FINANCIAL MARKET REACTIONS TO EARNINGS ANNOUNCEMENTS AND EARNINGS FORECAST REVISIONS: EVIDENCE FROM THE U.S. AND CHINA

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ABSTRACT

This paper examines the impact of earnings announcements and earnings forecast revisions on stock returns across markets with different levels of maturity. In each market, the objects of interest are the effects of backward-looking earnings announcement information and forward-looking earnings forecast information on the price of equity shares. We analyze financial markets in both the U.S. and China in order to see how the level of market maturity and differences in information availability and actual or perceived reliability affect this relationship. We find that forward-looking analyst forecast information plays a significantly larger role in the security pricing process in the more mature U.S. financial market. In the less mature Chinese financial market, we find the opposite relationship as backward-looking earnings announcement information plays a larger role.

JEL: D84, G14, G15, O57

KEYWORDS: earnings forecast revisions, earnings announcements, unexpected earnings, security returns, forward-looking, backward-looking, relevance, reliability, market maturity

INTRODUCTION

The concept of market efficiency has long been a cornerstone in the understanding of security pricing mechanisms. Fama (1970) started a way of thinking that has guided the field of finance for almost 40 years. He hypothesizes that markets can be efficient at the weak form level, the semi-strong form level, or the strong form level. At each level, the theory posits that there is an information set to which the markets adjusts quickly and in an unbiased manner. The information set in weak form efficiency is historical stock price patterns. In semi-strong form efficiency, security prices reflect all publicly available information. Finally, with strong form efficiency the relevant information set is all information: historical, contemporary, public, and private.

Over the past 40 years, semi-strong form market efficiency has been of the greatest interest to financial market scholars for two primary reasons. First, it is intuitively appealing relative to its alternatives. Weak form market efficiency ignores potentially relevant, publicly available non-price information while strong form market efficiency is an "extreme model" that is unlikely to be an exact description of the world (Fama, 1970). Second, for purposes of study, publicly available information is readily accessible to the research community.

Earnings information has been a popular "public information" item used in empirical studies that appealed to semi-strong form market efficiency as the basis of hypothesis development (early examples are Ball & Brown, 1968; Beaver, 1968; Beaver, Clarke & Wright, 1979). However, the focus of most of these studies has been reported earnings (backward looking) rather than forecasted earnings (forward-looking). In this paper, we will investigate the market price response to both backward-looking and forward-looking accounting information. In addition, we examine this relationship in both mature and less mature markets.

LITERATURE REVIEW

One major area of research related to semi-strong form market efficiency has been the study of the relationship between security prices and accounting information, in particular accounting earnings information. Ball and Brown (1968) instigated this research by documenting the association of security prices and earnings information over time. This was quickly refined by Beaver (1968) (annual data) and May (1971) (quarterly data) in their examination of the short-term response of security prices to the announcement of accounting earnings. Following these studies, there has been a plethora of research looking more in depth into questions related to this relationship (e.g. Beaver et. al., 1979; Collins & Kothari, 1989; Francis, Schipper, & Vincent, 2002). In general, there is widespread support for the proposition that announcements of actual accounting earnings affect security prices in a systematic manner.

While the main interest in this area focused exclusively on earnings announcements, a second line of research started to develop concerning forecasts of accounting earnings. Several studies compared the accuracy of forecasted earnings to models based on actual reported numbers. They generally found that earnings forecasts made by analysts and management were more accurate (ex-post) than mechanical models (e.g. Barefield & Comiskey, 1975; Brown & Rozeff, 1978). This led to an examination of whether or not analysts' forecasts of accounting earnings might be a reasonable surrogate for market earnings expectations. Fried and Givoly (1982) examined this issue and concluded that, in fact, analysts' earnings forecasts were reasonable surrogates for market expectations. With the exception of a few studies (e.g. Abdel-Khalk & Ajinkya, 1982; Philbrick & Ricks, 1991) the focus of most research looking at stock price responses was still on the information content of earnings announcements. Analysts' earnings forecasts only entered the analysis as surrogates for earnings expectations in order to determine if the actual earnings announcement conveyed good news (a positive difference) or bad news (a negative difference).

