Inflation and Nominal Financial Reporting: Implications for Performance and Stock Prices

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ABSTRACT: The monetary unit assumption of financial accounting assumes a stable currency (i.e., constant purchasing power over time). Yet, even during periods of low inflation or deflation, nominal financial statements violate this assumption. I posit that, while the effects of inflation are not recognized in nominal statements, such effects may have economic consequences. I find that unrecognized inflation gains and losses help predict future cash flows as these gains and losses turn into cash flows over time. I also find significant abnormal returns to inflation-based trading strategies, suggesting that stock prices do not fully reflect the implications of the inflation effects for future cash flows. Additional analysis reveals that stock prices act as if investors do not fully distinguish monetary and nonmonetary assets, which is fundamental to determining the effects of inflation. Overall, this study is the first to show that, although inflation effects are not recognized in nominal financial statements, they have significant economic consequences, even during a period in which inflation is relatively low.

I. INTRODUCTION

The U.S. financial reporting regime is nominal, which assumes no changes to the purchasing power of the dollar over time. That is, the accounting amounts reported in financial statements based on U.S. Generally Accepted Accounting Principles (GAAP) are called nominal because they are not adjusted for inflation.[1] Yet, the annual U.S. inflation rate over the past two decades has averaged to three percent. When purchasing power is not constant, a nominal reporting system that combines monetary amounts from different periods violates the Monetary Unit accounting assumption of a stable currency (SFAC 5, Financial Accounting Standards Board, FASB 1984) and decreases comparability both across firms and over time. Although the effects of inflation on financial reporting received considerable attention during the late 1970s when inflation was relatively high, inflationary effects have been mostly ignored in the more modest inflationary environment since that time.

Nominal financial statements, by their nature, do not account for gains and losses attributable to changes in purchasing power over time. For example, whereas the erosion of a firm's monetary assets (e.g., cash) attributable to inflation is a loss to the firm, the erosion of a firm's monetary liabilities (e.g., debt) is a gain. Further, whereas inflation-adjusted amounts of nonmonetary items (e.g., land) accumulate inflationary effects over time to reflect changes in purchasing power, such effects are not recognized in nominal financial statements. The difference between inflation-adjusted and nominal earnings represents unrecognized gains and losses from inflation. In this study, I investigate economic consequences of omitting these inflation effects from nominal financial statements. Specifically, I test whether unrecognized gains and losses from inflation help predict future cash flows, and whether investors incorporate this information into their investment decisions.

This study is most closely related to inflation accounting studies that investigate the implications of inflation in the U.S. during the 1970s and 1980s (e.g., Beaver 1979; Easman et al.

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[1] In the text I refer to inflation because deflation has rarely occurred in the U.S.; however, the study pertains to both inflation and deflation because deflation can be viewed as negative inflation.

1979; Beaver et al. 1980; Gheyara and Boatsman 1980; Ro 1980; Watts and Zimmerman 1980; Beaver and Landsman 1983). These studies address questions primarily related to whether the effects of inflation are associated with contemporaneous annual and short-window stock returns. A conclusion from these studies is that inflation-adjusted (or, interchangeably, IA) data are inconsequential for making financial decisions.[2]

I take a different approach by considering the possibility that inflation can have implications over a period longer than the contemporaneous year. In particular, if unrecognized inflation gains and losses (or simply *inflation gains*, for brevity) are realized over time, they are likely to help predict firms' future cash flows.[3] Moreover, if the stock market does not fully account for such implications for future cash flows, inflation gains can be associated with future stock returns. Thus, by focusing attention on possible longer-horizon inflation effects, I shed new light on the extent to which the stock market incorporates inflation information, and on the pricing implications of inflation-adjusted data. I also extend prior research by providing insight into how investors process inflation-adjusted information, thereby providing evidence on the mechanism through which inflation impacts future investment decisions.

The first question I address is whether inflation gains can help predict firms' future cash flows. The inflation effects can translate to future cash flows because higher unrecognized inflation gains accumulated in nonmonetary assets should result in higher cash flows from

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[2] This research mainly investigates questions related to the adoption of the Securities and Exchange Commission (SEC)'s Accounting Series Release (ASR) 190 in 1976 and Statement of Financial Accounting Standard (SFAS) 33 in 1979, which are no longer effective, that were mandated in response to high inflation during the period. Another related area follows Modigliani and Cohn (1979), who hypothesize that the stock market is inefficient because it suffers from inflation illusion (e.g., Ritter and Warr 2002; Campbell and Vuolteenaho 2004; Basu et al. 2006; Chordia and Shivakumar 2005). Another area attempts to explain the association between stock returns and unexpected inflation (e.g., Summers 1981; Bernard 1986). Whereas prior studies in this area examine how raw returns vary with respect to unexpected inflation, I investigate how investors process inflation-adjusted information and whether ex-ante portfolios can be formed to generate future abnormal returns. I also extend prior work by developing a measure that captures the total information content of inflation that is omitted when reporting nominal amounts (e.g., purchasing dates for different asset classes, as explained in the Appendix), and in contrast to prior studies, which analyze the effects of unexpected inflation on realized returns, I analyze the effects of expected inflation on expected returns. Other related areas investigate inflation effects in a variety of contexts, including the bond market, non-U.S. countries with high inflation, employment determination, dividend decision, and inflation tax (e.g., Phelps 1967; Fama and Schwert 1977; Bar-Yosef and Lev 1983; Gordon 2001; Kothari and Shanken 2004; Davis-Friday and Gordon 2005).
[3] I use the terms "inflation gains" and "unrecognized inflation gains" interchangeably throughout the study.

operations when the assets are used (in the case of property, plant, and equipment; PPE, hereafter) or sold (in the case of inventory) through many types of business activities, leading to a positive association between unrecognized inflation gains and future cash flows.

I address this question using two tests. In the first test, I investigate how inflation distorts nominal amounts. To do so, I develop an algorithm that extracts inflation-adjusted data from firms' nominal financial statements. More specifically, the algorithm adjusts nominal financial statements for inflation, firm-by-firm, using the distinction between monetary and nonmonetary amounts, the life cycles of assets and liabilities, and the clean surplus relation. An important feature of the algorithm is that it allows inflation effects to vary across firms and over time, capturing the fact that inflation affects firms differently depending on the structure of their assets and liabilities. Further, the algorithm and the inflation-adjusted amounts in this study rely on the historical cost measurement attribute, which has reliability and objectivity advantages. This is the same system of accounting that underlies the current nominal reporting regime, except that amounts are stated in common units. This test evidences considerable cross-sectional and time-series variation in inflation effects. To verify the external validity of the algorithm, I implement it on a sample of Israeli firms for which I hand collect inflation-adjusted and nominal data — Israeli firms were required to disclose both sets of figures until 2003. This verification analysis (see Appendix) shows that the algorithm provides reasonable estimates of inflation-adjusted financial statement amounts.

In the second test, I examine whether unrecognized inflation gains are realized over time, and thus can help to predict future performance. In particular, I test whether unrecognized inflation gains improve forecasts of cash flows from operations for horizons from one to four years relative to a benchmark model developed in Barth et al. (2001). I find that unrecognized inflation gains are associated with future cash flows from operating activities in each of the four subsequent years.

Next, I focus on the stock market effects of inflation. If inflation-adjusted information has implications for future cash flows, investors are likely to incorporate it into their investment

decisions. However, using inflation-adjusted data can be costly because inflation-adjusted data are not reported and processing such data is more complicated than processing nominal data (Beaver and Landsman 1983). Because mispricing can arise when information is costly to obtain and process (Grossman and Stiglitz 1980; Ball 1994), even under the semi-strong form of market efficiency, this raises the question of whether investors fully incorporate the implications of inflation information for future cash flows in their equity pricing decisions. I therefore investigate whether unrecognized inflation gains can be used to generate significant abnormal returns.

Specifically, given my findings that inflation gains have predictive power for future cash flows, future returns are likely to depend on stock market expectations regarding these gains. If the market fully incorporates information about inflation gains, stocks prices will correctly reflect the implications of such effects for future cash flows, leading to no future abnormal returns. Alternatively, if the market does not fully incorporate information about inflation gains, stocks may be mispriced, leading to possible future abnormal returns. Accordingly, I predict that if investors overestimate (underestimate) the amount of unrecognized inflation gains in the current period, investors will be negatively (positively) surprised when these effects are realized in cash flows, leading to negative (positive) subsequent abnormal returns.

To test this prediction, I first conduct a portfolio-level return test. This test examines returns for portfolios constructed based on inflation-adjusted information, controlling for common risk factors. More specifically, this test uses portfolios constructed based on inflation gains and investigates the intercepts (i.e., alphas or abnormal returns) obtained from time-series regressions of future returns in excess of the risk-free rate on the related-period Fama-French factor returns. This test reveals significant intercepts for the high and low inflation-based portfolios, with a zero-cost hedge strategy that results in a significant monthly abnormal return of 77-85 basis points, controlling for the Fama-French, momentum, and net operating assets factors. Thus, it appears that stock prices do not fully reflect the implications of inflation gains. I also find a negative association between inflation gains and future abnormal returns. This finding

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indicates that inflation gains are underestimated (overestimated) when current-period inflation gains are low (high), leading to the significantly positive (negative) abnormal future returns as the inflation gains turn into future cash flows. As a check, I also conduct a firm-level test that analyzes the extent to which an inflation-based trading strategy predicts firms' future annual abnormal returns. The firm-level test generates abnormal returns in a manner consistent with the portfolio-level test.

The findings show that, although investors take inflation gains into account, they do not do so correctly. In additional analysis, I conduct two tests to examine whether market pricing errors can be explained by how the stock market processes inflation information. I find that the documented ability to generate future abnormal returns and the negative association between inflation gains and future abnormal returns are consistent with an inflation adjustment argument. Specifically, I find that the presence of negative or positive future abnormal returns is consistent with investors not distinguishing monetary and nonmonetary assets when adjusting for inflation, leading to a loss of information because inflation affects these two classes of assets differently. This finding suggests that stock prices act as if investors "fixate" on aggregate assets when taking inflation into account, which leads to errors when adjusting for the effects of inflation.

Robustness tests show that there is no pattern in risk characteristics across inflation gains portfolios, and that an inflation-based factor is not a priced risk factor. These findings indicate that the abnormal returns I document are not attributable to an omitted inflation-based risk factor. Instead, these findings are consistent with abnormal returns stemming from inflation information being costly to obtain and process, and hence are consistent with market efficiency under costly information (Beaver 1981).

To summarize, this study is the first to find that (1) unrecognized inflation gains are informative for predicting future cash flows, (2) inflation-based trading strategies are associated with significant abnormal returns, meaning that stock prices do not fully reflect the implications of inflation gains for future cash flows, and (3) stock prices act as if investors do not fully distinguish monetary and nonmonetary assets, which is necessary to determine the effects of

inflation. Together, these results suggest that, contrary to prior work that concludes inflation-adjusted data are of little consequence to financial decisions, unrecognized inflation effects have significant economic implications, even during a period in which inflation is relatively low.[4]

Section II discusses related background and develops the study's main tests on cash flows and stock returns. Section III presents the research design. Section IV discusses data and sample statistics. Section V provides the main results. Section VI investigates how investors process inflation information. Section VII presents robustness tests. Section VIII concludes.

II. BACKGROUND AND MAIN TESTS

Inflation is a macroeconomic phenomenon that captures the decrease in purchasing power of a currency unit over time because of a general increase in the prices of goods and services (Beaver and Landsman 1983). The fundamental accounting assumption of a Monetary Unit assumes a stable currency (i.e., constant purchasing power) as the unit of record (SFAC 5, FASB 1984). Under U.S. GAAP, if the only activities of a firm are, for example, purchasing a parcel of land for $100 fifty years ago and purchasing an additional parcel of land for $100 one year ago, the firm recognizes land at $200 in its financial statements. Assuming that the purchasing power changes over time, this results in a loss of information because the parcels were purchased with the same dollar amount, but at points in time with different purchasing power. Thus, although comparability is one of the qualitative characteristics of accounting information (SFAC 1, FASB 1978), mixing dollars from different periods distorts the Monetary Unit assumption and impairs comparability across firms and over time. This raises the question as to the economic effects of such inflation effects.

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[4] Although I find that inflation-adjusted amounts are informative for predicting future cash flows, I do not propose a shift to an inflation-adjusted reporting regime. Mandating an inflation-adjusted reporting regime in the U.S. may impose public- and firm-level costs that do not necessarily outweigh the benefits, especially when inflation is low. A normative evaluation of the trade-off associated with such a regime shift is beyond the scope of my study.

Implications of Inflation Information for Future Cash Flows

When a firm engages in a transaction, the opportunity cost of the transaction from the perspective of a representative investor is the fixed number of general consumption units the firm gives up. However, financial statements, which present nominal amounts, do not include information about the date of each transaction, and items are recognized in terms of dollars and not in terms of consumption units. Therefore, inflation creates a wedge between a recognized nominal amount and its cost in terms of consumption units. For a firm, nominal amounts mix dollars from periods with different dollar-consumption ratios, which impairs comparability over time. Across firms, nominal reporting further impairs comparability because there is large variation among firms' transaction dates and amounts when purchasing power is not constant.[5]

To extract information about transactions in terms of consumption units, financial statement items can be separated into two classes: monetary and nonmonetary. Monetary items are directly measured on the basis of a fixed number of dollars required for their settlement. Nonmonetary items represent either a historical cost or a right (obligation) to receive (deliver) services for which purchasing power is not constant. Under U.S. GAAP, financial statements do not take into account gains and losses on monetary items (e.g., debt) attributable to inflation. For example, although the erosion of monetary assets (liabilities) is a loss (gain) to the firm, such losses and gains are not recognized in U.S. GAAP-based financial statements. Financial statements also do not take into account the effects of inflation on nonmonetary items (e.g., PPE). For example, whereas inflation-adjusted amounts change over time because of inflation, the amounts recognized for gross PPE do not reflect such changes. The difference between earnings based on the two measures, $IGL = IAEarnings - NominalEarnings$, captures

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[5] An example inspired from *The Economist*'s "Big Mac index" (www.economist.com/markets/bigmac/about.cfm) illustrates how inflation can lead nominal accounting amounts to not reflect a transaction's opportunity cost in terms of consumption units. Suppose $100 spent on a parcel of land 50 years ago could purchase 100 Big Macs 50 years ago, but because of inflation, $100 can only purchase 40 Big Macs today. Because the $100 spent 50 years ago is reported as $100 in the current-period's nominal financial statements, the accounting system equates the original amount spent by the firm to the amount required to purchase 40 Big Macs today. That is, the accounting system effectively informs investors that the firm gave up an amount corresponding to 40 Big Macs to purchase the parcel of land. Yet the firm in fact purchased the land for the equivalent of 100 Big Macs. In inflation-adjusted terms, the $100 spent 50 years ago is economically equivalent to $250 (=100*100/40) in today's dollars.

unrecognized inflation gains and losses. The variation in inflation-adjusted earnings, and hence in *IGL*, is a result of the level of and changes in inflation, and the difference across firms and over time in the structure of monetary and nonmonetary items. Thus, firms with similar nominal outcomes can differ in their inflation-adjusted outcomes, and *IGL* can vary for a firm over time even when the nominal amounts remain constant.[6]

Inflation gains can turn into future cash flows in several ways, depending on firms' activities. Because the underlying economics of firms' activities are the same regardless of how these activities are reported in financial statements, if the nominal financial statements do not fully capture the effects of inflation today, such inflation effects are likely to be realized in future periods, thereby enabling the inflation effects to help predict future performance. The inflation effects can turn into future cash flows from operations (CFO) because higher unrecognized inflation gains accumulated in nonmonetary assets should result in higher future CFO when the assets are used (in the case of PPE) or sold (in the case of inventory). Further, because inflation is correlated with changes in specific prices, predicting higher future CFO from increases in the general price index is consistent with prior literature that shows increases in specific prices result in higher CFO (e.g., Aboody et al. 1999).[7]

There are many types of business activities for which inflation gains can turn into future cash flows. Consider, for example, the case of PPE. Suppose a parcel of land acquired for $100 by the firm 50 years ago and, based on the purchasing power at that acquisition time, the firm gave up 100 Big Macs (i.e., one Big Mac — consumption unit — costs $1). Suppose also that at the acquisition time, the firm expects to generate ten percent inflation-adjusted annual yield by renting the land to another firm, i.e., it expects cash yield that is equivalent to ten Big Macs per

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[6] Inflation can lead to large differences between nominal and inflation-adjusted earnings even when inflation is low. For example, during a period of six percent average annual inflation in Israel, the median absolute difference between the two earnings amounts is 38 percent of nominal earnings. Also, during a period of three percent average annual inflation in the U.S., using the inflation-adjusted earnings for the U.S. sample, the equivalent ratio is 29 percent.

