our dependent variable here, denoted $\beta_t^{\Delta\mathrm{NI}}$, is the time series of the estimated coefficients on $\Delta\mathrm{NI}_{i,t}$ (i.e., the $\hat{\beta}$'s) from estimating the regression model in Equation (7) at the end of each quarter:

$$\mathrm{RET}_{i,t} = \alpha + \beta\Delta\mathrm{NI}_{i,t} + \varepsilon_{i,t}. \tag{7}$$

Conversely, $\mathrm{Mean}^{ew}\ |\mathrm{OCI}_{i,t}|$ and $\mathrm{Mean}^{vw}\ |\mathrm{OCI}_{i,t}|$ denote the main independent variables, defined as the time series of the equal- and value-weighted means, respectively, of the absolute value of $\mathrm{OCI}_{i,t}$ for all of the firms in our sample at the end of quarter t, where the weights for the latter variable are given by $\mathrm{M}_{i,t}$ (i.e., firms' market value of common equity at the end of quarter t).

In the second part of our time-series analyses, we explore whether the shift over time from negative to positive in the market's earnings-returns relation can be explained by the waning of the CSR. In these analyses, our dependent variable is denoted $\mathrm{RET}_{t:t+q}$, which we define as the time series of the value-weighted means of $\mathrm{RET}_{i,t:t+q}$ for all of the firms in our sample at the end of quarter t, where the weights are based on $\mathrm{M}_{i,t-1}$ and where $q = 0, \ldots, 4$. In contrast, our independent variables pertaining to NI, denoted $\mathrm{Mean}^{ew}\ \Delta\mathrm{NI}_{i,t}$ and $\mathrm{Mean}^{vw}\ \Delta\mathrm{NI}_{i,t}$, are the time series of the equal- and value-weighted means, respectively, of $\Delta\mathrm{NI}_{i,t}$ for all the firms in the sample at the end of quarter t, with the weights for the latter variable being determined by $\mathrm{M}_{i,t}$. $\mathrm{Mean}^{ew}\ \Delta\mathrm{OCI}_{i,t}$ and $\mathrm{Mean}^{vw}\ \Delta\mathrm{OCI}_{i,t}$ are defined correspondingly, just with the use of $\Delta\mathrm{OCI}_{i,t}$.

Panel A in Table 4 presents descriptive statistics for our time-series data (apart from CRSP and Compustat, these data are obtained from the National Bureau of Economic Research (NBER), the Federal Reserve Economic Data (FRED) maintained by the Federal Reserve Bank of St. Louis and the personal websites of Kenneth R. French, Ľuboš Pástor and Jeffrey A. Wurgler).

[Table 4 about here]

Before estimating any time-series regression models, it is essential to formally examine the trending behavior of all the time series used in our analyses. Therefore, in Panel B of Table 4, we first test for deterministic (i.e., linear time) trends, where each time series is regressed on a constant and our time variable, t (which contains all of the 157 quarters from 1980Q1 to 2019Q1). The presented t-statistics are those for the estimated coefficients on this variable and they are calculated using Newey-West standard errors with a maximum lag order of four quarters.

The results with regard to $\mathrm{Mean}^{ew}\ |\mathrm{OCI}_{i,t}|$, $\mathrm{Mean}^{vw}\ |\mathrm{OCI}_{i,t}|$ and $\beta_t^{\Delta\mathrm{NI}}$ are noteworthy here. Namely, the t-statistics for the former two variables are 3.85 and 7.54, respectively, meaning that these variables have indeed increased over time, which validates the weakening of the CSR. Conversely, the t-statistic for the latter variable is -3.08, confirming the decline in NI's relevance. Both of these patterns are illustrated clearly in Figures 4 and 5 as well. Altogether, these results suggest that, in the first part of our time-series analyses, it is crucial to control for t. In contrast, the variables of our interest in the second part of these analyses do not exhibit any deterministic trends, which is expected since they are based on the changes in (not the levels of) NI and OCI.

[Figures 4 and 5 about here]

Next, since it is vital for the variables used in time-series regression models to be stationary (Greene, 2012; Wooldridge, 2012), in the remainder of Panel B, we test for stochastic trends (i.e., unit roots). We do so by conducting the augmented Dickey and Fuller (1979) test, performed using generalized least squares as in Elliott et al. (1996), and the test of Phillips and Perron (1988).[7] The null hypothesis in both of these tests is that a time series has a stochastic trend.

The results with respect to our dependent and key independent variables indicate that we should reject this hypothesis. Indeed, all of the τ- and ρ-statistics for those variables are lower than the critical values. Thus, the time series of our interest seem to be integrated of order zero (i.e., they are $I(0)$ processes), meaning that they are stationary in their levels. Of all the other variables in Panel B, the only exceptions to this pattern appear to be TANGA_t, LOSS_t and RF_t.

Lastly, Panel C presents Pearson correlations. The most interesting results in this panel are the negative correlations of $\beta_t^{\Delta\text{NI}}$ with both $\text{Mean}^{ew}\ |\text{OCI}_{i,t}|$ and $\text{Mean}^{vw}\ |\text{OCI}_{i,t}|$ of -0.63 and -0.37, respectively. It is also worth noting that these two variables seem to be higher when firms' tangible assets are lower (TANGA_t), when more firms have losses (LOSS_t), when the economy is expanding (SECON_t) and when interest rates are generally lower (FEDRATE_t and RF_t).

2.2.2. Persistence of NI and OCI on a Market Level

In this section, we inspect the temporal variation in the persistence of the changes in NI and OCI on a market level. For this purpose, we estimate a regression model as in Equation (8):

$$y_t = \alpha + \sum_{j=1}^{4} \beta_j y_{t-j} + \varepsilon_t, \tag{8}$$

where y_t is either $\text{Mean}^{ew/vw}\ \Delta\text{NI}_{i,t}$ or $\text{Mean}^{ew/vw}\ \Delta\text{OCI}_{i,t}$. The results are presented in Table 5.

[Table 5 about here]

For the intermediate lags of $\text{Mean}^{ew}\ \Delta\text{NI}_{i,t}$ and $\text{Mean}^{vw}\ \Delta\text{NI}_{i,t}$, the results are statistically and/or economically less relevant, so we focus on the results with regard to these two variables' extreme lags. In the first half of our sample period, both variables have been positively autocorrelated with their first lags, but negatively autocorrelated with their fourth lags. Intriguingly, however, for the second half of that period, the estimated coefficients on the former lags are somewhat greater and those on the latter lags are statistically insignificant. Hence, although none of the differentials between these coefficients are statistically meaningful at the commonly used levels, it seems that, over time, market-level NI has become slightly more predictable with its first lag, but less predictable with its fourth lag (the net effect is hard to determine). Note that this finding appears to be driven by large firms, as the magnitudes of the coefficients on the first and fourth lags of $\text{Mean}^{vw}\ \Delta\text{NI}_{i,t}$ are higher and lower, respectively, than those on $\text{Mean}^{ew}\ \Delta\text{NI}_{i,t}$.