In general, if actual reported earnings are higher (lower) than expected, regardless of how the concept of "expected" is measured, researchers posit that the stock market will respond in a positive (negative) manner. Juxtapose this with a typical finance textbook, which will state that the value of a share of common stock is equal to the present value of all future dividends it is expected to provide over an infinite time horizon. This or similar wording can be found in virtually all introductory financial management and investment textbooks. It is commonly accepted that an investor is buying the future, not the past. Yet most earnings studies focused on actual announced earnings. In other words, they focused on the earnings of the past.

Actual announced earnings are not entirely unrelated to the future; however, the relationship is indirect at best. If a firm reports earnings that are better than expected this period, then we might extrapolate this information to indicate that the better performance in the past is also an indicator of better performance in the future. Thus, there may be a link, but not a direct link.

Are direct links or "pictures of the future" possible? No publicly available databases provide forecasts of dividend payments over an infinite time horizon. In fact, no such databases provide dividend payment forecasts over short time horizons. However, there are publicly available data regarding forecasts of future earnings. If the dividend payout ratio is considered relatively stable, then the expectation of future earnings can be transformed into an expectation of future dividends. In this way, earnings forecasts also represent an indirect measure of future dividend payments, since a transformation based on an assumption is required. Although still indirect, earnings forecasts are more closely related to future dividend payments than past earnings announcements because they skip the need to abstract future expectations from past performance. In other words, future earnings forecasts are more *relevant* than past earnings announcements. Therefore, a movement towards the study of earnings forecasts seemed rather intuitive.

However, one can argue that past earnings announcements are more *reliable* than future earnings forecasts because they derive from actual business transactions and have a rigorous calculation process involving accounting standards and auditors. Thus, they likely are more accepted by market participants relative to less rigorous forecasts of future transactions. In the end, investors have access to two key pieces of public earnings information: actual earnings announcements, which are more reliable but backward looking, and analysts' earnings forecasts, which are more relevant and forward-looking.

Cornell and Landsman (1989) study these pieces of information directly. They examine security price responses to competing and contemporaneous information associated with an earnings announcement. They measure the forecast error as the difference between actual quarterly earnings and the prior forecast of quarterly earnings. At the same time, they measure the change in the forecast revision for the following quarter and the next fiscal year made in response to the earnings announcement. They find that all three factors relate to stock returns, but that forecast revisions explain most of the variance. Thus, their study indicates that forward-looking earnings forecasts have more explanatory power for stock returns than do backward-looking actual earnings announcements. To our knowledge, this is the only study to directly examine the differential impact of these two competing information items. However, the study focused only on the U.S. market where there is a long history of investing among market participants. Due to this maturity, one may posit that the market participants have a better understanding of the natures and the difference between earnings forecasts and actual earnings announcements and that the forecast process is thoroughly developed and refined.

Atiase, Li, Supattarakul, & Tse (2005) conducted a similar study but used management earnings guidance instead of analysts' earnings forecasts. Although management earnings guidance differs from analysts' earnings forecasts by the source, they are both expectations about the future rather than simply a reporting of the past. However, the findings of Atiase et. al. do not support the findings of Cornell and Landsman. Atiase et. al. find that both the forward-looking and the backward-looking information sets have a significant relationship with stock returns. In contrast to Cornell and Landsman, they find that the stronger of the two is the backward-looking earnings announcement information. Similar to Cornell and Landsman, the focus of their study is strictly the mature U.S. market.