[7] For example, untabulated results suggests that monthly inflation rates are highly and significantly correlated with monthly changes in major indices of nonmonetary assets (commodity and housing) over the past 59 years of available data in the Global Insight database, with Spearman and Pearson correlations of 0.7 on average.

year. Under a nominal reporting regime, firms' transactions are not linked to consumption units. Thus, when the purchasing power decreases over time, a particular number of consumption units in the past is equivalent to more cash in the present. Accordingly, in future periods, when the purchasing power of the dollar decreases because of inflation, the rent income is expected to increase, leading to higher CFO. Also, suppose a firm decides to use its land parcel for its own benefit rather than renting it to another firm. As the purchasing power of the monetary unit decreases over time, the use of the land parcel, which is nonmonetary, allows the firm to avoid paying an increasing amount to rent the parcel from another firm. This allows the firm to avoid cash payments that are increasing over time. Another example is inventory. Inventory is often sold several months or years after it is purchased, depending on its turnover, which is a function of the firm's operations and business cycle. The inventory accumulates inflationary gains that result in higher CFO upon the inventory sale. Thus, overall, I expect that inflation gains on PPE and inventory translate to higher future CFO.

If inflation gains, *IGL,* can turn into future CFO, I predict a positive association between *IGL* and future CFO. I also expect inflation gains to turn into future cash flows over several years. First, inflation gains can be accumulated in nonmonetary assets (e.g., land, plant, and buildings) that usually have life cycles of several years. For example, unrealized inflation gains accumulated in a real estate property that is rented out can translate to CFO when the firm renew the lease or have another lessee beyond the one year horizon. Second, inventory inflation gains can last longer than one year under LIFO, which many U.S. firms use, and when inventory turnover is longer than one year.

Note that inflation-adjusted accounting amounts are not fair value amounts. In contrast to fair value amounts, management discretion and subjectivity do not play a role when adjusting for inflation. When adjusting for inflation, I rely on the same measurement attribute underlying financial statements (mainly modified historical cost), and thus the adjustment procedure is objective. This is the same system of accounting as under the current nominal reporting regime, except that amounts are stated based on units of equal meaning. In particular, I adjust nominal

amounts using a general price index to obtain a common monetary unit. The resulting (inflation-adjusted) amounts capture the implications of inflation for a representative investor who is interested in maintaining consumption units and is thus exposed to an average basket of goods and services.[8]

The Extent to which Stock Returns Reflect Inflation Information

Models in asset pricing often assume that an asset's price depends on the comovement of its payoff with marginal utility from consumption over time and across states of nature. Nominal reporting affects investors' assessment of firms' activities in terms of consumption units. If inflation gains, which capture firms' activities in terms of consumption units, are informative for predicting future cash flows, this raises the question of whether the stock market fully incorporates such information when valuing firms' equity. Investors are likely to use information if it has implications for future cash flows. However, the use of inflation-adjusted data is more complicated than the use of nominal data (e.g., SFAC 5, FASB 1984). Furthermore, because classes of assets and liabilities are affected differently by inflation, and the inflation impact varies over time based on the structure and age of a firm's assets and liabilities, obtaining inflation-adjusted information (which is publicly unavailable) requires acquisition and processing costs that do not necessarily outweigh their benefits. These factors suggest that inflation accounting may reflect market efficiency under costly information (Grossman and Stiglitz 1980; Beaver 1981; Ball 1994).

If unrecognized inflation gains turn into future cash flows, future returns should depend on how investors process information about these effects. Thus, I expect to find no subsequent abnormal returns if investors fully incorporate inflation information into their investment

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[8] Another reason that I adjust for inflation using a general price index, rather than specific indices for particular categories of assets is to be consistent with inflationary GAAP, which uses the general price index. Further, adjusting using specific assets requires not-readily available data regarding the composition of all assets within each asset class and the associated specific index that captures the price increase in the specific asset. Also, adjusting using specific industry indices is likely to introduce significant measurement error because a firm's composition of assets vary widely even for firms within the same industry. In fact, adjusting based on the general price index is likely to bias against finding significant abnormal returns and CFO predictability from using inflation gains.

decisions. Alternatively, if investors do not fully incorporate information about inflation gains, stocks may be mispriced, leading to possible abnormal returns. Specifically, if investors overestimate (underestimate) inflation gains in the current period, investors will be negatively (positively) surprised in the future when these gains turn into cash flows, leading to negative (positive) subsequent abnormal returns.

III. RESEARCH DESIGN

Inflation Adjustment Algorithm

To obtain accounting amounts that capture inflation effects, I develop an algorithm that converts nominal amounts into inflation-adjusted amounts on a firm-by-firm basis for a broad sample of firms.[9] The algorithm uses a constant dollar approach to measure firms' activities as if purchasing power were constant. Further, it uses the same measurement attribute underlying nominal financial statements, restating the nominal amounts using an objective general price index.

The algorithm is described in the Appendix. In brief, the algorithm extracts inflation-adjusted information from GAAP financial statements in three main steps. First, it reconstructs, in inflation-adjusted terms, each firm's financial statements over the firm's life until the reporting date of interest. Because the distinction between monetary and nonmonetary items is key to distinguishing the effects of inflation on different accounting amounts, the algorithm separates monetary from nonmonetary assets and liabilities. Second, because monetary items are measured in financial statements based on the fixed number of dollars required for their settlement, the algorithm uses the monetary amounts from the financial statements as the inflation-adjusted amounts. In contrast, the algorithm adjusts nonmonetary items by estimating purchase dates and using information on asset life cycles and inventory turnover. Third, the

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[9] Prior studies usually focus on particular countries or short periods because of data limitations. By using an algorithm to adjust nominal amounts for inflation I am able to analyze inflation effects on a broader sample.

algorithm estimates the wealth generated each period, in inflation-adjusted terms, by differencing two successive sets of assets and liabilities and using the clean surplus relation to incorporate other comprehensive income amounts, stock issues, and other events that can be affected by inflation over the period (e.g., dividends).[10]

Implications of Inflation Information for Future Cash Flows

If inflation-adjusted earnings are higher (lower) than nominal earnings in the current period, the unrecognized inflation gains (losses) should result in increased (decreased) future CFO. To test for the ability of inflation gains to predict future CFO, I extend the framework developed in Barth et al. (2001) to include inflation gains. Specifically, for horizons of one to four years, i.e., for $\tau = 1$ through 4, I estimate the following equation:

$$CFO_{t+\tau} = \theta + \beta \cdot IGL_t + \gamma_1 \cdot CFO_t + \gamma_2 \cdot \Delta AR_t + \gamma_3 \cdot \Delta INV_t + \gamma_4 \cdot \Delta AP_t + \gamma_5 \cdot DEPN_t + \gamma_6 \cdot OTHER_t + \mu_{t+\tau}, \quad (1)$$

where IGL_t denotes inflation gains and losses for year t; *CFO*, *INV*, *AR*, *INV*, *AP*, *DEPN*, and *OTHER* are cash flows from operations, accounts receivable, inventory, accounts payable, depreciation and amortization, and other accruals, respectively; and Δ denotes annual change.

In equation (1), the coefficient on inflation gains, β, is the coefficient of interest. I predict a positive association between inflation gains and future *CFO* ($\beta > 0$). I also predict β to be positive for more than one year because assets can have life cycles longer than one year.[11] Following Barth et al. (2001), I predict the signs on $\gamma_1, \gamma_2, \gamma_3, \gamma_5,$ and γ_6 to be positive and the sign on γ_4 to be negative.

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[10] Also, the adjustment procedure is consistent with inflationary GAAP that is currently active or was active in the past, e.g., International Financial Reporting Standards (IFRS): International Accounting Standards (IAS) 15 and 29, International Financial Reporting Interpretations Committee (IFRIC) 7; Israeli GAAP: Institute of Certified Public Accountants in Israel (ICPA) Statements 36 and 50; and U.S. GAAP: SFAS 33 and ASR 190.

[11] My motivation stems from whether there is a positive association between current-period inflation gains and future cash flows, thus I focus on the direction of the coefficient on inflation gains, rather than its magnitude. At the extreme there could be a one-to-one relation between inflation gains and future cash flows. Yet, predicting the magnitude of this coefficient is outside the scope of my study, and it depends on an array of factors and parameters that could vary widely depending on the assumptions regarding these parameters and for which data are unavailable (e.g., the life cycles of nonmonetary assets, the relation between inflation rate and the increase in specific asset prices and their benefits, and the composition of nonmonetary assets).

By construction, the sum of *CFO* and disaggregated accruals equals nominal earnings, and thus the equation includes time *t* earnings. This allows me to test the incremental predictive effect of IGL_t beyond time *t* nominal earnings. I estimate equation (1) using a pooled regression that includes observations cross-sectionally and over time, as well as using annual cross-sectional regressions. For the pooled regression, I base tests statistics on regression residuals clustered by firm and year (Petersen 2009; Gow et al. 2010). I include industry fixed effects in the annual cross-sectional regressions, and I report the mean coefficients of a time-series parameter estimates obtained from the cross-sectional regressions. I conduct tests on these cross-sectional estimates using Fama and MacBeth (1973) t-statistic and two Z-statistics. I primarily rely on the robust double-clustered pooled specification because Fama-MacBeth t-statistic and the Z-statistics can be overstated if cross-sectional and time-series correlations exist in the data.[12]

The Extent to which Stock Returns Reflect Inflation Information

Portfolio-Level Approach

If mispricing exists, a relation between inflation gains and subsequent returns is likely to be evident in portfolio-level returns. To test this prediction, the design focuses on the intercepts from portfolios constructed based on inflation gains. The estimated intercepts permit testing the ability of inflation information to explain systematic differences in the cross-section of stock returns, controlling for common risk factors (Fama and French 1993). In particular, I test whether the intercept for the low *IGL* portfolio is significantly different from the intercept for the high portfolio. To implement the test, I construct ten portfolios such that each period all firm-

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[12] Two points regarding this test. First, I focus on the inflation effects on future cash flows because cash flows receive considerable attention by the investment community and are of major importance in valuation of firms (e.g., Hackel et al. 2000; Barth et al. 2001). Cash flows are also more difficult to manipulate compared to earnings. However, inflation can also affect nominal earnings because inflation gains can translate into future nominal earnings in several ways (e.g., inventory holding gains). Second, with respect to the Z-statistics, both Z-statistics control for cross-sectional correlations but Z2 also partially corrects for potential upward bias in Z1 arising from lack of independence of parameters across the regression groups (Barth 1994). $Z1 = [(1/\sqrt{N}) \cdot \sum_{j=1}^{N} t_j]/\sqrt{[k_j/(k_j-2)]}$, where t_j is the t-statistic for cross-sectional regression j, k_j is the degrees of freedom, and N is the number of cross-sectional groups; and $Z2 = \text{mean}(t)/[\text{stddev}(t)/\sqrt{(N-1)}]$, where mean(*t*) and stddev(*t*) respectively refer to the mean and standard deviation across the group estimates.

year observations with low (high) *IGL* are sorted into portfolio one (ten). I then calculate future monthly returns for each portfolio and estimate the following time-series equation at the portfolio level to obtain the portfolio intercepts:

$$R_{p,m} - R_{f,m} = \alpha_p + \beta_{p,MKTRF} \cdot MKTRF_m + \beta_{p,SMB} \cdot SMB_m + \beta_{p,HML} \cdot HML_m + \varepsilon_{p,m}, \qquad (2)$$

where $R_{p,m}$ is the portfolio return for portfolio p in month m; $R_{f,m}$ is the one-month Treasury bill rate; and $MKTRF_m$, SMB_m, and HML_m, are the Fama-French factors returns, where *MKTRF* is the excess return on the market, and *SMB* and *HML* are constructed based on *MVE* and *BTM*, respectively. Because inflation gains are estimated annually, I align firms' *IGL* on monthly returns accumulated over the twelve months beginning three months after the fiscal year-end, to allow for dissemination of annual reports information and the associated annual inflation rate.

To test for hedge abnormal return from using an inflation-based trading strategy, I construct a zero-cost investment portfolio that longs the lowest portfolio (portfolio one) and shorts the highest portfolio (portfolio ten). I then regress this zero-cost portfolio's returns on the related-period factor returns. The intercept from this zero-cost hedge regression can be interpreted as a monthly abnormal return on a zero inflation-based hedge strategy that buys portfolio one and sells short portfolio ten.

I also sequentially add as controls the Carhart (1997) momentum factor (*UMD*) and a net operating assets factor (*FNOA*) following Hirshleifer et al. (2004). Hirshleifer et al. (2004) show that the ratio of net operating assets to lagged total assets, which they refer to as balance sheet bloat, is associated with future returns. I add this effect in all return tests to control for the possibility that a relation between Net Operating Assets (*NOA*) and inflation gains can affect the association between inflation gains and future returns. To do this, I first obtain *NOA* following Hirshleifer et al. (2004), and then form a *NOA*-based factor following the procedure described in

Fama and French (1993) in forming the *HML* and *SMB* factors. The *FNOA* factor is a factor-mimicking *NOA* portfolio.[13]

To the extent that inflation gains result in higher future cash flows, if investors correctly estimate inflation gains, I expect the future abnormal return, α_p, to be insignificantly different from zero. Alternatively, if investors underestimate (overestimate) inflation gains, I expect α_p to be significantly positive (negative), indicating positive (negative) subsequent abnormal returns as these inflation gains turn into higher- (lower-) than-expected future cash flows.

As depicted in Figure 1, I adjust for inflation year t amounts using the nominal amounts and inflation time-series rates until year-end t. Thus, inflation gains are known at year-end t and investors have this information before $t+1$ abnormal returns begin to accumulate. The association between current-period inflation gains and subsequent abnormal returns therefore depends on how the expected and unexpected components of inflation gains are estimated. Analogous to previous research, the source of the surprise that drives future returns, or the unexpected component of inflation gains at time t (and therefore the unexpected cash flows at $t+1$), is the difference between inflation gains that are estimated correctly versus inflation gains that are estimated without distinguishing monetary and nonmonetary assets.

< INSERT FIGURE 1 ABOUT HERE >

In other words, similar to the earnings surprise literature, the source of this study's surprise is the difference between the inflation adjustment that I estimate using the algorithm

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[13] Following Hirshleifer et al. (2004), I obtain *NOA* as *NOA* = *RawNOA*/ *TotalAssets$_{t-1}$*, where *RawNOA* = Operating Assets − Operating Liabilities; Operating Assets = Total Assets (Compustat: AT) − Cash and Short Term Investment (Compustat: CHE); and Operating Liabilities = Total Assets (Compustat: AT) − Debt Included in Current Liabilities (Compustat: DLC) − Long Term Debt (Compustat: DLTT) − Minority Interests (Compustat: MIB) − Preferred Stocks (Compustat: PSTK) − Common Equity (Compustat: CEQ). Next, I form a *NOA*-based factor following Fama and French (1993). At the end of each month, I sort all observations into two *NOA* groups, where group one (two) includes observations with low (high) *NOA*, and three book-to-market (*BTM*) groups, where group one (three) includes observations with low (high) *BTM*. I then construct six portfolios (L/L, L/M, L/H, H/L, H/M, H/H) from the intersections of the two *NOA* and three *BTM* groups, where the first letter in each of the X/X combinations refers to the *NOA* portfolio (Low, High) and the second letter refers to the *BTM* portfolio (Low, Medium, High). I then calculate monthly value-weighted returns on the six portfolios over the subsequent year, beginning three months after the fiscal year-end. *FNOA* is calculated each month as the average of the monthly returns on the three high *NOA* portfolios (H/L, H/M, and H/H) minus the average of the monthly returns on the three low *NOA* portfolios (L/L, L/M, and L/H).

based on inflationary GAAP versus an adjustment that ignores the monetary-nonmonetary distinction.[14] This type of analysis is analogous to that in Sloan (1996), who examines whether investors adequately distinguish the different persistence of the cash flows and accruals components of earnings in predicting future earnings.[15] Also, my use of future abnormal returns to infer the expected versus unexpected components is consistent with prior studies (e.g., Bernard and Thomas 1990; Sloan 1996). For example, similar to Sloan (1996), who infers the expected and unexpected persistence of accruals versus cash flows by examining future abnormal returns, I infer the expected and unexpected components of inflation gains (which lead to a future surprise when these gains affect future cash flows) by examining the patterns in future abnormal returns and inflation gains estimated with and without making the monetary versus nonmonetary distinction.