Similarly as before, all of the estimated coefficients on the intermediate lags of the two OCI variables are statistically unimportant. Both of these variables, however, autocorrelate positively with their first lags and negatively with their fourth lags (note that these results differ from those

[7] Both tests include a constant and t, and they are implemented with a lag order of four quarters. The presented τ- and ρ-statistics are those for the estimated coefficients on the lagged values of the variables. The Dickey-Fuller test corrects for the potential autocorrelation in the error terms parametrically, whereas the Phillips-Perron test involves a nonparametric correction for the possible heteroskedasticity and autocorrelation of the error terms, using Newey-West standard errors. The presented critical values in Panel B are those at the 5% level and they are interpolated from those in Cheung and Lai (1995) and Fuller (1996). For each test, these critical values differ across the variables, so we present their extreme values, calculated over all variables when performing a given test.

in Section 2.1.4. regarding OCI on a firm level, which autocorrelates negatively with both its first and fourth lags). All of the coefficients on the extreme lags of $\text{Mean}^{ew}\ \Delta\text{OCI}_{i,t}$ are statistically reliable at the 5% level, with relatively little variation between the two halves of our sample period. This, however, is not the case with the results for $\text{Mean}^{vw}\ \Delta\text{OCI}_{i,t}$. Specifically, for the earlier half of that period, the coefficient on the first lag of this variable is 0.05 (t-statistic = 0.67), whereas the one on its fourth lag is −0.34 (t-statistic = −2.41). The corresponding coefficients for the later half of the sample period are 0.43 (t-statistic = 2.36) and −0.23 (t-statistic = −1.59), respectively. Therefore, particularly among large firms, market-level OCI as well seems to have become more predictable over time with its first lag, but less predictable with its fourth lag.

2.2.3. OCI and Relevance of NI on a Market Level

Using the regression model in Equation (9), we now turn to our time-series analyses of the relation between the changes in the relevance of NI and the changes in the strength of the CSR:

$$\beta_t^{\Delta\text{NI}} = \alpha + \beta x_t + \gamma t + \phi' z_t + \varepsilon_t, \tag{9}$$

where x_t is either $\text{Mean}^{ew}\ |\text{OCI}_{i,t}|$ or $\text{Mean}^{vw}\ |\text{OCI}_{i,t}|$, t is our time variable (defined as before) and z_t is a (column) vector controlling for various potential risk factors and for several stock market and economy characteristics (pertaining to tangible assets, losses, recessions, growth and interest rates, and sentiment). The results from these analyses are presented in Table 6.

[Table 6 about here]

The results in this table reveal a robust statistically and economically significant negative relation between the variables of our interest, arising primarily among small firms. The estimated coefficients in Models 1 and 2 on $\text{Mean}^{ew}\ |\text{OCI}_{i,t}|$, which overweights such firms, are −8.34 (t-statistic = −3.56) and −4.98 (t-statistic = −3.07), respectively. Holding all else equal, the latter coefficient implies that, when this variable increases by one standard deviation, on average, $\beta_t^{\Delta\text{NI}}$ decreases by 4.98%. In contrast, neither of the coefficients on $\text{Mean}^{vw}\ |\text{OCI}_{i,t}|$ in Models 3 and 4 is statistically notable. Hence, among small firms, the waning of the CSR appears to have directly contributed toward the decrease in the relevance of NI over time, potentially because of the growing magnitude of OCI in and of itself, which includes all of the items that are excluded from NI, and/or because more and more OCI is being reclassified to NI today than in the past.

2.2.4. Relevance of NI and OCI on a Market Level

In our final analyses, we investigate whether the weakening of the CSR can help to explain the switch over time from negative to positive in the relation between the returns on the market and its earnings changes. We do so by estimating a regression model such as that in Equation (10):

$$\text{RET}_{t:t+4} = \alpha + \beta\text{Mean}^{ew/vw}\ \Delta\text{NI}_{i,t} + \gamma\text{Mean}^{ew/vw}\ \Delta\text{OCI}_{i,t} + \varepsilon_t. \tag{10}$$

This model is estimated for our entire sample period as well as for its two halves. The model is also estimated without the OCI variables in order to reproduce the results from the prior literature. As already noted in footnote 4, this literature has studied both contemporaneous and future returns. Even though we have done the same, we have been unable to discover any new patterns concerning the former returns. When it comes to the latter returns, however, especially those over periods of four quarters, our results are quite intriguing. Table 7 presents these results.

[Table 7 about here]

For the first half of our sample period, the estimated coefficient on $\text{Mean}^{ew}\ \Delta\text{NI}_{i,t}$ in Model 3 is -9.91 (t-statistic $= -2.27$). Conversely, the corresponding coefficient on this variable for the second half of that period in Model 5 is 2.81 (t-statistic $= 1.70$). Although the latter coefficient is statistically discernible at the 10% level, these results confirm the findings in the prior literature that, before controlling for any other variables, the relation between the market's earnings and its returns has turned from negative to positive. More importantly, as shown in Models 4 and 6, after controlling for $\text{Mean}^{ew}\ \Delta\text{OCI}_{i,t}$, while both the coefficient on $\text{Mean}^{ew}\ \Delta\text{NI}_{i,t}$ and its t-statistic for the earlier half of the sample period remain almost identical, the coefficient on this variable for the later half of that period becomes statistically insignificant. The same patterns appear in Models 7 through 12 as well, where we use the value-weighted independent variables, with the only discrepancy being the statistically unreliable coefficients on $\text{Mean}^{vw}\ \Delta\text{NI}_{i,t}$ for the first half of the sample period in Models 9 and 10. Therefore, it seems that the waning of the CSR among small firms does explain the shift in the market's earnings-returns relation over time, possibly through the third term in Equation (2) and due to its adverse effects on the predictability of NI and/or the ability of (individual) investors to predict this accounting item.

3. Conclusion

Using data from the three major stock exchanges in the United States between the first quarter of 1980 and the first quarter of 2019, we document a substantial weakening of the CSR over time. Specifically, we estimate the average deviation from this relation to have been 16% in the 1980s, but 42% in the 2010s, which suggests that firms' OCI has nowadays become much more economically significant. Importantly, we also show that this trend helps in explaining two prominent yet puzzling results in the prior literature on the temporal variation in the relevance of firm- and market-level earnings: (1) the decrease in the relevance of firms' earnings and (2) the switch in the relation between the market's earnings and its returns from negative to positive. These findings should be of interest to regulators and the accounting standard-setting boards, which have been gradually expanding the list of accounting items that can be excluded from NI and included in OCI. Their main argument has been that those items are usually transitory, so their exclusion from NI would presumably make this accounting item more predictable and more relevant (see Black, 2016; Detzen, 2016). Our paper suggests that this need not be the case.