Research Questions

We seek to provide additional evidence on the relationship between stock returns and earnings information since there has been a limited amount of analyses performed and the issue of which information has a greater impact on stock prices and returns is clearly an important question in accounting, finance, and economics. We also want to carry this analysis a bit further and study the relationship across markets, which may differ in terms of maturity, investor knowledge and shrewdness, analyst skill and accuracy, and financial market regulations and infrastructure. Hence, we seek to address two research questions.

Question 1: What is the relationship between stock returns and forward-looking analyst earnings forecasts and backward-looking earnings announcement information?

Question 2: Does the relationship in Question 1 differ across markets? In other words, do the idiosyncrasies of each market and the overall understanding of the earnings variables at issue affect the relationship in Question 1?

In what follows, we address Question 1 by conducting and modified replication of the studies referenced earlier. We address Question 2 by examining the relationship in Question 1 in two different markets. The first sample of companies is drawn from the U.S. stock market and, thus, provides a direct comparison to the findings of Cornell and Landsman and Atiase et. al. The second sample is drawn from the financial

market in China. This is a relatively active market and yet it is a market with a very short history (roughly 20 years). As such, we classify this as a less mature market. With less maturity, will investors in the China market assess the relative value of the more reliable backward-looking information and more relevant forward-looking information differently than investors in the U.S. market? In less mature markets, it seems reasonably plausible that one may find participants placing greater reliance on verified/verifiable data and less reliance on unverifiable expectations.

HYPOTHESES

We believe that we will see findings that are in line with Cornell and Landsman. Atiasi et. al. have findings dissimilar to Cornell and Landsman, but they employ management earnings guidance instead of analysts' forecasts. There could be a number of behavioral reasons why investors would put less weight on potentially self-interested management guidance as opposed to more independent analyst forecasts. In addition, beyond empirical studies, the fundamental understanding in Finance that the security pricing mechanism is the present value of *future* dividend payments also drives our hypothesis.

Hypothesis 1: Forward-looking earnings forecast information better explains security price movements than backward-looking actual earnings announcements in the U.S. financial market.

Note that this hypothesis is restricted to the mature investing market of the U.S. Will a less mature market behave in the same way? We have little theory to guide us on this hypothesis. In addition, weak as the theory may be, it is also contradictory. Will a difference, if any, be propelled by the less developed financial reporting system? If so, this favors forecasts as the stronger variable. Will a difference be propelled by the idea that the process of reported earnings is a more reliable process than the unregulated, unrefined process of forecasting? If so, this argument favors the actual earnings announcements as the stronger variable. Finally, will we find no difference at all? This would be a very interesting result considering the substantial maturity difference between the two countries with respect to their financial markets. On balance, we believe we will see investors in China favoring actual earnings information relatively more than that of investors in the U.S. If this holds true, we will seek to explain this difference, but doing so may require further inquiry and may be a good avenue for future research.

Hypothesis 2: When explaining movements in security prices, the China financial market places more weight on the information in more reliable, backward-looking earnings announcements than in unrefined, forward-looking future earnings forecasts *relative to the U.S. financial market*.

METHODOLOGY

Study Design

This study examines market reactions to the announcement of actual earnings and to earnings forecast revisions. Actual earnings announcements are based on historical transactions, calculated under prescribed accounting standards, and are reviewed by independent auditors. In contrast, earnings forecasts are based on analysts' predictions about likely future earnings. They are not estimated under a prescribed set of standards, such as with earnings announcements, and independent auditors do not review them. Thus, which earnings information is more strongly associated with stock returns is an empirical question. We base our study on the following model:

$$CAR_{it} = \beta_0 + \beta_1 UE_{it} + \beta_2 FRY_{it} + \varepsilon_{it} \quad (1)$$

where CAR_{it} is the cumulative abnormal stock return for firm i associated with annual earnings announcement t. We measure CAR_{it} using both a three-day event window and a five-day event window around the earnings announcement. The three-day event window is consistent with the window employed in Atiase et. al. However, we also estimate each model using a five-day window for cumulative abnormal stock returns in order to test the sensitivity of our results to the window length employed. We compute each daily abnormal return using the market model with parameters estimated for 100 days prior to each announcement event interval. The model is:

$$R_{it} = \alpha + \beta R_{mt} + \upsilon_{it} \tag{2}$$

where R_{it} is the return for firm i on day t, R_{mt} is the return on an equally weighted market portfolio on day t, and α and β are OLS coefficients of the model estimated over days -110 to -10 in event time.