Firm-Level Approach

As a check on the portfolio-level analysis, I also conduct a firm-level test to discern whether it is possible to earn abnormal returns from inflation-adjusted information. In particular, each year, I form ten portfolios such that firms with the lowest (highest) *IGL* are sorted into portfolio one (ten). Then, for each portfolio-year, I calculate mean abnormal returns,

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[14] Therefore, what leads to future abnormal returns is whether investors understand the differential effect of inflation on monetary versus nonmonetary assets, rather than investor understanding of expected versus unexpected inflation. This is different from investors' failure in the current period to distinguish expected and unexpected inflation. Specifically, when I estimate inflation-adjusted amounts, actual inflation is known because it is realized, as shown in Figure 1. Whether actual inflation is fully anticipated or fully unanticipated does not affect my predictions because investors use actual inflation, rather than its expected or unexpected component, to derive inflation gains. Further, the distinction between anticipated and unanticipated inflation is important when examining how current-period earnings changes explain contemporaneous stock price changes, under the notion that stock prices respond to the unanticipated inflation during the year — a setting that was widely used in the research design of inflationary accounting studies during the 1970s-1980s period. In contrast to this contemporaneous setting, my motivation and design are forward-looking, that is, in my study the events flow such that current-period (year *t*) inflation gains are estimated first, and only in the subsequent period (*t*+1) do these gains turn into cash flows. The subsequent returns thus do not arise from unanticipated inflation that affects year *t* inflation gains (see Figure 1).

[15] To the extent that inflation gains are perfectly correlated over time, there may be no surprise component when these inflation effects turn into cash flows over time and thus there may be no theoretical link between inflation gains and future returns. However, when I calculate serial correlations in *IGL* over periods *t* and *t*+1, I find Pearson and Spearman correlations of 0.176 and 0.294, respectively. These correlations indicate that inflation gains show only weak persistence over time, as they have low serial correlation. Thus, there is no systematic relation among inflation gains over time. These results are consistent with my expectations, as inflation effects are likely to change over time because there is large variation in the composition of firms' monetary and nonmonetary items over time.

accumulated over the subsequent year. As before, I align firms' annual amounts to monthly returns in the next twelve months beginning three months after the fiscal year-end.

I examine abnormal returns using four metrics. These are returns adjusted for the value-weighted return on the market (market-adjusted), for the Fama-French factors (Fama-French adjusted), for the Fama-French and momentum factors (Fama-French-*UMD*), and for the Fama-French, momentum, and the net operating assets factors (Fama-French-*UMD*-*FNOA* adjusted). To obtain abnormal returns, I first calculate raw returns by annually compounding each firm's monthly returns. The market-adjusted return is calculated as the annually compounded raw return minus the annually compounded value-weighted return on all NYSE, AMEX, and NASDAQ stocks in CRSP. Next, I estimate the following time-series equation for each firm:

$$R_{i,m} - R_{f,m} = \kappa_i + \beta_{i,MKTRF} MKTRF_m + \beta_{i,SMB} SMB_m + \beta_{i,HML} HML_m + \varsigma_{i,m}. \tag{3}$$

I also estimate an equation similar to equation (3) after sequentially adding as controls Carhart's (1997) momentum (*UMD*) and the above-defined balance sheet bloat (*FNOA*) factors. Estimation of equation (3), and its augmented version with *UMD* and *FNOA*, over the sample period yields firm-specific betas, $\beta_{i,MKTRF}$, $\beta_{i,SMB}$, $\beta_{i,HML}$, $\beta_{i,UMD}$, and $\beta_{i,FNOA}$, which I winsorize at the top and bottom one percent. Finally, I obtain abnormal returns by subtracting from raw returns the product of a firm's betas and the respective factor returns, compounded annually.[16,17]

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[16] The firm-level test may lack power due to measurement errors in firm-specific factor betas and *IGL*. The portfolio test, in contrast, allows me to analyze the variation in the cross-section of expected returns. That is, rather than using firm-specific intercepts that depend on unknown firm-level characteristics, the portfolio test conditions on a pre-determined characteristic — inflation gains — and then identifies whether the inflation mispricing effects not explained by the factors vary with this characteristic. Thus, the portfolio test is less subject to this concern.

[17] The return analyses involve the interaction of returns, which are nominal, with inflation-adjusted amounts. For comparability with inflation-adjusted amounts, the inflation effects are largely purged from the return metrics both by subtracting the risk-free interest rate from raw returns and by analyzing the incremental effect beyond that contained in the market factor. To check the extent to which the risk-free interest rate is associated with inflation, I compute correlations between the monthly time-series amounts of inflation and risk-free rates. The Spearman and Pearson correlations both are 0.42 and significant, consistent with the risk-free rate absorbing a large portion of the inflation effects from the return metrics. Further, I design the analyses to be on a cross-sectional basis, estimated either monthly or annually. This is because in any given period inflation-adjusted returns are perfectly correlated with nominal returns because inflation is the same for all firms (Beaver and Landsman 1983).

IV. DATA AND SAMPLE STATISTICS

The sample covers U.S. firms with fiscal year-ends over the period 1984 to 2008, a period during which inflation was relatively low (average three percent). I obtain nominal accounting variables from the Compustat North America Fundamental Annual database, XPF Format. I obtain monthly raw stock returns from the CRSP Monthly Stock File, and I adjust these for delisting returns following Shumway and Warther (1999) and Beaver et al. (2007).[18] I obtain the risk-free rate, the Fama-French and momentum factors, and portfolio returns from the Fama-French Portfolios and Factors dataset available through the Wharton Research Data Services (WRDS), and the consumer price indices data used in the inflation adjustment procedure from the Global Insight (DRI) dataset's Basic Economics Monthly Series (PRNEW).

To avoid extreme values obtained from deflating by a small denominator or from using a negative book value of equity, I delete observations with total assets, total revenues, or *MVE* lower than ten million dollars, and observations with negative book value of equity. To align forecasting tests, and to verify that annual amounts are for a twelve-month period, I delete firm-year observations if the firm's fiscal year changed during the year. To mitigate the effects of using penny stocks, I delete stocks with stock price lower than one dollar. The accounting variables are deflated by market value of equity (*MVE*) at the beginning of the year, MVE_{t-1}.[19] To mitigate the effects of outliers, I winsorize all variables in Table 1 at the top or bottom one percentile of the deflated value in each year. To reduce measurement error in deriving inflation gains, either from nominal earnings or from using the algorithm, I delete observations in the top or bottom one percentile each year of deflated nominal earnings, inflation-adjusted earnings, and inflation gains. I use the same industry classifications as in Barth et al. (2010). The final sample comprises 64,597 U.S. firm-year observations.

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[18] Inferences from all return tests are unchanged when I do not adjust for delisting returns.
[19] I use *MVE* as the deflator in the cash flows prediction model for two reasons. First, it is consistent with prior research. Second, my goal is to control for scale differences using a measure that is uncorrelated with my algorithm to avoid spurious results driven from the error in the undeflated models being correlated with the regressors. In the derivation of inflation-adjusted earnings, the algorithm uses several accounting amounts of the firm, so deflating by accounting items (e.g., total assets) may introduce spurious correlations with the accounting variables when predicting cash flows.

The main explanatory variable of interest in the analysis is *IGL*, or *IAEarnings* minus NominalEarnings. *NominalEarnings* is Income before Extraordinary Items as reported in the financial statements, and *IAEarnings* is nominal earnings restated on an inflation-adjusted basis using the algorithm described in the Appendix. To obtain data necessary to estimate equation (1), I proceed as follows. For observations with fiscal years ending after July 15, 1988, I obtain *CFO* from the statement of cash flows (Barth et al. 1999). Specifically, *CFO* is net cash flow from operations less the accrual portion of extraordinary items and discontinued operations reported on the statement of cash flows, and total operating accruals (*ACCRUALS*) are calculated as *NominalEarnings* minus *CFO*. The following are also calculated based on the statement of cash flows: change in accounts receivable (ΔAR), change in inventory (ΔINV), change in accounts payable and accrued liabilities (ΔAP), and depreciation and amortization (*DEPN*). If ΔAR, ΔINV, or ΔAP are missing, I calculate these items as I do for observations without statements of cash flows. The net of all other accruals, *OTHER*, is $OTHER = NominalEarnings + DEPN - (CFO + \Delta AR + \Delta INV - \Delta AP)$. For observations without a statement of cash flows available, that is, for observations with fiscal year ending before July 15, 1988, I derive *CFO* from accruals using information from the income statement and balance sheet (Dechow et al. 1995; Sloan 1996). To do so, ΔAR, ΔINV, and ΔAP are the change in the applicable balance sheet account (accounts receivable, inventory, and accounts payable plus accrued expenses, respectively), and *DEPN* is depreciation and amortization as reported in the income statement. $ACCRUALS = \Delta AR + \Delta INV - \Delta AP - DEPN + OTHER$, where $OTHER = [(\Delta CA - \Delta CASH) - \Delta CL] - (\Delta AR + \Delta INV - \Delta AP)$; ΔCA, $\Delta CASH$, ΔCL are the respective changes in current assets, cash/cash equivalents, and current liabilities. Then, $CFO = NominalEarnings - ACCRUALS$. Additional variables I use include total assets (*TotalAssets*), net sales (*Revenues*), gross and net PPE (*GrossPPE* and *NetPPE*), and *MVE*, calculated as fiscal year close price multiplied by common shares outstanding. The Appendix includes details on the Israeli data I use for the validation analysis.

Table 1 reports descriptive statistics for select variables. *TotalAssets*, *Revenues,* and *MVE* are presented in million U.S. dollars; *Book-to-Market* and *TotalAssets/MVE$_{t-1}$* are given as ratios;

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$\beta_{i,MKTRF}$, $\beta_{i,SMB}$, $\beta_{i,HML}$, and $\beta_{i,UMD}$ are the firms' Fama-French and momentum betas, estimated based on equation (3); and all other variables are deflated by MVE_{t-1}. Panel A reports statistics based on pooled firm-year observations. It shows that the mean (median) MVE_{t-1} is $2.17 billion ($217 million). *TotalAssets* are usually larger than MVE_{t-1} with a mean (median) ratio of 2.23 (1.30). The sign on the mean and median variables used in equation (1) are generally consistent with prior research (e.g., Barth et al. 2001), with a positive sign on *CFO*, *NominalEarnings*, *ΔAR*, *ΔINV*, and *DEPN*, and a negative sign on *ΔAP*, *ACCRUALS*, and *OTHER*. Also, the means of *NonMonAssets* (which consists of *NetPPE*, *INV*, and *Intangibles*) and *NetMonItems* (monetary assets minus monetary liabilities), which are drivers in the inflation adjustment, respectively equal 1.02 and –0.22, with respective standard deviations of 1.26 and 0.93, indicating a high dispersion in these measures and in *IGL*. As expected given the broad sample, the mean (median) market beta of 1.01 (0.99). The mean (median) of *NominalEarnings* is 0.05 (0.06), which is higher than the mean (median) of *IAEarnings* of 0.03 (0.04). The mean (median) *IGL* is –0.02 (– 0.01) with a standard deviation of 0.09.[20] The standard deviations of *IGL* and *IAEarnings* reveal a large variation in these measures.

< INSERT TABLE 1 ABOUT HERE >

Table 1, Panel B reports means and standard deviations for each industry by year. With respect to major nonmonetary items, the panel shows that the utilities, extractive, transportation, food, services, mining, and construction industries are the most capital intensive, with *NetPPE* varying between 0.63 and 1.81 in these industries. Panel B also shows that monetary liabilities are larger than monetary assets in most industries, and that *PPE(t)*, the expected remaining useful life (in months) for an average *NetPPE* item, is volatile, with the highest age of average assets in the food, textiles, printing, publishing, chemicals, durable, and retail industries (mean *PPE(t)* varies from 60.35 to 64.51 months in these industries). Even within industries, Panel B reveals

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[20] As explained in the Appendix, *IGL* is normalized based on a reference point underlying the adjustment procedure. Because I adjust accounting amounts to be stated in terms of constant dollars to maintain the purchasing power at the estimated purchasing date of nonmonetary items, *IGL* is more frequently negative. Alternatively, *IGL* can be adjusted such that it is more frequently positive. The variation across firms and over time is unchanged under the two alternatives, and so are the cross-sectional results throughout the study.

high variation in monetary and nonmonetary items, which are drivers for inflation adjustments, suggesting high variation in inflation-adjusted earnings.

V. MAIN RESULTS

Implications of Inflation Information for Future Cash Flows

Table 2 reports results from the cash flows analysis. It shows that the coefficients on aggregated accruals are consistent with Barth et al. (2001). It also reveals that β is significantly positive based on the t- and Z-statistics in the pooled and cross-sectional specifications for all four of the forecasting horizons considered.[21] In particular, based on the pooled and cross-sectional specifications, β is significantly different from zero and equals 0.05 and 0.07 (0.05 and 0.08; 0.05 and 0.11; 0.10 and 0.13), respectively, at the one- (two-, three-, four-) year horizon. This evidence suggests that inflation gains help predict future CFO.

< INSERT TABLE 2 ABOUT HERE >

The Extent to which Stock Returns Reflect Inflation Information

Table 3 reports results from the portfolio-level return analysis. The results show that five portfolio intercepts are significant, which indicates that forming portfolios based on inflation gains (*IG*) generates significant abnormal returns. The intercept on the lowest portfolio is 0.0049 ($p < 0.001$), whereas the intercept on the highest portfolio is –0.0036 ($p = 0.002$). The intercept of each portfolio can be interpreted as the monthly abnormal return from buying the specific portfolio and selling short a risk-free asset. The table also reveals that, controlling for the Fama-French factors, the monthly zero-cost hedge return for a portfolio constructed on the difference between the intercepts for portfolios one and ten equals 0.00850 and is significant ($p < 0.001$). The table also reveals that this significant abnormal hedge return holds when controlling for

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[21] P-values of five percent or less are considered statistically significant, and all significance levels are one-tailed where I have predictions and two-tailed otherwise.

momentum (*UMD*) and net operating assets (*FNOA*) factors in addition to the three Fama-French factors, with significant monthly zero-cost hedge returns of 0.00826 (p < 0.001) and 0.00767 (p < 0.001), respectively. The findings indicate zero-cost abnormal hedge returns of 0.77 percent to 0.85 percent per month for using inflation information, controlling for common risk factors. Untabulated results from a trend regression of the intercepts on ordered portfolios indicate that the decline in intercepts across the ten portfolios is significant (p < 0.001), suggesting a significantly negative relation between inflation gains and subsequent abnormal returns.

< INSERT TABLE 3 ABOUT HERE >

Table 4 reports results from the firm-level return analysis. The table presents the annual mean abnormal returns, accumulated over the year subsequent to portfolio formation and aggregated over the lowest and highest *IGL* portfolios. Similar to the results from the portfolio-level analysis, the firm-level results show that inflation information generates significant abnormal returns, with statistically significant mean hedge abnormal returns over the sample period that vary between 8.8 percent and 9.8 percent per year across the four abnormal return metrics considered. The results also show that, consistent with the results in Table 3, the low portfolio consistently yields higher subsequent returns than the high portfolio, with positive abnormal returns to a hedge strategy in 22 to 23 of the 25 sample years.[22]

< INSERT TABLE 4 ABOUT HERE >

Figure 2 plots the four abnormal return metrics accumulated over the year subsequent to portfolio formation, illustrating the dominance of the low portfolio (solid lines) over the high portfolio (dotted lines) on average in about 90 percent of the sample years. This reflects a time-consistent pattern in future abnormal returns.