Appendix: Variable Denotations and Definitions

A.1. Cross-Sectional Time-Series Data

For firm i at the end of quarter t, the variables used in our cross-sectional time-series analyses are denoted and defined as follows:

1. $\mathrm{NI}_{i,t}$: ratio of the earnings before extraordinary items and after preferred dividends (Compustat variable IBCOMQ) at the end of quarter t to the mean of the book value of common equity (Compustat variable CEQQ) at the end of quarters t and $t-1$.
2. $\mathrm{OCI}_{i,t}$: ratio of the other comprehensive income (defined as in Section 2.1.1.) at the end of quarter t to the mean of the book value of common equity (Compustat variable CEQQ) at the end of quarters t and $t-1$.
3. $\mathrm{TCI}_{i,t}$: ratio of the total comprehensive income (defined as in Section 2.1.1.) at the end of quarter t to the mean of the book value of common equity (Compustat variable CEQQ) at the end of quarters t and $t-1$.
4. $\Delta\mathrm{NI}_{i,t}$: ratio of the difference between the earnings before extraordinary items and after preferred dividends (Compustat variable IBCOMQ) at the end of quarters t and $t-4$ to the book value of common equity (Compustat variable CEQQ) at the end of quarter $t-4$.
5. $\Delta\mathrm{OCI}_{i,t}$: ratio of the difference between the other comprehensive income (defined as in Section 2.1.1.) at the end of quarters t and $t-4$ to the book value of common equity (Compustat variable CEQQ) at the end of quarter $t-4$.
6. $\Delta\mathrm{TCI}_{i,t}$: ratio of the difference between the total comprehensive income (defined as in Section 2.1.1.) at the end of quarters t and $t-4$ to the book value of common equity (Compustat variable CEQQ) at the end of quarter $t-4$.
7. $\mathrm{M}_{i,t}$: product of the stock price (CRSP variable PRC) at the end of quarter t and the number of outstanding shares (CRSP variable SHROUT) at the end of quarter t, both adjusted for splits with the cumulative adjustment factors (CRSP variables CFACPR and CFACSHR).
8. $\mathrm{B/M}_{i,t}$: ratio of the book value of common equity (Compustat variable CEQQ) at the end of quarter t to $\mathrm{M}_{i,t}$.
9. $\mathrm{RET}_{i,t:t-4}$: total stock return (CRSP variable RET) from the end of quarter $t-4$ to the end of quarter t. Similarly as in Jegadeesh and Titman (1993), the return over the last month in quarter t is excluded from the calculation and, in the case of a delisting, the delisting return (CRSP variable DLRET), adjusted as in Shumway (1997) and Shumway and Warther (1999), is included in it.
10. $\mathrm{IVOL}_{i,t:t-4}$: standard deviation of the residuals from estimating the CAPM with the monthly total returns on the stock (CRSP variable RET, adjusted for delistings as in item 9), the one-month treasury bill and the market factor (French's variables RF and MKTRF, respectively) from the end of quarter $t-4$ to the end of quarter t.
11. $\mathrm{TURN}_{i,t}$: ratio of the trading volume (CRSP variable VOL, divided by two if the stock is listed on NASDAQ) in quarter t to the total number of outstanding shares (CRSP variable SHROUT) at the end of quarter t, both adjusted for splits with the cumulative adjustment factor (CRSP variable CFACSHR).
12. $\mathrm{BETA}_{i,t:t-4}$: coefficient on the market factor from estimating the CAPM as in item 10.

A.2. Time-Series Data

At the end of quarter t, the variables used in our time-series analyses are denoted and defined as follows:

1. $\mathrm{Mean}^{ew}\,|\mathrm{OCI}_{i,t}|$ and $\mathrm{Mean}^{vw}\,|\mathrm{OCI}_{i,t}|$: equal- and value-weighted means, respectively, of the absolute value of $\mathrm{OCI}_{i,t}$ for all firms in our sample at the end of quarter t, where the weights for the latter variable are determined by $\mathrm{M}_{i,t}$.
2. $\mathrm{Mean}^{ew}\,\Delta\mathrm{NI}_{i,t}$ and $\mathrm{Mean}^{vw}\,\Delta\mathrm{NI}_{i,t}$: equal- and value-weighted means, respectively, of $\Delta\mathrm{NI}_{i,t}$ for all firms in our sample at the end of quarter t, where the weights for the latter variable

are determined by $\mathrm{M}_{i,t}$.

3. Mean^{ew} $\Delta\mathrm{OCI}_{i,t}$ and Mean^{vw} $\Delta\mathrm{OCI}_{i,t}$: equal- and value-weighted means, respectively, of $\Delta\mathrm{OCI}_{i,t}$ for all firms in our sample at the end of quarter t, where the weights for the latter variable are determined by $\mathrm{M}_{i,t}$.
4. $\beta_t^{\Delta\mathrm{NI}}$: estimated coefficient on $\Delta\mathrm{NI}_{i,t}$ from regressing $\mathrm{RET}_{i,t}$ (adjusted for delistings as in item 9 of Section A.1.) on this variable at the end of quarter t.
5. RET_t: value-weighted mean of $\mathrm{RET}_{i,t}$ (adjusted for delistings as in item 9 of Section A.1.) for all firms in our sample at the end of quarter t, where the weights are determined by $\mathrm{M}_{i,t-1}$.
6. TANGA_t: mean ratio of the net property, plant and equipment (Compustat variable PPENTQ) at the end of quarter t to the total assets (Compustat variable ATQ) at the end of quarter t for all firms in our sample at the end of quarter t.
7. LOSS_t: proportion of the total number of firms in our sample at the end of quarter t with negative earnings before extraordinary items and after preferred dividends (Compustat variable IBCOMQ) at the end of quarter t.
8. SECON_t: one if the economy is in a recession (NBER variable) in any of the months in quarter t; zero otherwise.
9. $\Delta\mathrm{NGDP}_t$: growth rate of the deseasonalized nominal gross domestic product (FRED variable Gross Domestic Product) in quarter t.
10. $\Delta\mathrm{RGDP}_t$: growth rate of the deseasonalized real gross domestic product (FRED variable Real Gross Domestic Product) in quarter t.
11. $\Delta\mathrm{CPI}_t$: growth rate of the deseasonalized consumer price index (FRED variable Consumer Price Index for All Urban Consumers: All Items in U.S. City Average) in quarter t.
12. $\mathrm{FEDRATE}_t$: effective federal funds rate (FRED variable Federal Funds Effective Rate) at the end of quarter t.
13. RF_t: total return on the one-month treasury bill (French's variable RF) in quarter t.
14. MKT_t: total return on the market factor (French's variable MKTRF) in quarter t.
15. SMB_t: total return on the size factor (French's variable SMB) in quarter t.
16. HML_t: total return on the value factor (French's variable HML) in quarter t.
17. MOM_t: total return on the momentum factor (French's variable MOM) in quarter t.
18. LIQ_t: total return on the liquidity factor (Pástor's variable LIQ) in quarter t.
19. RMW_t: total return on the profitability factor (French's variable RMW) in quarter t.
20. CMA_t: total return on the investment factor (French's variable CMA) in quarter t.
21. SENT_t: mean orthogonalized sentiment index (Wurgler's variable $\mathrm{SENT}^{\perp}$) in quarter t.