UE_{it} is firm i's unexpected earnings for year t. We compute UE_{it} as $\left(EPS_{it} - EFY_{it}|B\right) \Big/ \left|EFY_{it}|B\right|$ where EPS_{it} is firm i's realized annual earnings per share for year t, $EFY_{it}|B$ is the I/B/E/S consensus pre-announcement analyst forecast of EPS_{it}. "B" indicates that the forecast is based on information before the announcement of actual earnings for year t.

FRY_{it} is the forecast revision for the following fiscal year, t+1, for firm i. This revision occurred coincidental with the announcement of actual earnings for the current year. We compute FRY_{it} as $\left(EFY_{it+1}|A - EFY_{it+1}|B\right) \Big/ \left|EFY_{it+1}|B\right|$ where $EFY_{it+1}|A$ is the post-announcement forecast of EPS for year t+1. "A" indicates that the forecast is based on information after the announcement of actual earnings for year t. $EFY_{it+1}|B$ is the pre-announcement forecast of EPS for year t+1.

The Sample

Data were collected over a four-year period from 2003 through 2006 from the I/B/E/S Summary Database and DataStream. The following restrictions were applied to the sample:

1. U.S. firms were drawn from the NYSE.
2. China firms were drawn from the Shanghai A share group.
3. The number of analysts for any forecast observation was greater than three.
4. There were no dividend announcements in the same week as any earnings related announcement (actual or forecast).
5. There were no stock splits over the test period or the parameter estimation period.
6. Annual earnings and earnings announcement dates were available from the I/B/E/S database.
7. Complete data were available on DataStream for stock returns and indices over the test period and parameter estimation period.

The search for data in the China market resulted in 56 firms being included in the analysis with 207 qualified annual earnings announcements over the complete four-year period. The number of observations in the U.S. market could have been considerably larger than that of the China market. Therefore, we limited the number of U.S. firms to a maximum of double that of the China market. We randomly selected 112 U.S. firms, which resulted in 405 qualified annual earnings announcements over the complete four-year period. Finally, note that quarterly earnings data are available in U.S. markets but in very few others. Such data were not available for our China sample so we focused on annual earnings, which were available in both markets.

EMPIRICAL RESULTS AND FINDINGS

We report descriptive statistics for three-day and five-day cumulative abnormal returns (CAR3 and CAR5, respectively), unexpected earnings (UE), and analysts' forecast revisions (FRY) for the U.S. sample and the China sample in Table 1. What stands out the most is the variance of UE and FRY in the China sample relative to the U.S. sample. This is consistent with the view of China as a less mature financial market. Since analysts' forecasts are a component of both UE and FRY, this supports the theory that analysts' forecasts are not as developed, refined, and precise in China as they are in the U.S.

Table 1: Descriptive Statistics

	Mean	S. D.	Min	25%	50%	75%	Max
U.S.							
CAR3	-.0029	.0712	-.2805	-.0370	-.0020	.0323	.3120
CAR5	-.0029	.0782	-.2820	-.0416	-.0015	.0337	.3294
UE	.0268	.2312	-1.9091	-.0078	.0085	.0377	1.6667
FRY	-.0296	.2741	-1.5385	-.0551	.0000	.0232	1.5556
China							
CAR3	-.0014	.0596	-.3284	-.0287	-.0013	.0229	.2230
CAR5	.0034	.0733	-.3228	-.0375	-.0006	.0380	.2802
UE	-.0965	1.4179	-19.5000	-.1111	.0000	.0732	1.2283
FRY	.0639	.7055	-3.0000	.0000	.0000	.0556	7.2437