Overall, the findings of significant future abnormal returns provide consistent evidence that inflation-adjusted information is not fully incorporated by the stock market.

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[22] The second column in Table 4 provides the annual inflation rate, calculated based on the PRNEW index from the Global Insight (DRI) dataset's Basic Economics Monthly Series. The inflation rate can be obtained from different data providers with slight differences, yet different measures are often highly correlated. For example, annual inflation rates over my sample period calculated from the Global Insight and World Bank datasets are very close to each other, with a high and significant correlation (correlation = 0.82).

< INSERT FIGURE 2 ABOUT HERE >

VI. INVESTOR PROCESSING OF INFLATION INFORMATION

The association between current-period inflation gains (IGL_t) and subsequent abnormal returns ($AbnormalReturn_{t+1}$) depends on how investors estimate IGL_t. Figure 1 illustrates that IGL_t is estimated using information before $AbnormalReturn_{t+1}$ begin to accumulate. If investors correctly estimate IGL_t, there is nothing unexpected with respect to the future realization of inflation gains in cash flows, such that no future abnormal returns are predicted (and hence no association between IGL_t and $AbnormalReturn_{t+1}$ is predicted). Alternatively, if investors completely ignore inflation, rendering as unexpected the entire future realization of inflation gains in cash flows, it leads to a future positive surprise when inflation gains are realized. Such a surprise when ignoring inflation gains is commensurate with IGL_t because the higher the (ignored) inflation gains are, the more favorable are future cash flows relative to investors' expectations, leading to a predictable positive association between IGL_t and $AbnormalReturn_{t+1}$.

However, the previous section provides evidence of (1) the existence of future abnormal return, and (2) a negative association between IGL_t and $AbnormalReturn_{t+1}$. Thus, investors appear to neither correctly estimate nor completely ignore inflation gains. This raises the question as to whether, in attempting to adjust for inflation, investors make errors in doing so. Accordingly, I examine how inflation information is processed by investors. Prior studies indicate that investors "fixate" on aggregate amounts without distinguishing components of the aggregate amounts. For example, Sloan (1996) provides evidence consistent with investors "fixating" on aggregate earnings, failing to distinguish the different implications of the accrual and cash flow components of earnings for future performance. Similarly, because inflation affects monetary and nonmonetary assets differently, stocks prices will be affected if investors rely on aggregate amounts instead of distinguishing their different components. I therefore investigate how investors process the implications of inflation gains by examining whether

"fixating" on aggregate amounts without distinguishing the monetary and nonmonetary components can explain the abnormal returns findings. Distinguishing monetary and nonmonetary assets is critical in inflationary accounting because inflation affects the two classes of assets differently.

I conduct two tests to investigate this question. In the first test, I begin by using the algorithm to approximate inflation-adjusted earnings estimated without distinguishing monetary and nonmonetary assets (denoted as *IAEarnings_NoDistinguish*), by multiplying all assets by a constant as if there were no difference between the two classes of assets.[23] I then test for a systematic association between future returns and the difference between *IAEarnings_NoDistinguish* and *IAEarnings* — i.e., the inflation-adjusted earnings correctly estimated by distinguishing monetary and nonmonetary assets. Using the relationship between future returns and the expected surprise to infer how investors process information is similar to the approach used in prior studies (e.g., Bernard and Thomas 1990; Sloan 1996).

Table 5 reports the results. Panel A provides inflation-adjusted earnings with and without monetary and nonmonetary assets distinguished across *IGL* portfolios. It shows that not distinguishing monetary and nonmonetary assets leads to overestimation of inflation gains and losses (in absolute value), such that *IAEarnings* are overestimated (underestimated) in the low (high) *IGL* portfolio, which results in an increase in the difference between *IAEarnings* and *IAEarnings_NoDistinguish* across *IGL* portfolios. Panel B provides the future abnormal returns (α_p) reported in Table 3 across *IGL* portfolios. Strikingly, the patterns in *IAEarnings* – *IAEarnings_NoDistinguish* (hereafter, *IAEarnings* – *IAEarnings_NoDistinguish* is referred to as *DIFF*) and α_p across the portfolios reveals that the two patterns are closely related, with the highest (lowest) future abnormal return arising when *IAEarnings* is at its highest (lowest) compared to *IAEarnings_NoDistinguish*. Specifically, not distinguishing monetary and

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[23] Because of the clean surplus relation, this is equivalent to multiplying the income of all firms by the same constant, which is a function of the annual inflation rate, without taking into account differences in firms' asset composition.

nonmonetary assets leads to the greatest underestimation of inflation-adjusted earnings relative to their correctly estimated value (*DIFF* = 0.0231) in the lowest *IGL* portfolio, which is consistent with the return findings in that the lowest *IGL* portfolio has the highest and most significantly positive future abnormal return (α_p = 0.0049; p < 0.001). Thus, the results provide consistent evidence that the highest future abnormal return is obtained when *IGL* is most underestimated — i.e., when the future realization of inflation gains in cash flows is not fully expected, reflecting a future positive surprise when inflation gains turn into higher-than-expected cash flows. Investigating the highest *IGL* portfolio reveals similar consistency between inflation processing and future abnormal returns, with the lowest differential (*DIFF* = –0.0432) associated with the lowest and most significantly negative future abnormal return (α_p = –0.0036; p = 0.002). This consistency between the patterns in Panels A and B is also reflected in Panel C, which provides results from regressing α_p on *DIFF* and an intercept that is omitted from the table for brevity. The results show a significantly positive coefficient on *DIFF* (coefficient = 0.1507; p = 0.001).

<center>< INSERT TABLE 5 ABOUT HERE ></center>

In sum, the findings from this first test reveal that the error from not fully incorporating the effects of inflation is associated with the documented pattern in future abnormal returns. This test therefore provides evidence that the negative association documented between inflation gains and future abnormal returns is predictable and consistent with an inflation adjustment argument.

In the second test, I use a direct rational expectations framework similar to that employed in Mishkin (1983), Ball and Bartov (1996), and Sloan (1996). Specifically, to examine how inflation information is reflected in stock prices, I estimate the following nonlinear weighted least squares system of equations:

$$CFO_{t+1} = \delta_0 + \delta_1 \cdot IGL_t + \delta_2 \cdot IGL\_NoDistinguish_t + \delta_3 \cdot CFO_t + \delta_4 \cdot ACCRUALS_t + \zeta_{t+1}$$
$$Return_{t+1} = \psi(CFO_{t+1} - \delta_0^* - \delta_1^* \cdot IGL_t - \delta_2^* \cdot IGL\_NoDistinguish_t - \delta_3^* \cdot CFO_t - \delta_4^* \cdot ACCRUALS_t) + \mu_{t+1},$$ (4)

<center>25</center>

where the accounting variables are as defined above, and $Return_{t+1}$ is the adjusted return accumulated over year $t+1$ and beginning three months after the fiscal year-end of year t. To control for heteroskedasticity, the first equation of the above system is scaled by the ratio of the residual variances of the two equations, where each equation's residual variance is obtained from estimation of the given equation alone. Following my findings that *IGL* — constructed by distinguishing monetary and nonmonetary assets — predicts future *CFO*, I predict δ_1 (δ_2) to be significantly positive (insignificant). If stock prices correctly reflect the implications of inflation gains for future cash flows, I expect δ_1^* (δ_2^*) to be significantly positive (insignificant), with the difference between the respective values of these two coefficients not significant. A significant difference between the coefficients on the inflation variables from the two equations would be evidence of investors not fully incorporating the implications of inflation information.

Table 6 reports the results. The table reveals that, as expected, δ_1 is significantly positive ($\delta_1 = 0.0815$; p = 0.010), δ_2 is insignificant ($\delta_2 = -0.0242$; p = 0.289), and the difference between δ_1 and δ_2 is significant (p = 0.044 for the test: $\delta_1 = \delta_2$), consistent with the ability of inflation gains and losses to predict future cash flows. However, the table also reveals that δ_1^* is insignificant ($\delta_1^* = -0.4178$; p = 0.125), δ_2^* is significantly positive ($\delta_2^* = 1.6302$; p < 0.001), the difference between δ_1^* and δ_2^* is significant (p < 0.001 for the test: $\delta_1^* = \delta_2^*$), and the differences in the coefficients on the inflation variables across the equations are significant (p = 0.001 for the test: $\delta_1 = \delta_1^*$; p < 0.001 for the test: $\delta_2 = \delta_2^*$). Taken together, the findings from the second test are consistent with investors not fully incorporating the implications of *IGL* for future *CFO*, and with investors fixating on inflation gains and losses without distinguishing monetary and nonmonetary assets.

< INSERT TABLE 6 ABOUT HERE >

In sum, the two tests above use two different but complementary approaches to investigate how investors process inflation information in the cross-section of firms. The findings from these tests provide consistent evidence that the negative return pattern documented

across portfolios of inflation gains is consistent with an inflation adjustment argument, whereby investors do not distinguish monetary and nonmonetary assets.[24]

VII. ROBUSTNESS TESTS

Are the Abnormal Returns Attributable to Risk?

The return analyses provide evidence of mispricing. However, although the abnormal returns can be attributable to mispricing from inflation-adjusted information being costly to obtain and process, they may also be attributable to an omitted inflation-based risk factor. To verify the source of the abnormal returns, I first compare risk characteristics across *IGL* portfolios, and find that there is no pattern in risk characteristics across the portfolios.[25] I also conduct a two-step Fama-MacBeth test, which examines whether a risk factor is priced. This test uses an inflation-based factor and analyzes whether there is a positive risk premium to this factor in a cross-sectional regression analysis (Fama and MacBeth 1973; Fama and French 1992).

In the first step, I estimate time-series regressions at the portfolio level, based on the 25 portfolios constructed on *MVE* and *BTM* (Fama and French 1993):

$$R_{p,m} - R_{f,m} = \lambda_p + \beta_{p,MKTRF,m} \cdot MKTRF_m + \beta_{p,SMB,m} \cdot SMB_m + \beta_{p,HML,m} \cdot HML_m + $$
$$+ \beta_{p,UMD,m} \cdot UMD_m + \beta_{p,FIGL,m} \cdot FIGL_m + \kappa_m, \tag{5}$$

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[24] Note that there may be other channels that contribute to the negative association between *IGL* and future returns. For instance, investors may apply different rules to relate *IGL* to future cash flows and thus, although future cash flows are higher when inflation gains are higher (Table 2), growth in realized cash flows could be lower than expected. In this case there would be a positive association between *IGL* and future cash flows but a negative relation between *IGL* and abnormal returns. Alternatively, investors may naively suppose that *IGL* turns into future cash flows in a one-to-one manner over some finite horizon, ignoring potentially important differences in the investment process associated with inflation gains. In this case inflation gains may generate future cash flows that are lower than what investors expect, which would lead to negative future returns. In this paper it is difficult to empirically investigate such channels without either a more structural model of the firms' investment opportunities or more finely disaggregated cash flow data that provide details about the source of each firm's cash flows from operating and investment activities; making several additional assumptions would make my inflation measure noisy at best. Importantly, the two tests I use to infer how investors process inflation information are similar to those used in several prior studies.

[25] For example, the median $\beta_{i,MKTRF}$ ($\beta_{i,SMB}$; $\beta_{i,HML}$; $\beta_{i,UMD}$) varies between 1.00 (0.59; 0.11; –0.096) and 1.05 (0.68; 0.46; –0.13), with no trend across *IGL* portfolios.

where *FIGL* is a monthly factor-mimicking inflation information portfolio that I form based on *IGL* information in a similar way to how *FNOA* is constructed in Section V, following the procedure Fama and French (1993) use in forming *HML* and *SMB*. I focus on the 25 Fama-French portfolios because explaining their cross-sectional pattern in returns has attracted increasing interest in the literature (e.g., Lettau and Ludvigson 2001).[26] I use the time-series portfolio regressions to obtain the predicted factor loadings (betas) for each of the 25 portfolios, estimated using five-year rolling windows that end at month *m*, with the requirement of at least ten portfolio-month observations in each window.

In the second step, I estimate cross-portfolio monthly regressions of portfolio excess returns for month *m*+1 on the predicted rolling betas, such that each regression pools predicted betas for the 25 portfolios, as follows:

$$R_{p,m+1} - R_{f,m+1} = \phi_{m+1} + \gamma_{MKTRF,m+1} \cdot \hat{\beta}_{p,MKTRF,m} + \gamma_{SMB,m+1} \cdot \hat{\beta}_{p,SMB,m} + \gamma_{HML,m+1} \cdot \hat{\beta}_{p,HML,m}$$
$$+ \gamma_{UMD,m+1} \cdot \hat{\beta}_{p,UMD,m} + \gamma_{FIGL,m+1} \cdot \hat{\beta}_{p,FIGL,m} + \sigma_{m+1}, \tag{6}$$

where $\hat{\beta}_{p,MKTRF,m}, \hat{\beta}_{p,SMB,m}, \hat{\beta}_{p,HML,m}, \hat{\beta}_{p,UMD,m}$, and $\hat{\beta}_{p,FIGL,m}$ are the predicted portfolio betas estimated in the first step using data conditioned on month *m*. I aggregate and conduct tests on the estimates following the Fama and MacBeth (1973) procedure.

Table 7 reports the results. With respect to the Fama-French factors, the results are consistent with prior research, such as Petkova (2006) and Core et al. (2008). The mean estimated coefficients (p-values associated with the Fama-MacBeth t-statistics) on the market, size, book-to-market, and momentum factors equal –0.0058, 0.0004, 0.0038, and 0.0001 (0.122, 0.857, and 0.033), respectively. Turning to the coefficient of interest, the mean estimated coefficient on $\hat{\beta}_{p,FIGL,m}$ across the monthly cross-sectional regressions, i.e., $\gamma_{FIGL,m+1}$, is –0.0015 with a p-value of 0.318. The insignificance of the coefficient associated with the inflation gains factor, $\gamma_{FIGL,m+1}$, is inconsistent with an omitted risk factor associated with inflation. Rather, this result is consistent with abnormal returns being attributable to mispricing. Such mispricing does

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not necessarily imply market inefficiency, however, because inflation-adjusted information is potentially costly to obtain and process.

<center>< INSERT TABLE 7 ABOUT HERE ></center>

Possible Confounding Factors

In additional robustness tests, I check whether the abnormal return findings can be explained by factors that are known to explain returns in the cross-section. First, nominal leverage and nominal earnings-to-price ratio (E/P) are known to explain average returns. Although all of the return models in this study include as a control the size and book-to-market factors that are shown to absorb the roles of nominal leverage and E/P in explaining average returns (Fama and French 1992), I analyze the pattern in leverage and E/P across the *IGL* portfolios. I find that the respective median leverage and E/P are 0.6 and 0.04 for portfolio one and 0.61 and 0.05 for portfolio ten, with small variation and no systematic pattern in these ratios across portfolios. I also find small variation and no systematic pattern in past returns across the *IGL* portfolios, with a median past twelve-month return of 0.10 and 0.12 for portfolios one and ten, respectively. Second, to examine whether industry concentration helps explain the results from the return tests, I examine the percentage of observations from each of the 15 industries in each of the ten inflation gains portfolios. The results suggest that no specific industry dominates, with industry concentration varying from 0.7 percent to 27.3 percent in the most extreme cases across the portfolios. Third, I examine the possible effect of industry-related omitted variables on the positive association between inflation gains and future cash flows by allowing not only the regression constant in equation (1) to vary by industry but also the other coefficients. To do so, I estimate equation (1) by industry (including year fixed effects), and summarize the industry cross-sectional estimates using Fama-MacBeth (1973) t-statistics. The results reveal no change in inferences regarding the significantly positive association between inflation gains and future *CFO*, with cross-industry mean coefficients equal 0.05579, 0.04341, 0.0348, and 0.07375 for the one- through four-year-ahead horizon, respectively.