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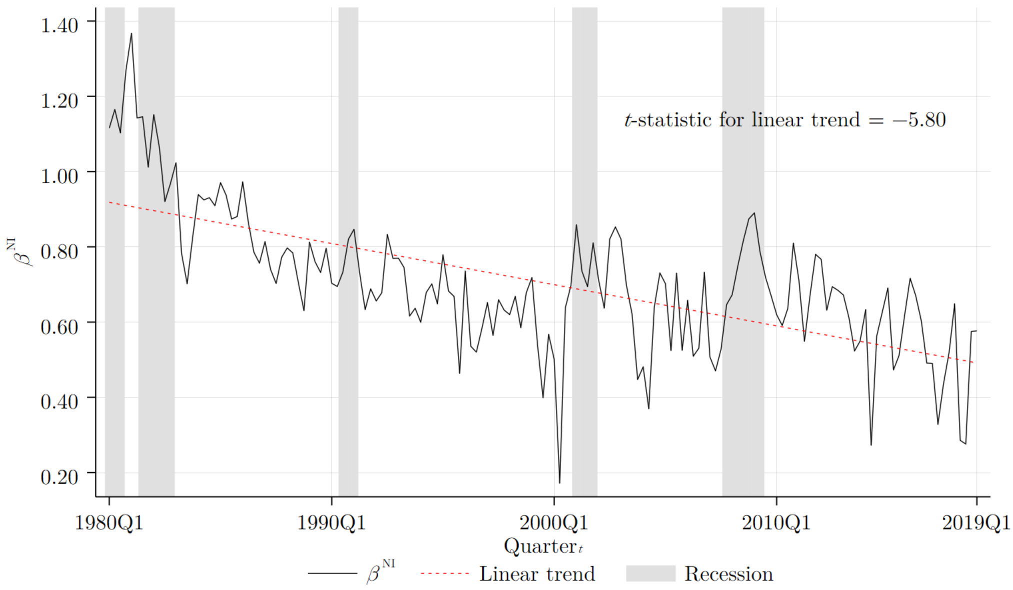
Figure 1
Time-series graphs of dirty surplus

A: β_t^{NI}



B: $|1-\beta_t^{\text{NI}}|$

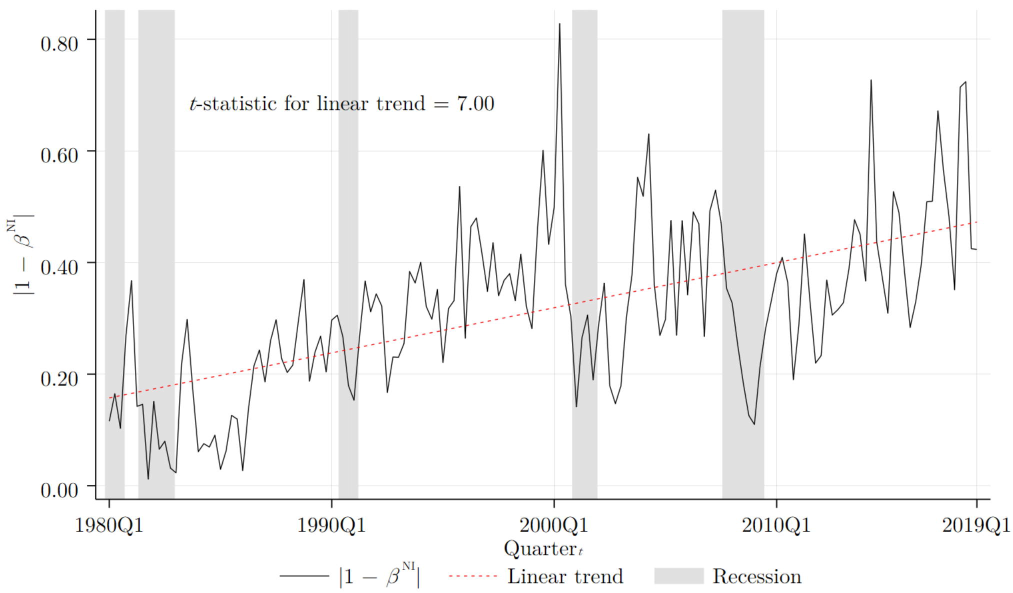
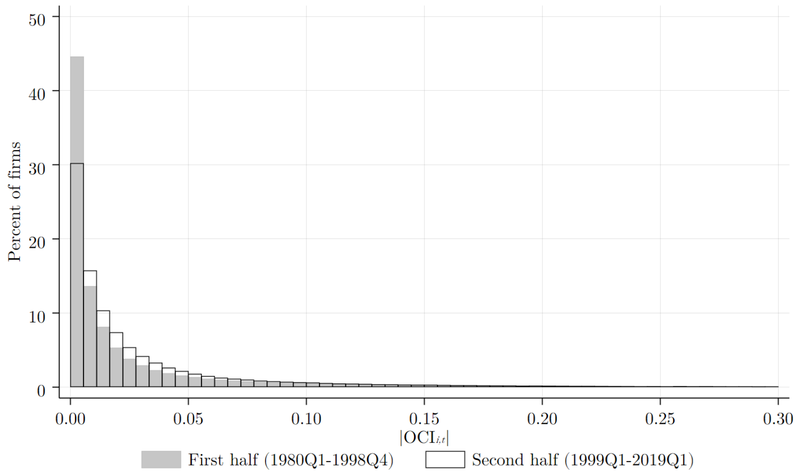


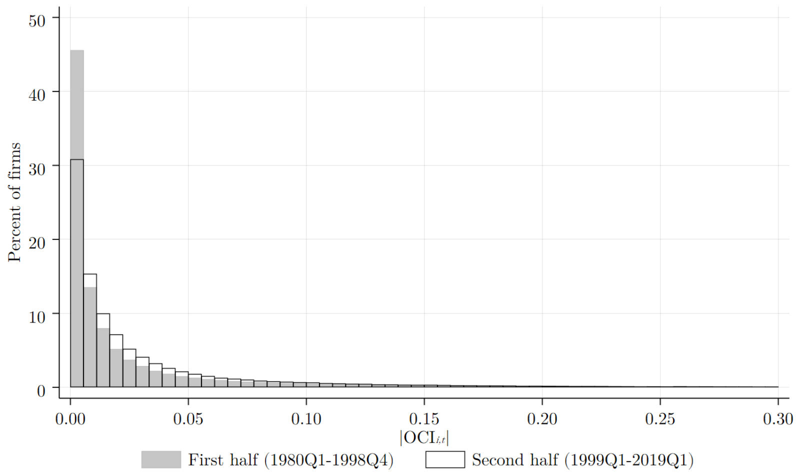
Figure 2
Time-series graphs of median absolute ratio of OCI to total comprehensive income and of median absolute NI and OCI