Fourth, I further examine the robustness of the negative pattern in the return results in Tables 3-5 by testing whether it is *IGL* and not the balance sheet bloat that causes the return distribution I find across *IGL* portfolios. Specifically, I sort observations into five *NOA* and five *IGL* portfolios (independent sorts) and obtain abnormal returns for the five-by-five double sorted portfolios. To assess the pattern across the portfolios, I also estimate a predicted trend regression model by regressing abnormal return on the *IGL* portfolio number (and an intercept). Untabulated results reveal that the negative return pattern across *IGL* portfolios persists in each of the *NOA* portfolios. The trend, which is the slope coefficient from the trend regression, is negative in all *NOA* portfolios (with a trend varies between –0.0056 and –0.0372 across the four abnormal return metrics I use), and significantly so in all cases except three, where the trend is marginally significant (with a p-value varies between 0.001 and 0.104 across the related four abnormal return metrics). These results provide additional evidence that the return distribution in Tables 3-5 is not caused by the balance sheet bloat. I also conduct an analysis wherein I repeat the return tests in Tables 3 and 4 after constructing *FNOA* as explained in Section III, but using ten *NOA* portfolios (instead of two portfolios as in Section III). Thus, *FNOA* is constructed based on the intersection of three *BTM* portfolios and the top and bottom deciles of *NOA*. This is because most of the negative return documented in the balance sheet bloat is concentrated in the top one to two deciles of *NOA*. Untabulated inferences from this analysis are unchanged relative to the findings in Tables 3 and 4. For example, the hedge return in Table 4 is positive in 21 of the 25 sample years, with a mean of 0.097 and $p < 0.001$.[27]

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[27] I conduct two additional sensitivity tests. First, I estimate a model that pools the ten *IGL* portfolios and allows the intercepts for the extreme portfolios to vary using indicator variables. Second, I examine whether the firm-level return tests hold when using median abnormal returns. Untabulated results reveal unchanged inferences. Also, this study's return findings are distinct from, and cannot be explained by, inflation illusion. The inflation illusion hypothesis (Modigliani and Cohn 1979) posits that highly levered firms are more undervalued because of investors' failure to incorporate the gain accruing from purchasing power depreciation of nominal liabilities. Because the erosion of nominal liabilities leads to higher inflation gains, the direct effect from the inflation illusion hypothesis is higher (lower) future abnormal returns when inflation gains are high (low) as investors who suffer from inflation illusion are positively (negatively) surprised over future periods. However, despite this offsetting effect of the inflation illusion on the findings from the return analyses, my results are incremental to the inflation illusion effect in that I find that future abnormal returns are negatively related to inflation gains (see Section V). The inflation illusion hypothesis also posits that investors irrationally discount inflation-adjusted cash flows using nominal

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VIII. CONCLUDING REMARKS

I hypothesize and find that inflation information in the current period affects future cash flows. Specifically, I find that unrecognized inflation gains turn into future cash flows from operations over the subsequent four years. I also find that investors do not fully incorporate such information into their investment decisions, in that I find significant abnormal returns for inflation-based trading strategies. I further find that the direction of the abnormal returns is consistent with investors not fully distinguishing monetary and nonmonetary assets. Robustness tests show that the documented abnormal returns are not attributable to differences in risk characteristics, and that an inflation-based factor is not a priced risk factor. These results are consistent with future abnormal returns being attributable to mispricing from costly information rather than to an omitted risk factor. Overall, the findings suggest that inflation has significant implications for performance and stock prices, even when inflation is relatively low.

My findings complement prior studies that primarily investigate stock pricing effects over a short event window or the contemporaneous year. A common theme from these studies is that inflation-adjusted data are inconsequential for making financial decisions. Watts and Zimmerman (1980) and Beaver et al. (1983) suggest that a potential interpretation of this conclusion is that stock prices are not affected by inflation-adjusted data because such information is new, and market participants have not yet learned how to analyze and process it (the "learning effect"). Also, Beaver and Landsman (1983) reason that the inflation-adjusted data are potentially too complex and unfamiliar to use. My study contributes to this literature by indicating that (1) investors do not appear to ignore inflation-adjusted data, which suggests that the learning effect has been partially realized over the past decades, and (2) investors do not fully incorporate inflation information, consistent with such information being complex and

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interest rates. Here, in contrast, I investigate how inflation directly affects cash flows, rather than how the cash flows are discounted.

unfamiliar. Further, this study is the first to identify the mechanism that leads to the mispricing by linking stock returns to the underlying valuation fundamentals and revealing how inflation-adjusted information is processed by the stock market.

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APPENDIX

The appendix develops and validates an algorithm for incorporating inflationary effects into accounting amounts, using only publicly available information, by adjusting nominal to inflation-adjusted amounts on a firm-by-firm basis for a broad sample of firms.[28]

Inflation Adjustment Algorithm

Financial statements can be restated using the balance sheet or the income statement.[29] I rely on the balance sheet to adjust the nominal financial statements.[30]

A. Step 1: Adjustment of Nonmonetary Items

Nonmonetary items are linked to the dollar as of the year-end, but represent either a historical cost or a right (obligation) to receive (deliver) services for which purchasing power is not constant. I adjust these items as follows:

A.1. PPE: I use the PPE life cycle to adjust PPE. An asset's useful life is the period over which the entity expects to consume economic benefits from the asset. Assuming that accounting depreciation, on average, reflects an asset's useful life, the PPE life cycle is the average number of years from the asset's purchase until it is fully depreciated. I thus calculate the PPE life cycle as: $PPELifeCycle_t = (1/n) \cdot \sum_{i=t-n+1}[GrossPPE/PPE\ Depreciation]_i$, averaged over the four years prior to year-end t ($n = 4$). Next, I adjust Net PPE as follows: $adjNetPPE_t = NetPPE_t \cdot CPI_t/CPI_{t-\tau(t)}$, where adj refers to "adjusted"; t refers to the year t fiscal year-end; $\tau(t)$ is the period prior to fiscal year-end t, stated in annual terms and calculated as $\tau(t) = 0.5 \cdot PPELifeCycle_t$; and CPI

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[28] An extended appendix that includes further information, rationale, and illustrative details regarding the algorithm is available from the author upon request.

[29] The clean surplus relation makes the two approaches equivalent. This is because the income statement approach derives inflation-adjusted income before financing expenses by adjusting income statement amounts, whereas the balance sheet approach first calculates inflation-adjusted earnings using two successive balance sheets and then calculates inflation-adjusted financing expenses as the difference between net earnings and income before financing expenses. Inflation-adjusted financing expenses are the same if derived using the balance sheet or the income statement, resulting in same inflation-adjusted earnings under the two approaches.

[30] This is because (1) it avoids mistakes inherent in deriving *IAEarnings* directly from the income statement, (2) it is more accurate because all transaction dates and income statement amounts are not necessary, and (3) because I focus on inflation-adjusted earnings, rather than inflation-adjusted revenues or gross profit, I can bypass reliance on further assumptions necessary to adjust the income statements (e.g., the timing of revenues over the year).

denotes the Consumer Price Index.[31] If *PPELifeCycle* is negative, missing, or greater than the Compustat median limit of weighted expected useful life among different asset classes, which is calculated based on the expected maximum useful life of different PPE classes (e.g., U.S. PPE Regulation 2003) varying between 20 years (e.g., Machinery and Equipment) and 50 years (e.g., Other Structures and Facilities), I set it to the median life cycle calculated using the Compustat population over the sample period.[32]

A.2. Inventory: I use the inventory turnover, *IT*, ratio to adjust inventory, using the ratio *COGS*/*Inventory*, where *COGS* is the Cost of Goods Sold. Year-end *t* inventory turnover is calculated as: $IT_t = COGS_t/[(INV_t+INV_{t-1})/2]$. If, e.g., $IT_t = 2$, the firm invests in inventory twice a year so the average inventory is six months old. In expectation, year *t* inventory will have remaining life of $12/(2 \cdot IT_t)$ when stated in months, or $\kappa(t) = 1/(2 \cdot IT_t)$ when stated in years. Thus, I adjust inventory as follows: $adjINV_t = INV_t \cdot CPI_t/CPI_{t-\kappa(t)}$. If *COGS* or *INV* are missing or negative, *IT* is set to the median *IT* of the Compustat population over the sample period.

A.3. Intangibles: I calculate the intangibles' remaining life for time *t*, denoted as $\omega(t)$, as the ratio of intangibles to the amortization of the related intangibles at time *t*. I assume that, in expectation, the number of years prior to the transaction generating the intangibles equals the remaining years until the amount of intangibles is fully reserved, and thus I adjust intangibles using the price index as of the expected value of the original transaction date, or *adjIntangibles_t*

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[31] I multiply *PPELifeCycle* by one-half because the life cycle is derived from gross, rather than net, PPE so the expected remaining useful life is one-half the gross PPE life cycle. Information about the exact transaction dates and amounts over the life of the firm is unavailable. Such information could help in estimating the exact purchasing date of each component of PPE and adjust it based on the associated vintage's purchasing power. Instead, I make a simplifying assumption that the PPE in place is acquired evenly over its life with the firm. That is, I adjust PPE using one-half of the Gross PPE life cycle such that the expected value of the remaining useful life is one-half of the life cycle obtained from Gross PPE. Also, note that because the adjustment is accurate to the monthly level, whereas *t* refers to annual amounts, τ is often a fraction (e.g., for an estimated purchase date of six months prior to fiscal year-end *t*, $\tau = 0.5$ and *NetPPE_t* is adjusted using $CPI_t/CPI_{t-0.5}$)

[32] Note that there can be alternative adjustment procedures depending on the assumptions used and the objectives underlying the adjustment. My objectives are to: (1) ensure consistency with actual inflationary GAAP; (2) obtain a sample of firms for which Compustat does not necessarily have available adjustment parameters (e.g., inventory and deprecation methods); and (3) develop a procedure that can be validated on firms in another country. For example, Davidson et al. (1976) requires data on the depreciation method. Requiring data about the inventory and depreciation methods would reduce my sample considerably, because such U.S. data are unavailable for about 40 percent of the observations.

$= Intangibles_t \cdot CPI_t/CPI_{t-\omega(t)}$. I set intangibles' remaining life to the median remaining life of intangibles for the Compustat population over the sample period if it is negative, missing, or greater than firms' common weighted useful life of different intangibles classes, which is calculated based on the useful life of different intangibles classes varying between two and 40 years (e.g., patents) and between 20 and 40 years (e.g., goodwill). Also, according to SFAS 142 (effective in 2002), goodwill and other intangible assets no longer have a defined life for amortization but instead are tested annually for impairment. Because the algorithm uses amortization based on the pre-SFAS 141/142 period, it uses parameters obtained from the Compustat population to adjust the years that follow. I repeat all analyses without amortizing the years subsequent to 2002, and the inferences are unchanged.

A.4. Common Stock, Preferred Stock, and Capital Surplus: These items, which are included in shareholders' equity and represent purchasing power as of the stock issue dates, consist of two layers: (1) all stock issues from a firm's establishment through $t-1$, and (2) new equity issues occurring in year t (this layer can include several sub-layers, one from every equity issue that occurred over the year). I assume that equity issues are distributed uniformly over the year. To state amounts in constant dollars as of the reporting date, I begin by adjusting the first layer to derive retained earnings for both year $t-1$ and year t. In constant dollars as of t year-end, the adjusted amount of the first layer in $t-1$ is equal to the amount in t for calculating year t adjusted earnings. Using this two-layer process allows one to adjust earnings without having information about all the preferred and common stock issue dates and amounts from firms' incorporation dates until $t-1$. Thus, the following amount, which corresponds to the first layer and provides $t-1$ equity, appears in any two consecutive retained earnings and is used to extract inflation-adjusted earnings: $adjE_{t-1} = [CommonStock + PreferredStock + CapitalSurplus]_{t-1} \cdot CPI_t/CPI_{t-1}$. For the second layer, I obtain adjusted new issues during the year, $adjNewIssues_t$, by calculating new issues, $NewIssues_t = [CommonStock + PreferredStock + CapitalSurplus]_t - [CommonStock + PreferredStock + CapitalSurplus]_{t-1}$, and adjusting this amount using one-half year's change in CPI, under the assumption that new issues occur uniformly throughout the year.

A.5. Other Monetary Items in Stockholders' Equity but not in Retained Earnings (O): Because earnings are obtained from the difference in retained earnings between two successive periods (adjusted for dividends and capital changes), it is necessary to exclude items that violate the clean surplus relation (e.g., Employee Benefit Trust) from inflation-adjusted retained earnings. This component is assumed to be monetary and is calculated as $O_t = TotalAssets_t - TotalLiabilities_t - ReExOCI_t - CommonStock_t - PreferredStock_t - CapitalSurplus_t$, where $RetExOCI_t$ is per A.6 below.

A.6. Retained Earnings Excluding Other Comprehensive Income ($ReExOCI$): It is critical to maintain the clean surplus relation when deriving earnings. Accordingly, I obtain nominal and inflation-adjusted Retained Earnings Excluding Other Comprehensive Income. The inflation-adjusted amount is required because $IAEarnings$ is derived using the two-period difference in inflation-adjusted $ReExOCI$. The nominal amount is used to derive O (per A.5.) as follows: $ReExOCI$ = Retained Earnings (Compustat: RE) − Accumulated Other Comprehensive Income (Compustat: ACOMINC). The inflation-adjusted $ReExOCI$ as of year t, $adjReExOCI_t$, is derived by using the relation that total assets equal total liabilities plus shareholders' equity, and by stating all balance sheets amounts in constant dollars, where monetary (nonmonetary) items are not (are) adjusted: $adjReExOCI_t = adjINV_t + adjNetPPE_t + adjIntangibles_t + OA_t - adjE_{t-1} - adjNewIssues_t - O_t - TotalLiabilities_t$. (Where, as above, $adjE_{t-1} = [CommonStock + PreferredStock + CapitalSurplus]_{t-1} \cdot CPI_t/CPI_{t-1}$.) Total liabilities are treated as monetary. I treat as monetary other assets (OA) that are not directly adjusted, and derive them as a residual value, using the relation that total assets equal total liabilities plus shareholders' equity, as follows: $OA_t = TotalAssets_t - INV_t - NetPPE_t - Intangibles_t$.

A.7. Other Comprehensive Income and Other Items Affecting Retained Earnings without Directly Affecting Net Income ($OtherInReExOCI$): This item is used in the equation that derives $IAEarnings$. Two types of exclusions are subtle, yet necessary for the accounting identities to hold and thus for the accuracy of the algorithm. First, because $IAEarnings$ is obtained using the two-period difference in $adjReExOCI$, dividends must be included in the adjustment. Second, all

transactions that are neither part of Other Comprehensive Income nor part of Net Income need to be excluded (e.g., Net Issues of Common Stock under Employee Plans; Purchases and Sales of Treasury Stocks under Employee Plans). Because these exclusions are the result of transactions occurring at the year-end, I treat them as monetary. These amounts are calculated as: $OtherInReExOCI_t = ReExOCI_t - ReExOCI_{t-1} - NetIncome_t + CommonDividends_t + PreferredDividends_t$.

A.8. Dividends: Because dividends are usually paid quarterly, the adjusted common and preferred dividends, *adjCommonDividends* and *adjPreferredDividends*, are adjusted assuming these payments are distributed uniformly over the year.

B. Step 2: Treatment of Monetary Items

Monetary assets and liabilities are measured on the basis of a fixed number of dollars required for their settlement. Thus, nominal monetary amounts are already stated in terms of constant purchasing power and, accordingly, I treat monetary items as equal to their recognized nominal amounts. The following are considered monetary: Cash, Short-Term Investments, Total Receivables, Total Liabilities, and assets not directly treated as nonmonetary assets (*OA*). The inclusion of *OA* implicitly treats unconsolidated but wholly-owned subsidiaries as monetary, consistent with Bernard and Hayn (1986).