Figure 3
Histograms of absolute OCI for first and second halves of sample period

A: All industries



B: All but finance industry



C: Only finance industry

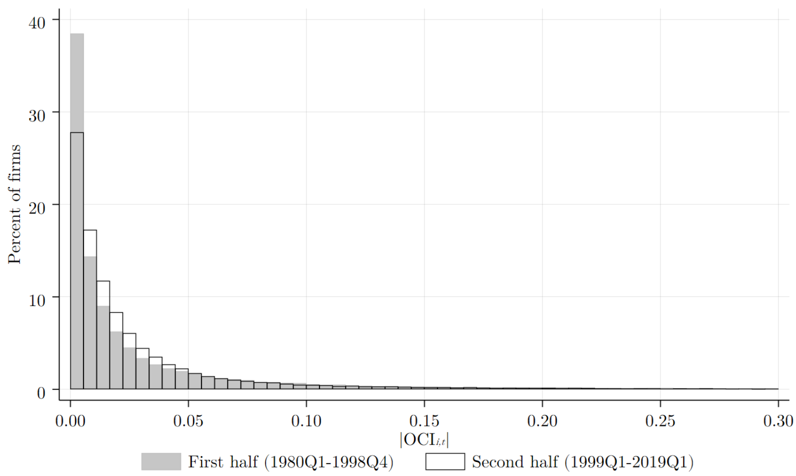


Figure 4
Time-series graph of equal- and value-weighted mean absolute OCI

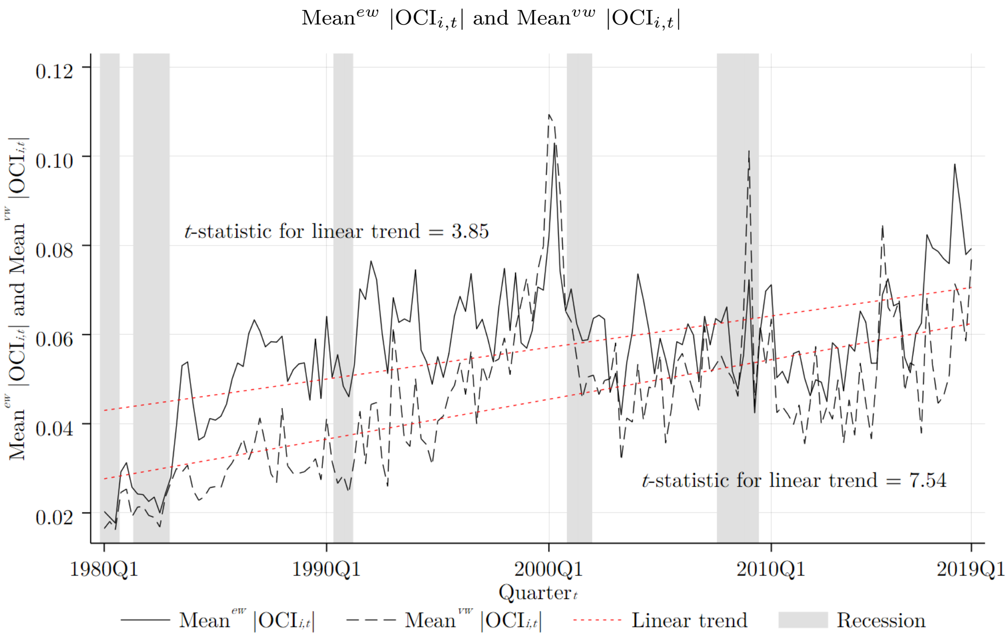


Figure 5
Time-series graph of relevance of NI

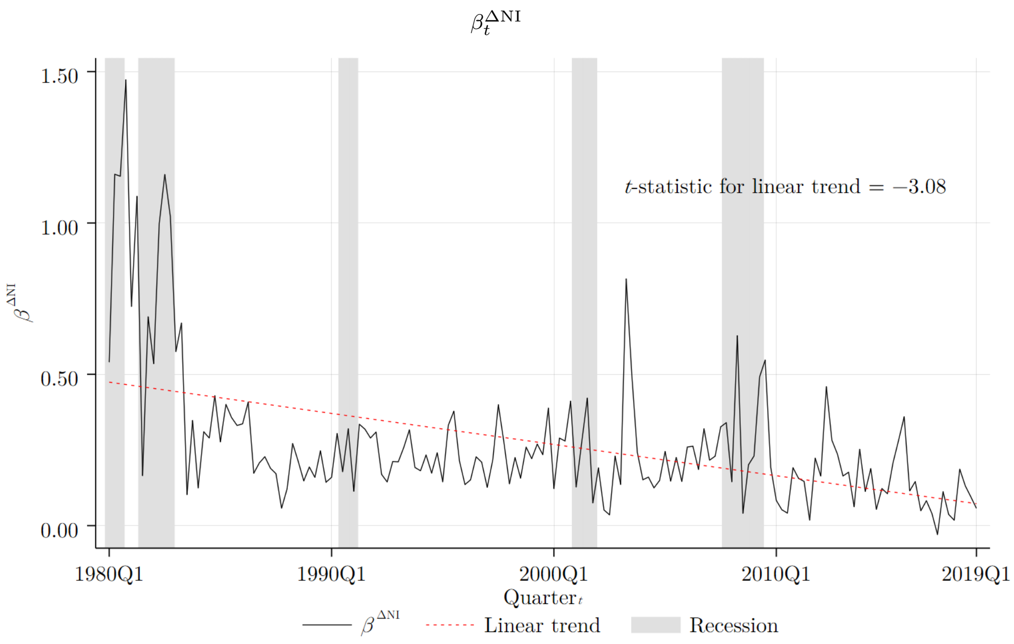


Table 1
Descriptive statistics and correlations for cross-sectional time-series data

The sample contains firms with common equity traded on the NYSE, AMEX and NASDAQ from the end of 1980Q1 to the end of 2019Q1. In both panels, the presented statistics are the time-series means of the cross-sectional statistics. All variables are winsorized at their cross-sectional 1st and 99th percentiles. The variable definitions are presented in the Appendix.

Panel A: Descriptive statistics

Variable	Number of obs.	Mean	Standard deviation	Minimum	25th percentile	Median	75th percentile	Maximum
$NI_{i,t}$	623,076	−0.01	0.14	−0.84	−0.01	0.02	0.04	0.26
$OCI_{i,t}$	623,076	0.02	0.15	−0.42	−0.01	0.00	0.01	0.90
$TCI_{i,t}$	623,076	0.00	0.18	−0.83	−0.02	0.02	0.05	0.79
$\Delta NI_{i,t}$	623,076	0.00	0.12	−0.52	−0.02	0.00	0.02	0.62
$\Delta OCI_{i,t}$	623,076	0.01	0.24	−0.80	−0.02	0.00	0.02	1.38
$\Delta TCI_{i,t}$	623,076	0.02	0.28	−0.92	−0.04	0.00	0.04	1.63
$M_{i,t}$ (in millions)	623,076	2,034.88	5,947.29	3.71	61.33	265.57	1,130.43	43,694.87
$B/M_{i,t}$	623,076	0.80	0.71	0.05	0.36	0.63	1.00	4.43
$RET_{i,t:t-4}$	619,848	0.14	0.50	−0.73	−0.17	0.07	0.33	2.28
$IVOL_{i,t:t-4}$	622,655	0.12	0.08	0.03	0.07	0.10	0.15	0.46
$TURN_{i,t}$	623,076	0.23	0.25	0.01	0.07	0.16	0.31	1.40
$BETA_{i,t:t-4}$	622,655	1.08	1.29	−2.26	0.30	0.96	1.74	5.28