C. Final Step: Derivation of Inflation-Adjusted Earnings

Inflation-adjusted earnings, *IAEarnings*, are calculated as follows:

$$IAEarnings_t = [adjReExOCI_t - adjReExOCI_{t-1}] + adjCommonDividends_t$$
$$+ adjPreferredDividends_t - OtherInReExOCI_t - adjExtraordinaryItems_t.$$

I obtain *adjReExOCI*$_{t-1}$ analogously to *adjReExOCI*$_t$ (see A.6. above), except that in this case (1) I adjust the accounting amounts reported for year $t-1$ to the purchasing power as of t year-end, and (2) I do not subtract *adjNewIssues*$_{t-1}$ because it is already part of *adjE*$_{t-1}$ as the new issues during $t-1$ are part of the $t-1$ equity amount.[33] To reduce measurement error from the

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[33] Specifically, $adjReExOCI_{t-1} = adjINV_{t-1} + adjNetPPE_{t-1} + adjIntangibles_{t-1} + adjOA_{t-1} - adjE_{t-1} - adjO_{t-1} - adjTotalLiabilities_{t-1}$, where: $adjINV_{t-1} = INV_{t-1} \cdot CPI_t / CPI_{t-1-\kappa(t-1)}$; $adjNetPPE_{t-1} = NetPPE_{t-1} \cdot CPI_t / CPI_{t-1-\tau(t-1)}$;

adjustment procedure, I delete observations each year in the top and bottom percentiles of the MVE_{t-1}-deflated difference between *IAEarnings* and *NominalEarnings*. Because I investigate the behavior of *IAEarnings* versus *NominalEarnings* and because *NominalEarnings* refers to Net Income Excluding Extraordinary Items, I exclude extraordinary items when deriving *IAEarnings* to make the two earnings measures comparable. I assume that extraordinary items, if any occur, are distributed uniformly over the year and thus are adjusted using one-half year's change in the price index; these items are denoted as *adjExtraordinaryItems$_t$*.[34]

External Validation of the Algorithm

To provide evidence on the external validity of the algorithm, I test the algorithm on a sample of Israeli firms. Until 2003 Israeli firms were required to recognize financial statements in inflation-adjusted terms and disclose in footnotes the same financial statements in nominal terms, and similar to the U.S., the inflation rate in Israel over the past decade was relatively low. In the validation analysis, I examine the extent to which nominal earnings derived by the algorithm, *NominalEarnings^{Model}*, approximates disclosed nominal earnings, *NominalEarnings^{Actual}*, by estimating the equation: *NominalEarnings^{Model}* $= \alpha + \beta \cdot$ *NominalEarnings^{Actual}* $+ \varepsilon$. If the algorithm does a good job translating earnings from one measurement basis into the other, I predict the intercept to be equal to zero and the slope to be equal to one. Thus, I conduct the tests: $H_0^{\alpha} : \alpha = 0$ against $H_1^{\alpha} : \alpha \neq 0$, and $H_0^{\beta} : \beta = 1$ against

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$adjIntangibles_{t-1} = Intangibles_{t-1} \cdot CPI_t/CPI_{t-1-\omega(t-1)}$; $adjOA_{t-1} = OA_{t-1} \cdot CPI_t/CPI_{t-1}$; $adjO_{t-1} = O_{t-1} \cdot CPI_t/CPI_{t-1}$; as above, $adjE_{t-1} = [CommonStock + PreferredStock + CapitalSurplus]_{t-1} \cdot CPI_t/CPI_{t-1}$; $adjTotalLiabilities_{t-1} = TotalLiabilities_{t-1} \cdot CPI_t/CPI_{t-1}$; and $\kappa(t-1)$, $\tau(t-1)$, and $\omega(t-1)$ refer to the period (stated in years) from which the lagged nonmonetary assets *INV*, *NetPPE*, and *Intangibles*, respectively, are adjusted.

[34] With respect to the derivation of *IGL*, there is a normalization based on a reference point underlying the adjustment procedure. Specifically, accounting amounts can be adjusted to be stated based on either constant dollars to maintain transactions in purchasing power, or current dollars to maintain transactions in consumption units. In the cross-section, the variation in *IGL*, rather than its level, is informative for explaining variation across firms, and the two approaches are equivalent when intercepts are added to the tests. I choose to adjust for constant dollars, leading *IGL* to be more frequently negative. Alternatively, *IGL* can be adjusted such that it is more frequently positive but the variation across firms and over time is unchanged. Accordingly, if the prediction model is $CF_{t+1} = a + b \cdot IGL_t + X_t + \eta_{t+1}$, where *X* is a vector of additional explanatory variables (conditioned on the time *t* information set), analyses throughout the study pertain to the parameter *b*, which is invariant to the reference point underlying the measurement system. The intercept, *a*, varies with the measurement system but is not a parameter of interest in my prediction analyses. Accordingly, the research design throughout my study includes intercepts in all cross-sectional tests and focuses on the coefficient on *IGL*.

$H_1^{\beta}: \beta \neq 1$. To do so, I hand collect data from Israeli firms' annual nominal and inflation-adjusted financial statements over the 1995-2003 period for 81 randomly selected firms listed on the Tel-Aviv 100 index. This index comprises the 100 firms with the highest *MVE* and accounts for more than 80 percent of the total market's capitalization. The 81 firms that I sample account for 86.63 percent of this index's total market capitalization as of December 21, 2005.

After implementing the algorithm and requiring the same restrictions as with the U.S. data, the inflation-adjusted Israeli sample includes 503 firm-year observations. Also, because footnotes are not always attached to the financial statements, causing nominal footnote disclosures to not always be available, I randomly select 50 firms and gather nominal information, when such footnotes are available. Monthly CPI and exchange rate data are obtained from the Israeli Central Bureau of Statistics. The Israeli sample reflects a median firm size of $220 million. The mean and median values of the difference between actual (i.e., reported) inflation-adjusted earnings and nominal earnings, IGL^{Actual}, are –0.02 and –0.01, with a standard deviation of 0.07. This suggests a difference of about one to two percent of firms' size, with large variation between the two measures.[35]

The results reveal that the null hypotheses of $\alpha = 0$ (p = 0.609) and $\beta = 1$ (p = 0.240) cannot be rejected, with point estimates of $\alpha = 0.01$ and $\beta = 0.8$.[36] Overall, although the adjustment procedure does not use data about the timing and amounts of all of the firms' transactions over the life of the firms until the reporting date (which are needed for complete

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[35] The validation analysis requires that several obstacles be overcome. First, because the requisite Israeli data are not available in organized format, I hand collect firms' annual data, as described above. Second, because Israeli GAAP requires footnote disclosure of selected nominal data, considerably more data are reported on an inflation-adjusted basis. Thus, I use an inverted algorithm that maps from inflation-adjusted to nominal amounts, and use as input the Israeli inflation-adjusted data. Third, I create a translation dictionary that classifies different accounting terms with the same content under a specific term and matches each Israeli data item to the equivalent Compustat item. This procedure results in Israeli firm-year observations with a format similar to that of U.S. companies in Compustat.

[36] I conduct further checks on the algorithm's accuracy. First, I form a statistic based on the mean difference between reported nominal earnings and earnings obtained from the algorithm, denoted as μ_x, and test H$_0$: $\mu_x = 0$ against H$_1$: $\mu_x \neq 0$. The results show that the null cannot be rejected (p $= 0.744$), which suggests the algorithm provides a reasonable estimate of the effects of inflation. Second, the algorithm uses computations that interact accounting items with monthly CPI values. To investigate whether these computations introduce measurement error, I derive *IAEarnings* after injecting a constant zero inflation rate into the system. This check results in *IAEarnings* being equal to *NominalEarnings*, consistent with zero inflation and zero measurement error from CPI computations. Third, I derive *NominalEarnings* using the algorithm and compare it to the Compustat amount. The results show the same earnings amount in all observations except those with missing values because of unavailable data.

inflation adjustment), the findings reveal that the algorithm provides a reasonable and unbiased proxy for the effects of inflation.

TABLE 1
Descriptive Statistics

Panel A: Pooled Firm-Year Observations					
	Mean	Median	Std Dev	25th Pctl	75th Pctl
TotalAssets	3,874	287	34,430	89	1,153
Revenues	2,012	262	8,790	81	1,000
MVE$_{t-1}$	2,174	217	12,222	67	874
Book-to-Market	0.61	0.52	0.43	0.32	0.78
TotalAssets/MVE$_{t-1}$	2.23	1.30	4.04	0.71	2.41
CFO	0.12	0.09	0.19	0.04	0.18
ΔAR	0.03	0.01	0.13	0.00	0.04
ΔINV	0.02	0.00	0.09	0.00	0.02
ΔAP	-0.02	-0.01	0.13	-0.03	0.01
DEPN	0.07	0.04	0.09	0.02	0.09
OTHER	-0.08	-0.03	0.27	-0.09	0.01
ACCRUALS	-0.08	-0.04	0.20	-0.12	0.00
NominalEarnings	0.05	0.06	0.13	0.02	0.09
IAEarnings	0.03	0.04	0.17	0.00	0.08
IGL	-0.02	-0.01	0.09	-0.04	0.00
NOA	0.68	0.68	0.34	0.49	0.83
NetPPE	0.58	0.26	0.85	0.09	0.70
INV	0.26	0.10	0.46	0.01	0.30
Intangibles	0.18	0.04	0.36	0.00	0.18
OA	1.05	0.50	1.79	0.27	0.94
TotalLiabilities	1.33	0.60	2.13	0.23	1.45
ReExOCI	0.22	0.24	0.69	0.05	0.48
O	0.09	0.00	0.53	-0.03	0.00
CommonDividends	0.01	0.00	0.02	0.00	0.02
PreferredDividends	0.00	0.00	0.01	0.00	0.00
NewIssues	0.05	0.01	0.15	0.00	0.03
NonMonAssets	1.02	0.62	1.26	0.25	1.31
NetMonItems	-0.22	0.01	0.93	-0.44	0.24
$\beta_{i,MKTRF}$	1.01	0.99	0.49	0.70	1.28
$\beta_{i,SMB}$	0.70	0.62	0.72	0.24	1.05
$\beta_{i,HML}$	0.19	0.33	0.81	-0.17	0.66
$\beta_{i,UMD}$	-0.16	-0.11	0.46	-0.35	0.08

TABLE 1 (continued)

Panel B: Means and Standard Deviations by Industry

	TotalAssets		NetPPE		INV		Intangibles		NonMonAssets		NetMonItems		PPE(t)		IAEarnings		IGL	
	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std
Chemicals	2,794	8,319	0.54	0.61	0.27	0.29	0.18	0.28	0.97	0.89	-0.22	0.67	61.95	16.31	0.03	0.16	-0.03	0.10
Computers	1,383	6,560	0.18	0.29	0.12	0.23	0.11	0.24	0.39	0.57	0.21	0.44	46.02	16.70	-0.01	0.16	-0.01	0.06
Durable Manufacturers	1,754	13,449	0.44	0.61	0.34	0.39	0.17	0.31	0.93	1.04	-0.11	0.72	60.49	16.50	0.03	0.16	-0.02	0.08
Extractive industries	5,222	17,559	1.31	1.05	0.10	0.26	0.05	0.15	1.49	1.32	-0.63	0.95	59.95	13.59	0.02	0.22	-0.02	0.14
Financial Institutions	21,956	112,733	0.13	0.32	0.19	0.58	0.15	0.29	0.55	1.24	0.31	1.00	50.57	13.51	0.06	0.14	-0.01	0.07
Food	3,699	9,700	0.69	0.86	0.36	0.52	0.26	0.46	1.31	1.46	-0.47	0.97	64.51	15.42	0.05	0.15	-0.03	0.10
Real Estate, Insurance	1,093	3,078	0.49	1.12	0.17	0.50	0.11	0.32	0.83	1.66	0.15	1.26	48.17	14.48	0.02	0.21	-0.02	0.11
Mining, Construction	1,161	2,369	0.63	0.79	0.70	0.97	0.12	0.28	1.56	1.51	-0.59	1.06	54.95	16.13	0.03	0.20	-0.03	0.10
Other	19,742	90,020	0.54	0.69	0.28	0.46	0.19	0.39	0.99	1.11	-0.13	0.87	55.93	16.82	0.00	0.20	-0.02	0.09
Pharmaceuticals	2,441	8,445	0.16	0.23	0.08	0.15	0.10	0.23	0.32	0.45	0.12	0.33	56.68	16.96	-0.02	0.14	-0.01	0.05
Retail	1,446	5,411	0.59	0.75	0.57	0.68	0.17	0.36	1.33	1.40	-0.47	0.99	60.35	15.68	0.04	0.16	-0.02	0.09
Services	909	2,470	0.66	1.00	0.08	0.23	0.29	0.46	1.04	1.38	-0.25	1.01	51.32	15.84	0.03	0.18	-0.01	0.11
Textile/Print/Publish	1,410	3,380	0.63	0.70	0.35	0.43	0.24	0.45	1.21	1.22	-0.30	0.84	63.12	15.98	0.04	0.17	-0.03	0.10
Transportation	5,784	17,753	1.20	1.27	0.07	0.23	0.39	0.65	1.71	1.76	-0.79	1.28	58.73	16.09	0.01	0.24	-0.03	0.16
Utilities	4,645	7,831	1.81	1.01	0.08	0.12	0.08	0.27	1.99	1.16	-1.10	0.86	53.39	6.62	0.04	0.14	-0.04	0.12

The table presents summary statistics of select variables. *TotalAssets* (Compustat: AT), Revenues (Compustat: SALE), and *MVE* (market value of equity) are presented in million U.S. dollars; *Book-to-Market* (book value of equity divided by *MVE*), and *TotalAssets*/*MVE*$_{t-1}$ are ratios; $\beta_{i,MKTRF}$, $\beta_{i,SMB}$, $\beta_{i,HML}$, and $\beta_{i,UMD}$ are firm-specific betas, obtained by regressing a firm's time-series monthly excess return on the Fama-French and momentum monthly factors over the sample period; *NOA* is net operating assets deflated by *TotalAssets*$_{t-1}$, and it is constructed following Hirshleifer et al. (2004); *PPE(t)* is stated in months; and, all other variables are deflated by *MVE*$_{t-1}$. *NominalEarnings* is Income before Extraordinary Items as reported in the financial statements (Compustat: IB); *IAEarnings* is nominal earnings restated to an inflation-adjusted basis using the algorithm; *IGL* = *IAEarnings* – *NominalEarnings*, and it captures unrecognized inflation gains and losses. The risk-free rate and the Fama-French and momentum factors are from the Fama-French Portfolios and Factors dataset available through WRDS. *NOA* = *RawNOA*/*TotalAssets*$_{t-1}$, where *RawNOA* = Operating Assets – Operating Liabilities, and it is obtained following Hirshleifer et al. (2004). Cash flows from operations (*CFO*) is extracted: directly from the statement of cash flows for firms with fiscal year ending after July 15, 1988, or it is derived for firms with fiscal year ending before July 15, 1988. Specifically, for observations with a statement of cash flows available, *CFO* is net cash flows from operating activities (Compustat: OANCF) less the accrual portion of extraordinary items and discontinued operations (Compustat: XIDOC); *ACCRUALS* is total operating accruals, calculated as *ACCRUALS* = *NominalEarnings* – *CFO*; *ΔAR*, *ΔINV*, *ΔAP* are the respective annual changes in accounts receivable (Compustat: RECCH), inventory (Compustat: INVCH), and accounts payable and accrued liabilities (Compustat: APALCH); *DEPN* is depreciation and amortization (Compustat: XDP); and *OTHER* is net of all other accruals, calculated as *NominalEarnings* + *DEPN* – (*CFO* + *ΔAR* + *ΔINV* – *ΔAP*). If Compustat items RECCH, INVCH, or APALCH are missing, *ΔAR*, *ΔINV*, or *ΔAP* are the change in the applicable balance sheet account, accounts receivable (Compustat: RECT), inventory (Compustat: INVT), or accounts payable (Compustat: AP) plus accrued expenses (Compustat: XACC), respectively. For observations without a statement of cash flows available, *ΔAR*, *ΔINV*, and *ΔAP* are the change in the applicable balance sheet account, accounts receivable (Compustat: RECT), inventory (Compustat: INVT), and accounts payable (Compustat: AP) plus accrued expenses (Compustat: XACC), respectively; *DEPN* is calculated as for firms with statements of cash flows available; *ACCRUALS* = *ΔAR* + *ΔINV* – *ΔAP* – *DEPN* + *OTHER*, where *OTHER* represents accruals not directly captured by *ΔAR*, *ΔINV*, or *ΔAP*, i.e., *OTHER* equals [(*ΔCA* – *ΔCASH*) – *ΔCL*] – (*ΔAR* + *ΔINV* – *ΔAP*), where *ΔCA* is the change in current assets (Compustat item: ACT), *ΔCASH* is change in cash/cash equivalents (Compustat: CHE), and *ΔCL* is change in current liabilities (Compustat: LCT). Then, *CFO* = *NominalEarnings* – *ACCRUALS*. *NonMonAssets* is the sum of *NetPPE* (Compustat: PPENT), *INV* (Compustat: INVT), and *Intangibles* (Compustat: INTAN). Other variables used in the developing the algorithm: *OA* = *TotalAssets* – *NonMonAssets*; *TotalLiabilities* (Compustat: LT + MIB); *ReExOCI* is retained earnings excluding other comprehensive income; *O* is other monetary items in stockholders equity but not in retained earnings; *CommonDividends* (Compustat: DVC); *PreferredDividends* (Compustat: DVP); *NewIssues* is the change over the year in Common Stock (Compustat: CSTK), Preferred Stock (Compustat: PSTK), and Capital Surplus (Compustat: CAPS); and *NetMonItems* is monetary assets minus monetary liabilities. *PPE(t)* is the expected remaining useful life in months for an average *PPE* item. Industries are based on Barth et al. (2010). The sample includes NYSE, AMEX, and NASDAQ U.S. stocks that are in the intersection of CRSP and Compustat, that have data available to calculate inflation gains and losses, and with fiscal year-ends between 1984 and 2008 (n = 25).