Panel B: Pearson correlations

Variable	$NI_{i,t}$	$OCI_{i,t}$	$TCI_{i,t}$	$\Delta NI_{i,t}$	$\Delta OCI_{i,t}$	$\Delta TCI_{i,t}$	$\ln(M_{i,t})$	$B/M_{i,t}$	$RET_{i,t:t-4}$	$IVOL_{i,t:t-4}$	$TURN_{i,t}$
$OCI_{i,t}$	−0.25										
$TCI_{i,t}$	0.52	0.62									
$\Delta NI_{i,t}$	0.34	−0.04	0.23								
$\Delta OCI_{i,t}$	−0.06	0.60	0.46	−0.06							
$\Delta TCI_{i,t}$	0.11	0.50	0.52	0.42	0.82						
$\ln(M_{i,t})$	0.30	−0.06	0.18	0.03	0.00	0.01					
$B/M_{i,t}$	−0.03	−0.05	−0.06	−0.06	−0.01	−0.04	−0.34				
$RET_{i,t:t-4}$	0.22	0.04	0.20	0.18	0.07	0.14	0.20	−0.30			
$IVOL_{i,t:t-4}$	−0.34	0.14	−0.15	0.02	0.04	0.05	−0.44	0.02	0.05		
$TURN_{i,t}$	0.01	0.04	0.04	0.01	0.03	0.03	0.32	−0.12	0.14	0.17	
$BETA_{i,t:t-4}$	−0.05	0.04	−0.01	0.01	0.02	0.02	0.06	−0.06	0.03	0.21	0.22

Table 2
Persistence of NI and OCI on a firm level

The full sample contains firms with common equity traded on the NYSE, AMEX and NASDAQ from the end of 1980Q1 to the end of 2019Q1. The first half of this sample period covers the period from the end of 1980Q1 to the end of 1998Q4, whereas its second half covers the period from the end of 1999Q1 to the end of 2019Q1. All models are first estimated at the end of each quarter. The presented coefficients are then the time-series means of the estimated coefficients. The t-statistics (presented in parentheses) are based on the time series of the estimated coefficients and they are calculated using Newey-West standard errors, adjusted for heteroskedasticity and an autocorrelation with a maximum lag order of four quarters. The gray (pink) shading means that the presented coefficients for the two halves of the sample period are statistically different from each other at the 5% (10%) level. The variable definitions are presented in the Appendix.

	Dependent variable: $\Delta\text{TCI}_{i,t}$		
	Full sample	First half	Second half
Independent variable	1	2	3
$\Delta\text{NI}_{i,t-1}$	0.25	0.30	0.20
	(12.88)	(9.10)	(12.24)
$\Delta\text{NI}_{i,t-2}$	0.14	0.16	0.12
	(11.25)	(10.77)	(6.23)
$\Delta\text{NI}_{i,t-3}$	0.09	0.11	0.08
	(8.59)	(6.48)	(6.02)
$\Delta\text{NI}_{i,t-4}$	−0.39	−0.41	−0.36
	(−16.47)	(−15.41)	(−9.40)
$\Delta\text{OCI}_{i,t-1}$	−0.13	−0.13	−0.13
	(−15.64)	(−13.08)	(−11.29)
$\Delta\text{OCI}_{i,t-2}$	−0.00	−0.01	−0.00
	(−0.63)	(−1.27)	(−0.03)
$\Delta\text{OCI}_{i,t-3}$	0.04	0.04	0.05
	(7.04)	(4.44)	(5.26)
$\Delta\text{OCI}_{i,t-4}$	−0.33	−0.35	−0.31
	(−30.56)	(−19.00)	(−27.00)
Constant	0.02	0.02	0.02
	(8.17)	(6.86)	(5.07)
Number of quarters	153	72	77
Number of observations	538,128	249,294	269,628
Mean adjusted R^2	0.16	0.17	0.15

Table 3

Relevance of NI and OCI on a firm level

The full sample contains firms with common equity traded on the NYSE, AMEX and NASDAQ from the end of 1980Q1 to the end of 2019Q1. The first half of this sample period covers the period from the end of 1980Q1 to the end of 1998Q4, whereas its second half covers the period from the end of 1999Q1 to the end of 2019Q1. All models are first estimated at the end of each quarter. The presented coefficients are then the time-series means of the estimated coefficients. The t-statistics (presented in parentheses) are based on the time series of the estimated coefficients and they are calculated using Newey-West standard errors, adjusted for heteroskedasticity and an autocorrelation with a maximum lag order of four quarters. The gray shading means that the presented coefficients for the two halves of the sample period are statistically different from each other at the 5% level. The variable definitions are presented in the Appendix.

	Dependent variables														
	$\mathrm{RET}_{i,t}$			$\mathrm{RET}_{i,t:t+1}$			$\mathrm{RET}_{i,t:t+2}$			$\mathrm{RET}_{i,t:t+3}$			$\mathrm{RET}_{i,t:t+4}$		
	Full sample	First half	Second half	Full sample	First half	Second half	Full sample	First half	Second half	Full sample	First half	Second half	Full sample	First half	Second half
Independent variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
$\Delta\mathrm{NI}_{i,t}$	0.27	0.35	0.21	0.09	0.13	0.05	0.12	0.18	0.06	0.10	0.16	0.06	0.08	0.11	0.05
	(8.14)	(5.69)	(9.88)	(5.39)	(5.14)	(3.08)	(4.45)	(4.23)	(2.17)	(3.33)	(3.35)	(1.47)	(2.05)	(2.14)	(0.99)
$\Delta\mathrm{OCI}_{i,t}$	0.02	0.02	0.01	−0.00	−0.00	−0.00	−0.01	−0.01	−0.01	−0.02	−0.02	−0.02	−0.03	−0.04	−0.03
	(3.28)	(2.85)	(1.85)	(−0.78)	(−1.07)	(−0.13)	(−2.16)	(−2.16)	(−1.26)	(−3.09)	(−2.70)	(−1.91)	(−3.72)	(−2.84)	(−2.41)
Constant	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.08	0.07	0.12	0.13	0.11	0.16	0.18	0.15
	(4.88)	(3.83)	(3.13)	(4.95)	(3.96)	(3.09)	(5.06)	(3.97)	(3.08)	(5.32)	(4.33)	(3.24)	(5.66)	(4.78)	(3.37)
Number of quarters	157	76	81	156	75	80	155	74	79	154	73	78	153	72	77
Number of observations	623,076	306,808	316,268	598,897	290,289	303,232	578,342	275,952	291,978	561,672	264,603	281,948	546,923	254,537	272,846
Mean adjusted R^2	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 4
Descriptive statistics, trends and correlations for time-series data

The sample is derived from the sample of firms with common equity traded on the NYSE, AMEX and NASDAQ from the end of 1980Q1 to the end of 2019Q1. In Panel B, for all tests, the models include a constant. For the stochastic trend tests, the models also include t. The deterministic trend tests are performed by regressing each of the variables on t, where the presented statistics are those for the estimated coefficients on this variable. These statistics as well as those for the Phillips-Perron tests are calculated using Newey-West standard errors, adjusted for heteroskedasticity and an autocorrelation with a maximum lag order of four quarters. For the Dickey-Fuller tests, the models are estimated with a maximum lag order of four quarters. The presented critical values are those at the 5% level of statistical significance. The variable definitions are presented in the Appendix.