TABLE 2
Implications of Inflation Information for Future Cash Flows

		θ	IGL	CFO	ΔAR	ΔINV	ΔAP	DEPN	OTHER	Adj.R^2
	Prediction	?	+	+	+	+	−	+	?	
						CFO_{t+1}					
Pooled	Coef.	0.02	0.05	0.52	0.25	0.14	-0.02	0.68	0.10	0.381
	t-stat	17.14	2.95	40.31	14.86	6.23	-1.03	31.06	7.73	
	p-value	<0.001	0.002	<0.001	<0.001	<0.001	0.152	<0.001	<0.001	
Cross Sectional	Mean Coef.	0.01	0.07	0.51	0.29	0.23	0.09	0.66	0.12	0.402
	FM t-stat	0.92	4.37	17.95	11.81	7.01	2.15	17.55	3.75	
	p-value	0.186	<0.001	<0.001	<0.001	<0.001	0.024	<0.001	<0.001	
	Z1	0.92	7.64	102.58	35.60	23.57	7.45	64.42	18.54	
	p-value	0.186	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
	Z2	0.67	4.46	12.11	15.37	6.90	2.05	20.68	4.98	
	p-value	0.256	<0.001	<0.001	<0.001	<0.001	0.029	<0.001	<0.001	
						CFO_{t+2}					
Pooled	Coef.	0.03	0.05	0.52	0.25	0.22	-0.06	0.74	0.10	0.307
	t-stat	20.51	2.77	34.00	12.53	8.46	-2.33	26.50	6.68	
	p-value	<0.001	0.003	<0.001	<0.001	<0.001	0.010	<0.001	<0.001	
Cross Sectional	Mean Coef.	0.00	0.08	0.51	0.27	0.26	-0.01	0.71	0.12	0.328
	FM t-stat	-0.15	3.06	27.96	10.48	7.74	-0.33	19.53	5.07	
	p-value	0.441	0.004	<0.001	<0.001	<0.001	0.373	<0.001	<0.001	
	Z1	-0.30	6.47	76.70	25.37	21.37	-0.73	53.92	15.52	
	p-value	0.384	<0.001	<0.001	<0.001	<0.001	0.238	<0.001	<0.001	
	Z2	-0.28	2.80	17.25	11.74	7.67	-0.30	21.57	6.73	
	p-value	0.392	0.006	<0.001	<0.001	<0.001	0.384	<0.001	<0.001	
						CFO_{t+3}					
Pooled	Coef.	0.04	0.05	0.52	0.29	0.29	-0.07	0.87	0.10	0.266
	t-stat	22.48	2.18	27.17	11.00	9.22	-2.41	25.57	5.08	
	p-value	<0.001	0.015	<0.001	<0.001	<0.001	0.008	<0.001	<0.001	
Cross Sectional	Mean Coef.	0.00	0.11	0.51	0.31	0.32	-0.03	0.82	0.12	0.295
	FM t-stat	-0.10	3.89	19.84	9.24	6.28	-0.98	19.97	4.89	
	p-value	0.461	<0.001	<0.001	<0.001	<0.001	0.171	<0.001	<0.001	
	Z1	-0.25	6.45	58.30	23.14	20.93	-1.87	49.28	12.46	
	p-value	0.403	<0.001	<0.001	<0.001	<0.001	0.040	<0.001	<0.001	
	Z2	-0.20	3.13	16.90	9.58	6.25	-1.21	19.43	6.16	
	p-value	0.422	0.003	<0.001	<0.001	<0.001	0.122	<0.001	<0.001	
						CFO_{t+4}					
Pooled	Coef.	0.06	0.10	0.56	0.34	0.25	-0.09	1.04	0.10	0.239
	t-stat	21.09	3.90	22.46	9.64	6.67	-2.15	23.49	3.71	
	p-value	<0.001	<0.001	<0.001	<0.001	<0.001	0.016	<0.001	<0.001	
Cross Sectional	Mean Coef.	0.00	0.13	0.54	0.39	0.31	-0.04	0.93	0.13	0.270
	FM t-stat	0.04	2.69	15.63	9.35	6.87	-0.89	20.76	4.12	
	p-value	0.484	0.008	<0.001	<0.001	<0.001	0.193	<0.001	<0.001	
	Z1	-0.11	6.62	47.49	21.59	15.21	-1.91	43.71	10.49	
	p-value	0.457	<0.001	<0.001	<0.001	<0.001	0.037	<0.001	<0.001	
	Z2	-0.12	2.36	14.74	9.33	6.71	-0.99	19.03	4.36	
	p-value	0.453	0.016	<0.001	<0.001	<0.001	0.168	<0.001	<0.001	

The table report results from estimating pooled and cross-sectional regressions of the following equation: $CFO_{t+\tau} = \theta + \beta \cdot IGL_t + \gamma_1 \cdot CFO_t + \gamma_2 \cdot \Delta AR_t + \gamma_3 \cdot \Delta INV_t + \gamma_4 \cdot \Delta AP_t + \gamma_5 \cdot DEPN_t + \gamma_6 \cdot OTHER_t + \mu_{t+\tau}$, for $\tau = (1, 2, 3, 4)$. The pooled (cross-sectional) specification is estimated using double-clustering of regression errors by firm and year (annual cross-sectional regressions and including industry indicator variables which are omitted for brevity). CFO is cash flows from operating activities. $IGL = IAEarnings - NominalEarnings$, deflated by the lagged market value of equity, and it captures unrecognized inflation gains and losses. $NominalEarnings$ is Income before Extraordinary Items. $IAEarnings$ is nominal earnings restated to an inflation-adjusted basis using the algorithm. The control variables are defined in Table 1 and are based on Barth et al. (2001). Industries are based on the 15 industries in Barth et al. (2010). In the cross-sectional specification: Mean refers to the mean coefficient, averaged across the cross-sectional estimates; FM t-stat refers to the Fama-MacBeth (1973) t-statistic; $Z1 = [(1/\sqrt{N}) \cdot \sum_{j=1}^{N} t_j]/\sqrt{[k_j/(k_j - 2)]}$, where t_j is the t-statistic for cross-sectional regression j, k_j is the degrees of freedom, and N is the number of cross-sectional groups; and $Z2 = mean(t)/[stddev(t)/\sqrt{(N - 1)}]$, where $mean(t)$ and $stddev(t)$ respectively refer to the mean and standard deviation across the group estimates. P-values for sign-predicted coefficients are obtained from one-tailed t-tests. The sample includes all NYSE, AMEX, and NASDAQ U.S. stocks that are in the intersection of CRSP and Compustat, that have data available to calculate inflation gains and losses, and with fiscal year-ends between 1984 and 2008 (n = 25).

TABLE 3
Abnormal Returns from Using Inflation Information: Portfolio Level

	Coefficient				t-statistic (p-value)				Adj. R^2	Mean IGL
IGL Portfolio	α_p	β_{MKTRF}	β_{SMB}	β_{HML}	α_p	β_{MKTRF}	β_{SMB}	β_{HML}		
1	0.0049	1.033	0.776	0.242	4.37	40.14	21.62	6.22	0.893	-0.080
					(<0.001)	(<0.001)	(<0.001)	(<0.001)		
2	0.0046	0.986	0.772	0.226	4.78	44.97	25.24	6.83	0.915	-0.035
					(<0.001)	(<0.001)	(<0.001)	(<0.001)		
3	0.0042	0.992	0.723	0.233	4.46	45.56	23.82	7.09	0.914	-0.026
					(<0.001)	(<0.001)	(<0.001)	(<0.001)		
4	0.0041	1.008	0.745	0.191	4.68	50.08	26.53	6.28	0.929	-0.020
					(<0.001)	(<0.001)	(<0.001)	(<0.001)		
5	0.0030	1.004	0.671	0.145	1.68	46.84	22.43	4.47	0.917	-0.016
					(0.093)	(<0.001)	(<0.001)	(<0.001)		
6	0.0017	0.982	0.621	0.217	1.62	39.99	18.11	5.84	0.884	-0.011
					(0.106)	(<0.001)	(<0.001)	(<0.001)		
7	0.0001	0.982	0.507	0.278	0.11	39.48	14.62	7.41	0.871	-0.007
					(0.913)	(<0.001)	(<0.001)	(<0.001)		
8	-0.0004	1.030	0.508	0.255	-0.38	41.97	14.84	6.89	0.884	0.005
					(0.703)	(<0.001)	(<0.001)	(<0.001)		
9	-0.0013	1.055	0.607	0.212	-1.26	43.29	17.86	5.76	0.897	0.012
					(0.207)	(<0.001)	(<0.001)	(<0.001)		
10	-0.0036	1.086	0.716	0.193	-3.10	41.15	19.43	4.84	0.893	0.068
					(0.002)	(<0.001)	(<0.001)	(<0.001)		
Fama-French Factors:										
Zero-cost hedge (1–10)	0.00850				8.56					
Add UMD, No FNOA:					(<0.001)					
Zero-cost hedge (1–10)	0.00826				8.19					
Add UMD, Add FNOA:					(<0.001)					
Zero-cost hedge (1–10)	0.00767				7.71					
					(<0.001)					

The table reports results from estimating time-series monthly portfolio regressions. First, each firm-year observation accumulates return over the 12 months beginning three months after the fiscal year-end. Second, ten portfolios are constructed each period with the lowest (highest) *IGL* sorted into portfolio one (ten), rebalanced monthly. *IGL* is inflation-adjusted earnings minus nominal earnings (scaled), and it captures unrecognized inflation gains and losses. Third, average portfolio excess returns, $R_{p,m} - R_{f,m}$, are calcualted each month m using all observations in that portfolio, and these monthly portfolio excess returns are regressed on the Fama-French factors (*MKTRF SMB*, *HML*), sequentially adding as controls the Carhart (1997) momentum (*UMD*) and the net operating assets (*FNOA*) factors. The intercepts from these regressions are reported as α_p in the table. The magnitude and statistical tests conducted on the difference between the highest and the lowest portfolios are from regressing a zero-cost investment hedge portfolio returns, which are obtained after longing the lowest portfolio and shorting the highest portfolio, on the related-period factors. The risk-free rate, $R_{f,m}$, is the one-month Treasury bill rate. Monthly raw stock returns are obtained from the CRSP Monthly Stock File, and are adjusted for delisting returns. The risk-free rate and the Fama-French and momentum factors from the Fama-French Portfolios and Factors dataset available through WRDS. *NOA* is net operating assets deflated by lagged total assets, constructed as described in Hirshleifer et al. (2004). *FNOA* is a factor-mimicking *NOA* portfolio, formed by first sorting each month m all observations into two *NOA* groups and three book-to-market (*BTM*) groups, and constructing six portfolios from the intersections of the two *NOA* and three *BTM* groups. I then calculate monthly value-weighted returns on the six portfolios over the subsequent year, beginning three months after the fiscal year-end. *FNOA* is then calculated each month as the average of the monthly returns on the three high *NOA* portfolios minus the average of the monthly returns on the three low *NOA* portfolios. P-values are obtained from two-tailed t-tests. The sample includes all NYSE, AMEX, and NASDAQ U.S. stocks that are in the intersection of CRSP and Compustat, that have data available to calculate inflation gains and losses, and with fiscal year-ends between 1984 and 2008 (n = 25).

TABLE 4
Future Abnormal Returns from Using Current-Period Inflation Information: Firm Level

Year of Portfolio Construction	Annual Inflatio Rate	Market Adjusted Return			Add Factors: Fama-French Adjusted Return			Add *UMD*: Fama-French-*UMD* Adjusted Return			Add *FNOA*: Fama-French-*UMD*-*FNOA* Adjusted Return		
		Low	High	Hedge	Low	High	Hedge	Low	High	Hedge	Low	High	Hedge
1984	0.0355	-0.12	-0.17	0.051	-0.09	-0.16	0.077	-0.06	-0.13	0.069	-0.06	-0.09	0.029
1985	0.0362	-0.02	-0.12	0.100	0.03	-0.05	0.080	0.04	-0.04	0.081	0.06	-0.04	0.105
1986	0.0074	0.03	-0.08	0.115	0.05	-0.05	0.104	0.04	-0.06	0.099	0.05	-0.05	0.104
1987	0.0447	0.03	-0.01	0.044	0.01	-0.03	0.041	0.02	-0.02	0.040	0.02	-0.02	0.046
1988	0.0428	-0.08	-0.12	0.040	0.01	-0.02	0.027	0.03	0.01	0.024	0.03	0.00	0.025
1989	0.0469	-0.02	-0.09	0.064	0.07	0.00	0.077	0.09	0.01	0.079	0.10	0.02	0.078
1990	0.0608	0.11	-0.01	0.127	0.04	-0.07	0.112	0.06	-0.06	0.117	0.07	-0.05	0.119
1991	0.0279	0.07	-0.09	0.157	0.00	-0.12	0.118	0.04	-0.09	0.130	0.04	-0.07	0.116
1992	0.0286	0.12	0.02	0.107	0.04	-0.04	0.085	0.06	-0.02	0.079	0.08	-0.01	0.090
1993	0.0257	0.05	-0.09	0.147	0.09	-0.05	0.143	0.09	-0.05	0.144	0.12	-0.03	0.155
1994	0.0271	0.07	-0.11	0.183	0.07	-0.11	0.186	0.09	-0.08	0.167	0.16	-0.06	0.214
1995	0.0251	-0.08	-0.14	0.058	-0.06	-0.12	0.061	-0.04	-0.09	0.051	-0.02	-0.07	0.047
1996	0.0330	-0.06	-0.08	0.020	-0.08	-0.11	0.032	-0.04	-0.06	0.022	-0.01	-0.05	0.040
1997	0.0147	-0.22	-0.37	0.151	-0.04	-0.13	0.093	0.01	-0.08	0.088	0.01	-0.08	0.088
1998	0.0158	0.36	-0.04	0.400	0.25	-0.15	0.402	0.34	-0.07	0.410	0.40	-0.03	0.425
1999	0.0279	0.26	0.16	0.099	0.21	0.00	0.204	0.23	0.02	0.203	0.28	0.04	0.234
2000	0.0338	0.42	0.22	0.204	0.29	0.12	0.175	0.31	0.13	0.176	0.34	0.13	0.208
2001	0.0129	0.08	0.00	0.077	0.07	0.01	0.052	0.09	0.03	0.063	0.13	0.03	0.106
2002	0.0248	0.56	0.30	0.260	0.30	0.09	0.209	0.29	0.09	0.204	0.31	0.10	0.206
2003	0.0186	-0.07	0.00	-0.074	-0.10	-0.01	-0.088	-0.06	0.01	-0.074	-0.06	0.02	-0.078
2004	0.0354	0.09	0.05	0.047	0.00	-0.04	0.043	0.03	-0.01	0.040	0.03	0.00	0.032
2005	0.0347	-0.04	-0.07	0.029	-0.01	-0.06	0.056	-0.01	-0.06	0.053	0.00	-0.06	0.055
2006	0.0242	-0.09	-0.06	-0.030	0.00	0.04	-0.044	0.04	0.07	-0.036	0.04	0.05	-0.013
2007	0.0446	0.04	-0.04	0.077	0.02	0.00	0.019	-0.01	-0.04	0.027	0.00	-0.04	0.039
2008	-0.0067	0.11	0.11	0.000	0.03	0.07	-0.043	-0.03	0.01	-0.047	-0.04	0.01	-0.048
Mean				0.098			0.089			0.088			0.097
# Low > High				23.00			22.00			22.00			22.00
t-statistic				5.05			4.50			4.50			4.65
p-value				<0.001			<0.001			<0.001			<0.001