Panel A: Descriptive statistics

Variable	Number of obs.	Mean	Standard deviation	Minimum	25th percentile	Median	75th percentile	Maximum
$\text{Mean}^{ew}\ \lvert\text{OCI}_{i,t}\rvert$	157	0.06	0.01	0.02	0.05	0.06	0.06	0.10
$\text{Mean}^{vw}\ \lvert\text{OCI}_{i,t}\rvert$	157	0.05	0.02	0.02	0.03	0.04	0.05	0.11
$\text{Mean}^{ew}\ \Delta\text{NI}_{i,t}$	157	0.00	0.01	−0.05	−0.00	0.00	0.01	0.10
$\text{Mean}^{vw}\ \Delta\text{NI}_{i,t}$	157	0.01	0.01	−0.02	0.00	0.01	0.01	0.07
$\text{Mean}^{ew}\ \Delta\text{OCI}_{i,t}$	157	0.01	0.02	−0.04	0.00	0.01	0.02	0.11
$\text{Mean}^{vw}\ \Delta\text{OCI}_{i,t}$	157	0.01	0.02	−0.07	−0.00	0.01	0.02	0.14
$\beta_t^{\Delta\text{NI}}$	157	0.27	0.24	−0.03	0.15	0.21	0.32	1.47
RET_t	156	0.03	0.08	−0.23	−0.01	0.04	0.09	0.20
TANGA_t	157	0.26	0.06	0.19	0.21	0.24	0.31	0.38
LOSS_t	157	0.28	0.06	0.09	0.26	0.29	0.32	0.47
SECON_t	157	0.15	0.35	0.00	0.00	0.00	0.00	1.00
ΔNGDP_t	156	0.01	0.01	−0.02	0.01	0.01	0.02	0.05
ΔRGDP_t	156	0.01	0.01	−0.02	0.00	0.01	0.01	0.02
ΔCPI_t	156	0.01	0.01	−0.03	0.00	0.01	0.01	0.03
FEDRATE_t	157	0.05	0.04	0.00	0.01	0.05	0.07	0.22
RF_t	157	0.01	0.01	0.00	0.00	0.01	0.01	0.04
MKT_t	157	0.02	0.08	−0.24	−0.02	0.03	0.07	0.21
SMB_t	157	0.00	0.05	−0.11	−0.03	0.00	0.03	0.12
HML_t	157	0.01	0.06	−0.17	−0.03	0.00	0.03	0.26
MOM_t	157	0.02	0.08	−0.40	−0.02	0.02	0.05	0.26
LIQ_t	157	0.01	0.06	−0.20	−0.02	0.02	0.05	0.24
RMW_t	157	0.01	0.05	−0.14	−0.01	0.01	0.03	0.27
CMA_t	157	0.01	0.04	−0.08	−0.02	0.00	0.03	0.20
SENT_t	156	0.28	0.61	−0.85	−0.12	0.14	0.60	2.87

(*Continued*)

Table 4 (*Continued*)

Panel B: Trends

Variable	Deterministic trend	Stochastic trend: Dickey-Fuller test	Stochastic trend: Phillips-Perron tests	
	t-statistic	τ-statistic	ρ-statistic	τ-statistic
Mean^{ew} $\lvert\text{OCI}_{i,t}\rvert$	3.85	−3.05	−38.95	−4.85
Mean^{vw} $\lvert\text{OCI}_{i,t}\rvert$	7.54	−3.90	−56.85	−5.83
Mean^{ew} $\Delta\text{NI}_{i,t}$	0.46	−5.49	−71.62	−6.69
Mean^{vw} $\Delta\text{NI}_{i,t}$	0.94	−5.54	−68.30	−6.50
Mean^{ew} $\Delta\text{OCI}_{i,t}$	0.92	−6.53	−79.60	−7.45
Mean^{vw} $\Delta\text{OCI}_{i,t}$	0.76	−7.04	−92.50	−8.30
$\beta_t^{\Delta\text{NI}}$	−3.08	−4.78	−75.56	−6.91
RET_t	−1.22	−6.52	−144.17	−12.32
TANGA_t	−17.17	−0.75	−1.89	−0.73
LOSS_t	3.34	−1.98	−18.32	−3.44
SECON_t	−1.35	−3.62	−41.62	−4.97
ΔNGDP_t	−3.81	−5.47	−97.43	−8.14
ΔRGDP_t	−1.51	−4.25	−110.85	−8.77
ΔCPI_t	−3.75	−7.60	−138.99	−10.96
FEDRATE_t	−9.09	−4.30	−44.33	−4.95
RF_t	−9.68	−2.42	−20.56	−3.17
MKT_t	0.21	−6.66	−150.00	−12.20
SMB_t	0.17	−6.97	−148.93	−11.81
HML_t	−1.67	−8.18	−126.39	−10.51
MOM_t	−1.77	−8.42	−129.65	−10.94
LIQ_t	−1.07	−9.06	−170.19	−13.38
RMW_t	−0.96	−7.13	−139.47	−10.85
CMA_t	−1.76	−8.40	−155.91	−11.92
SENT_t	−3.28	−3.56	−32.75	−4.23
Critical value	±1.96			
Minimum critical value		−3.00	−20.92	−3.45
Maximum critical value		−2.97	−20.83	−3.44

Panel C: Pearson correlations

Variable	Mean^{ew} $\lvert\text{OCI}_{i,t}\rvert$	Mean^{vw} $\lvert\text{OCI}_{i,t}\rvert$	Mean^{ew} $\Delta\text{NI}_{i,t}$	Mean^{vw} $\Delta\text{NI}_{i,t}$	Mean^{ew} $\Delta\text{OCI}_{i,t}$	Mean^{vw} $\Delta\text{OCI}_{i,t}$
Mean^{vw} $\lvert\text{OCI}_{i,t}\rvert$	0.75					
Mean^{ew} $\Delta\text{NI}_{i,t}$	0.02	−0.11				
Mean^{vw} $\Delta\text{NI}_{i,t}$	0.10	−0.02	0.83			
Mean^{ew} $\Delta\text{OCI}_{i,t}$	0.52	0.23	0.25	0.25		
Mean^{vw} $\Delta\text{OCI}_{i,t}$	0.34	0.30	0.27	0.24	0.76	
$\beta_t^{\Delta\text{NI}}$	−0.63	−0.37	−0.18	−0.21	−0.20	−0.05
RET_t	−0.18	−0.10	0.04	−0.00	−0.12	−0.06
TANGA_t	−0.57	−0.65	−0.06	−0.10	−0.09	−0.09
LOSS_t	0.65	0.53	−0.10	−0.16	0.08	0.10
SECON_t	−0.38	−0.17	−0.34	−0.36	−0.31	−0.16
ΔNGDP_t	−0.23	−0.31	0.17	0.15	0.17	0.10
ΔRGDP_t	0.08	−0.04	0.14	0.13	0.26	0.15
ΔCPI_t	−0.26	−0.28	−0.02	−0.02	−0.01	−0.06
FEDRATE_t	−0.55	−0.51	−0.07	−0.05	−0.05	−0.02
RF_t	−0.54	−0.50	−0.11	−0.09	−0.08	−0.02
MKT_t	−0.10	−0.05	0.06	0.02	−0.12	−0.08
SMB_t	−0.11	0.01	−0.01	−0.08	−0.16	−0.01
HML_t	−0.04	−0.14	0.02	−0.01	0.19	0.21
MOM_t	0.02	0.01	0.10	0.10	−0.05	−0.05
LIQ_t	−0.06	0.00	−0.11	−0.12	−0.10	−0.10
RMW_t	0.02	−0.10	−0.15	−0.09	0.07	0.01
CMA_t	−0.02	−0.03	0.03	−0.04	0.13	0.20
SENT_t	−0.02	−0.06	−0.30	−0.26	−0.02	−0.02

Table 5
Persistence of NI and OCI on a market level

The full sample is derived from the sample of firms with common equity traded on the NYSE, AMEX and NASDAQ from the end of 1980Q1 to the end of 2019Q1. The first half of this sample period covers the period from the end of 1980Q1 to the end of 1998Q4, whereas its second half covers the period from the end of 1999Q1 to the end of 2019Q1. The t-statistics (presented in parentheses) are calculated using Newey-West standard errors, adjusted for heteroskedasticity and an autocorrelation with a maximum lag order of four quarters. The gray (pink) shading means that the presented coefficients for the two halves of the sample period are statistically different from each other at the 5% (10%) level. The variable definitions are presented in the Appendix.