The table reports mean firm-level returns, calculated over the year subsequent to inflation-based portfolio formation. Specifically, observations with the lowest (highest) *IGL* are sorted annualy into portfolio one (ten), where *IGL* is inflation-adjusted earnings minus nominal earnings (scaled), and it captures unrecognized inflation gains and losses. Then, for each portfolio-year, mean abnormal returns are accumulated over the subsequent year beginning three months after the fiscal year-end. Market Adjusted Return is the annually compounded raw return of the firm, $R_{i,t}$, minus the annually compounded value-weighted return on all NYSE, AMEX, and NASDAQ stocks in CRSP. Fama-French (Fama-French-*UMD*, Fama-French-*UMD*-*FNOA*) Adjusted Returns are $R_{i,t}$ minus the product of firm-specific betas and the respective Fama-French (Fama-French-*UMD*, Fama-French-*UMD*-*FNOA*) factors, where firm-specific betas are obtained by regressing the firm's time-series monthly excess return on the Fama-French (Fama-French-*UMD*, Fama-French-*UMD*-*FNOA*) factors. Fama-French factors are *MKTRF*, *SMB*, and *HML*. *UMD* is the Carhart (1997) momentum factor. Raw stock returns are from the CRSP Monthly Stock File, adjusted for delisting returns. The risk-free rate and the monthly factors are from the Fama-French Portfolios and Factors dataset available through WRDS. *NOA* is net operating assets deflated by lagged total assets, constructed as described in Hirshleifer et al. (2004). *FNOA* is a *NOA*-based factor, formed as described in Table 3. The annual inflation rate is the annualized monthly consumer price index obtained from the Global Insight dataset's Basic Economics Monthly Series (PRNEW). P-values are obtained from two-tailed t-tests. The sample includes all NYSE, AMEX, and NASDAQ U.S. stocks that are in the intersection of CRSP and Compustat, that have data available to calculate inflation gains and losses, and with fiscal year-ends between 1984 and 2008 (n = 25).

TABLE 5

Future Returns and Investor Processing of Inflation-Adjusted Earnings

IGL Portfolio	Panel A: Estimation of Current-Period Inflation-Adjusted Earnings, *IAEarnings $_t$*			Panel B: Subsequent Abnormal Returns (from Table 3)				Panel C: Regress α_p on *DIFF*			
	IAEarnings	*IAEarnings_No Distinguish*	*DIFF = IAEarnings – IAEarnings_NoDistinguish*		α_p	t-stat	p-value	Slope	t-stat	p-value	R^2
								0.1507	4.74	0.001	0.738
1	-0.1705	-0.1935	0.0231		0.0049	4.37	<0.001				
2	-0.0205	-0.0249	0.0044	Positive news at *t*+1 when higher-than-expected inflation gains turn into cash flows	0.0046	4.78	<0.001				
3	0.0094	0.0077	0.0017		0.0042	4.46	<0.001				
4	0.0255	0.0303	-0.0049		0.0041	4.68	<0.001				
5	0.0310	0.0360	-0.0050		0.0030	1.68	0.093				
6	0.0351	0.0415	-0.0065		0.0017	1.62	0.106				
7	0.0385	0.0434	-0.0049		0.0001	0.11	0.913				
8	0.0484	0.0566	-0.0083	Negative news at *t*+1 when lower-than-expected inflation gains turn into cash flows	-0.0004	-0.38	0.703				
9	0.0744	0.0899	-0.0155		-0.0013	-1.26	0.207				
10	0.1876	0.2308	-0.0432		-0.0036	-3.10	0.002				

The table reports results from processing inflation information and its link to future returns. Panel A reports current-period inflation-adjusted earnings, scaled by lagged market value of equity. *IAEarnings* refers to inflation-adjusted earnings derived in a manner that distinguishes monetary and nonmonetary assets; this is the *IAEarnings* measure used throughout the study and obtained using the algorithm. *IAEarnings_NoDistinguish* refers to inflation-adjusted earnings obtained using the algorithm without distinguishing monetary and nonmonetary assets. Panel B reports the Fama-French Alphas, α_p, from Table 3, which are *t*+1 abnormal returns obtained from portfolio regressions constructed on current-period inflation information, i.e., based on *IAEarnings $_t$*. Panel C reports results from estimating a regression of α_p on *DIFF* and an intercept (that is omitted), where *DIFF = IAEarnings – IAEarnings_NoDistinguish*. *IGL* is inflation-adjusted earnings minus nominal earnings (scaled), and it captures unrecognized inflation gains and losses. P-values are obtained from two-tailed t-tests. The sample includes all NYSE, AMEX, and NASDAQ U.S. stocks that are in the intersection of CRSP and Compustat, that have data available to calculate inflation gains and losses, and with fiscal year-ends between 1984 and 2008 (n = 25).

TABLE 6
Stock Price Reaction to Information in Current Inflation Gains and Losses about Future Cash

$$CFO_{t+1} = \delta_0 + \delta_1 \cdot IGL_t + \delta_2 \cdot IGL\_NoDistinguish_t + \delta_3 \cdot CFO_t + \delta_4 \cdot ACCRUALS_t + \zeta_{t+1}$$

$$Return_{t+1} = \psi(CFO_{t+1} - \delta_0^* - \delta_1^* \cdot IGL_t - \delta_2^* \cdot IGL\_NoDistinguish_t - \delta_3^* \cdot CFO_t - \delta_4^* \cdot ACCRUALS_t) + \mu_{t+1}$$

	Estimate	Asymptotic Standard Error	χ^2-statistic	Asymptotic $Pr > \chi^2$
δ_0	0.0587	0.0009	66.00	<0.001
δ_1	0.0815	0.0315	2.58	0.010
δ_2	-0.0242	0.0228	-1.06	0.289
δ_3	0.6912	0.0057	120.71	<0.001
δ_4	0.0825	0.0056	14.76	<0.001
ψ	0.3814	0.0130	29.24	<0.001
δ_0^*	-0.2514	0.0131	-19.21	<0.001
δ_1^*	-0.4178	0.2723	-1.53	0.125
δ_2^*	1.6302	0.2044	7.98	<0.001
δ_3^*	0.7215	0.0493	14.62	<0.001
δ_4^*	0.6675	0.0521	12.81	<0.001
Tests:				
$\delta_1 = \delta_2$			4.05	0.044
$\delta_1^* = \delta_2^*$			20.01	<0.001
$\delta_1 = \delta_1^*$			10.27	0.001
$\delta_2 = \delta_2^*$			64.71	<0.001

The table reports results from estimating a nonlinear weighted least squares system of equations to examine how inflation information is reflected in stock prices. CFO_{t+1} is cash flows from operating activities for year $t+1$, extracted directly from the statement of cash flows or derived from changes in balance sheet accounts as explained in Table 1. $ACCRUALS_t$ is total operating accruals, calculated as $ACCRUALS_t = NominalEarnings_t - CFO_t$, where *NominalEarnings* is Income before Extraordinary Items as reported in the financial statements (Compustat: IB). *IGL* captures unrecognized inflation gains and losses and is calculated as $IGL = IAEarnings - NominalEarnings$, where *IAEarnings* is nominal earnings restated to an inflation-adjusted basis using the algorithm in a manner that distinguishes monetary and nonmonetary assets – this is the inflation gains and losses measure used throughout the study. *IGL_NoDistinguish* approximates unrecognized inflation gains and losses without distinguishing monetary and nonmonetary assets and is calculated as $IGL\_NoDistinguish = IAEarnings\_NoDistinguish - NominalEarnings$, where *IAEarnings_NoDistinguish* refers to inflation-adjusted earnings obtained using the algorithm without distinguishing monetary and nonmonetary assets. All accounting variables are scaled. $Return_{t+1}$ is adjusted stock return for year $t+1$, accumulated over the year subsequent to year t and beginning three months after the fiscal year-end of year t. Raw stock returns are from the CRSP Monthly Stock File, adjusted for delisting returns. To control for heteroskedasticity, the first equation of the system is scaled by a scaling factor computed as the ratio of the residual variances of the two equations, where each equation's residual variance is obtained from estimating the equation alone. P-values are obtained from asymptotic chi-squared tests. The sample includes all NYSE, AMEX, and NASDAQ U.S. stocks that are in the intersection of CRSP and Compustat, that have data available to calculate inflation gains and losses, and with fiscal year-ends between 1984 and 2008 (n = 25).

TABLE 7
**Two-Step Fama-MacBeth Procedure: Results from Second Step**

Monthly Cross-Portfolio Regressions

$$R_{p,m+1} - R_{f,m+1} = \phi_{m+1} + \gamma_{MKTRF,m+1} \cdot \hat{\beta}_{p,MKTRF,m} + \gamma_{SMB,m+1} \cdot \hat{\beta}_{p,SMB,m} + \gamma_{HML,m+1} \cdot \hat{\beta}_{p,HML,m}$$

$$+ \gamma_{UMD,m+1} \cdot \hat{\beta}_{p,UMD,m} + \gamma_{FIGL,m+1} \cdot \hat{\beta}_{p,FIGL,m} + \sigma_{m+1}$$

	Prediction	Mean	Standard Deviation	Standard Error	Fama-MacBeth t-statistic	p-value
ϕ_{m+1}		0.0125	0.0561	0.0036	3.51	<0.001
$\gamma_{MKTRF,m+1}$		-0.0058	0.0592	0.0038	-1.55	0.122
$\gamma_{SMB,m+1}$		0.0004	0.0345	0.0022	0.18	0.857
$\gamma_{HML,m+1}$	+	0.0038	0.0321	0.0020	1.85	0.033
$\gamma_{UMD,m+1}$		0.0001	0.0611	0.0039	0.03	0.976
$\gamma_{FIGL,m+1}$	?	-0.0015	0.0243	0.0015	-1.00	0.318
Adj. R^2		0.510				

The table presents summary results from monthly cross-portfolio regressions in the second step of a two-step Fama-MacBeth (1973) procedure. In the first stage, portfolio time-series regressions are estimated using the 25 Fama-French portfolios (Fama and French 1993). Value-weighted portfolio excess return for month m for each portfolio p, $R_{p,m} - R_{f,m}$, is regressed on the contemporaneous monthly returns for the Fama-French (*MKTRF*, *SMB*, *HML*), Carhart (1997) momentum (*UMD*), and inflation-based (*FIGL*) factors, using five-year rolling windows that end at month m (requiring at least ten portfolio-month observations in each window), as follows: $R_{p,m} - R_{f,m} = \lambda_p + \beta_{p,MKTRF,m} \cdot MKTRF_m + \beta_{p,SMB,m} \cdot SMB_m + \beta_{p,HML,m} \cdot HML_m + \beta_{p,UMD,m} \cdot UMD_m + \beta_{p,FIGL,m} \cdot FIGL_m + \kappa_m$. This results in five predicted rolling betas as of month m. In the second step, monthly cross-portfolio regressions of portfolio excess returns for month $m+1$, $R_{p,m+1} - R_{f,m+1}$, are regressed on the predicted rolling betas from the first step, such that each regression pools predicted betas for the 25 portfolios estimated in the first step using data conditioned on month m. The estimates are aggregated and tested following the Fama and MacBeth (1973) procedure. Fama-French and momentum factors are from the Fama-French Portfolios and Factors dataset available through WRDS. Fama-French 25 portfolio excess returns are from Ken French's website. $R_{f,m}$ is the one-month Treasury bill rate. The inflation-based factor, *FIGL*, is formed following Fama and French (1993), using the same procedure I use to form *FNOA*, as described in Table 3. P-values are obtained from one-tailed (two-tailed) t-tests when there is (no) prediction. The sample includes all NYSE, AMEX, and NASDAQ U.S. stocks that are in the intersection of CRSP and Compustat, that have data available to calculate inflation gains and losses, and with fiscal year-ends between 1984 and 2008 (n = 25).

FIGURE 1. Timeline. The figure plots the timeline for analyses throughout the study, and the link between current inflation gains and subsequent abnormal returns. Inflation gains and losses (*IGL*) are estimated after the fiscal-year end, using information from nominal financial statements and actual inflation rates as of the end of the year. *IGL* is defined as the difference between inflation-adjusted earnings and nominal earnings (scaled). Subsequent abnormal returns are accumulated over the year beginning three months after fiscal year-end. Because inflation gains affect the realization of subsequent cash flows, the accuracy of estimating inflation gains affects the accuracy of expectations regarding future cash flows. Subsequent returns are affected depending on actual versus expected inflation gains.
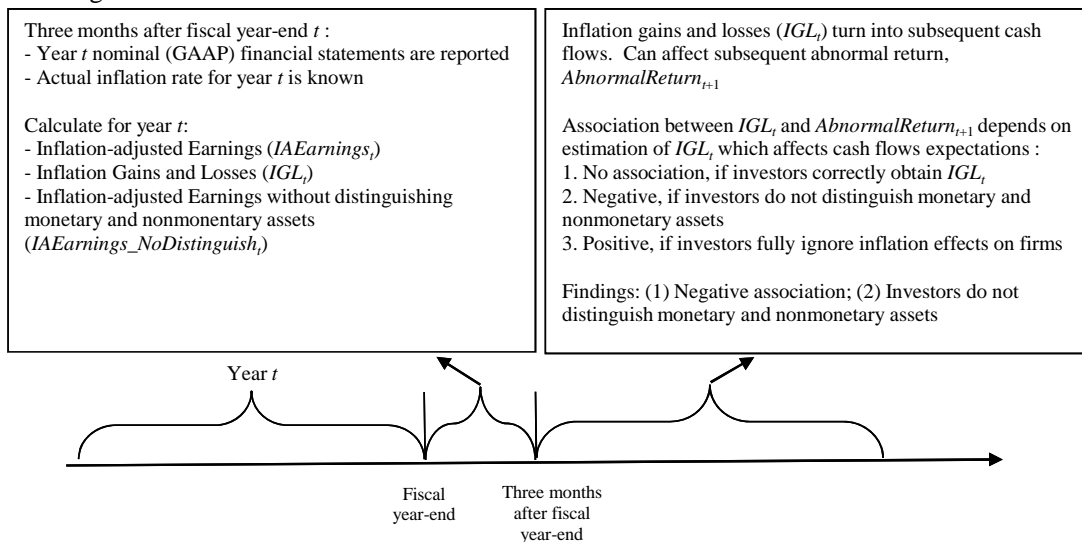
FIGURE 2. Abnormal Returns from Using Inflation Information: Firm Level. The figure plots the annual mean firm-level returns reported in Table 4. The returns are accumulated over the year subsequent to portfolio formation, for the high and low decile portfolios formed each year based on *IGL* , such that observations with the lowest (highest) *IGL* are sorted into portfolio one (ten). *IGL* is inflation-adjusted earnings minus nominal earnings (scaled), and it captures unrecognized inflation gains and losses.