	Dependent variables											
	Mean^{ew} $\Delta\text{NI}_{i,t}$			Mean^{vw} $\Delta\text{NI}_{i,t}$			Mean^{ew} $\Delta\text{OCI}_{i,t}$			Mean^{vw} $\Delta\text{OCI}_{i,t}$		
	Full sample	First half	Second half	Full sample	First half	Second half	Full sample	First half	Second half	Full sample	First half	Second half
Independent variable	1	2	3	4	5	6	7	8	9	10	11	12
Lag 1	0.50	0.46	0.50	0.57	0.51	0.58	0.43	0.43	0.42	0.36	0.05	0.43
	(5.76)	(3.99)	(5.08)	(5.74)	(3.84)	(4.55)	(6.51)	(3.78)	(5.15)	(2.38)	(0.67)	(2.36)
Lag 2	0.13	0.21	0.12	0.01	0.37	−0.04	−0.01	0.06	−0.02	−0.02	0.17	−0.09
	(3.86)	(2.10)	(3.51)	(0.28)	(2.73)	(−0.82)	(−0.09)	(0.45)	(−0.23)	(−0.25)	(1.31)	(−0.97)
Lag 3	0.04	0.03	0.04	0.01	0.00	0.02	0.01	0.00	0.00	0.04	0.05	0.06
	(0.47)	(0.27)	(0.44)	(0.20)	(0.02)	(0.26)	(0.20)	(0.04)	(0.01)	(0.59)	(0.55)	(0.60)
Lag 4	−0.29	−0.42	−0.28	−0.13	−0.30	−0.12	−0.32	−0.38	−0.30	−0.24	−0.34	−0.23
	(−1.17)	(−4.19)	(−1.05)	(−0.89)	(−2.23)	(−0.69)	(−4.56)	(−3.73)	(−3.12)	(−1.90)	(−2.41)	(−1.59)
Constant	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
	(1.61)	(3.62)	(1.13)	(2.10)	(3.77)	(1.57)	(5.59)	(3.85)	(3.79)	(4.08)	(3.54)	(3.10)
Number of observations	153	72	77	153	72	77	153	72	77	153	72	77
Adjusted R^2	0.36	0.42	0.33	0.31	0.49	0.28	0.29	0.32	0.24	0.16	0.08	0.17

Table 6
OCI and relevance of NI on a market level

The sample is derived from the sample of firms with common equity traded on the NYSE, AMEX and NASDAQ from the end of 1980Q1 to the end of 2019Q1. The t-statistics (presented in parentheses) are calculated using Newey-West standard errors, adjusted for heteroskedasticity and an autocorrelation with a maximum lag order of four quarters. The variable definitions are presented in the Appendix.

	Dependent variable: $\beta_t^{\Delta \text{NI}}$			
Independent variable	1	2	3	4
$\text{Mean}^{ew}\ \lvert\text{OCI}_{i,t}\rvert$	−8.34	−4.98		
	(−3.56)	(−3.07)		
$\text{Mean}^{vw}\ \lvert\text{OCI}_{i,t}\rvert$			−1.84	−0.52
			(−1.42)	(−0.50)
t	−0.00	0.00	−0.00	0.00
	(−2.34)	(1.04)	(−3.31)	(0.34)
ΔTANGA_t		12.09		15.51
		(1.86)		(1.98)
ΔLOSS_t		−0.08		−0.18
		(−0.20)		(−0.42)
SECON_t		0.14		0.18
		(2.03)		(2.50)
ΔRGDP_t		3.91		3.19
		(1.65)		(1.39)
FEDRATE_t		2.58		3.05
		(3.44)		(3.42)
MKT_t		0.65		0.79
		(3.38)		(3.82)
SMB_t		0.58		0.65
		(1.71)		(1.73)
HML_t		−0.16		−0.08
		(−0.52)		(−0.25)
MOM_t		0.44		0.42
		(1.99)		(1.76)
LIQ_t		0.25		0.28
		(1.25)		(1.28)
RMW_t		0.44		0.47
		(1.17)		(1.12)
CMA_t		0.83		0.85
		(1.53)		(1.42)
SENT_t		−0.04		−0.06
		(−1.31)		(−1.73)
Constant	0.92	0.27	0.70	0.05
	(5.73)	(2.10)	(4.31)	(0.37)
Number of observations	157	155	157	155
Adjusted R^2	0.41	0.55	0.24	0.50

Table 7
Relevance of NI and OCI on a market level

The full sample is derived from the sample of firms with common equity traded on the NYSE, AMEX and NASDAQ from the end of 1980Q1 to the end of 2019Q1. The first half of this sample period covers the period from the end of 1980Q1 to the end of 1998Q4, whereas its second half covers the period from the end of 1999Q1 to the end of 2019Q1. The t-statistics (presented in parentheses) are calculated using Newey-West standard errors, adjusted for heteroskedasticity and an autocorrelation with a maximum lag order of four quarters. The variable definitions are presented in the Appendix.

	Dependent variable: $\text{RET}_{t:t+4}$											
	Full sample		First half		Second half		Full sample		First half		Second half	
Independent variable	1	2	3	4	5	6	7	8	9	10	11	12
$\text{Mean}^{ew}\ \Delta\text{NI}_{i,t}$	1.73	0.73	−9.91	−10.11	2.81	1.41						
	(1.03)	(0.48)	(−2.27)	(−2.23)	(1.70)	(0.89)						
$\text{Mean}^{vw}\ \Delta\text{NI}_{i,t}$							1.69	0.14	−8.66	−8.67	3.61	1.77
							(0.79)	(0.06)	(−1.42)	(−1.43)	(1.68)	(0.73)
$\text{Mean}^{ew}\ \Delta\text{OCI}_{i,t}$		2.57		0.59		3.59						
		(2.97)		(0.59)		(3.51)						
$\text{Mean}^{vw}\ \Delta\text{OCI}_{i,t}$								2.27		2.31		2.32
								(3.68)		(1.44)		(3.15)
Constant	0.20	0.17	0.26	0.26	0.16	0.12	0.19	0.18	0.29	0.28	0.15	0.13
	(7.54)	(5.73)	(7.84)	(6.80)	(4.45)	(3.30)	(5.75)	(5.55)	(5.29)	(5.02)	(3.49)	(3.33)
Number of observations	156	156	75	75	80	80	156	156	75	75	80	80
Adjusted R^2	0.01	0.07	0.06	0.05	0.04	0.18	0.00	0.07	0.04	0.06	0.03	0.14