CAR3: Three-day cumulative abnormal return around the earnings announcement date.
CAR5: Five-day cumulative abnormal return around the earnings announcement date.
UE: Unexpected earnings for year t. UE is calculated as the actual EPS for year t minus the pre-announcement analysts' forecast of EPS for year t, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t.
FRY: Analysts' forecast revision of EPS for year t+1 made after the earnings announcement for year t. FRY is calculated the post-announcement analysts' forecast of EPS for year t+1 minus the pre-announcement analysts' forecast of EPS for year t+1, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t+1.

We show correlation coefficients for CAR3, UE, and FRY by country in Table 2. There is low inter-variable correlation in both the Pearson and the Spearman correlation coefficients. All coefficients are positive (as would be expected), most are significant, and the largest is .438, which does not pose a significant concern for multicollinearity. Notice that FRY is not significantly Pearson correlated with UE or CAR3 in China. This is further evidence towards the less refined nature of analysts' forecasts in the less mature China market.

Table 2: Pearson (Spearman) Correlations Above (Below) the Diagonal

	CAR	UE	FRY
U.S.			
CAR3		.158***	.280***
UE	.238***		.131***
FRY	.341***	.382***	
China			
CAR3		.369***	.035
UE	.105***		.010
FRY	.299***	.438***	

CAR3: Three-day cumulative abnormal return around the earnings announcement date.
UE: Unexpected earnings for year t. UE is calculated as the actual EPS for year t minus the pre-announcement analysts' forecast of EPS for year t, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t.
FRY: Analysts' forecast revision of EPS for year t+1 made after the earnings announcement for year t. FRY is calculated the post-announcement analysts' forecast of EPS for year t+1 minus the pre-announcement analysts' forecast of EPS for year t+1, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t+1.
****, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.*

U.S. Sample

Table 3 shows regression results of the abnormal returns model in Equation 1 for the complete U.S. sample using a three-day window. Overall, the model is significant and the adjusted R^2 is in line with Cornell and Landsman and Atiasi et. al. The results in this table are consistent with the findings of Cornell and Landsman. In the U.S., the coefficient on FRY (.068) is roughly twice that of UE (.038), implying that, on the margin, analysts' forecast revisions explain significantly more of the variation in stock returns than unexpected earnings around an earnings announcement. All variables of interest are significant at the 1 percent level and results using a five-day window were qualitatively the same in terms of relative coefficient values and significance.

Table 3: Impact of Unexpected Earnings and Forecast Revisions on Stock Returns in the U.S.

Model: $CAR3_{it} = \beta_0 + \beta_1 UE_{it} + \beta_2 FRY_{it} + \varepsilon_{it}$

	Estimate	t-stat	N	Adj. R^2	F-stat
Intercept	-.002	-.55	405	.089	20.7***
UE	.038***	2.58			
FRY	.068***	5.50			

CAR3: Three-day cumulative abnormal return around the earnings announcement date.
UE: Unexpected earnings for year t. UE is calculated as the actual EPS for year t minus the pre-announcement analysts' forecast of EPS for year t, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t.
FRY: Analysts' forecast revision of EPS for year t+1 made after the earnings announcement for year t. FRY is calculated the post-announcement analysts' forecast of EPS for year t+1 minus the pre-announcement analysts' forecast of EPS for year t+1, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t+1.
****, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.*

Next, we partitioned the U.S. sample into two groups, those with non-negative unexpected earnings ("good news," N = 287) and those with negative unexpected earnings ("bad news," N = 118). The regression results of the partitioned samples are shown in Tables 4 and 5 for three-day and five-day event windows, respectively. For each event window, the impact of FRY *relative to* UE is diminished in the good news group, as compared to the overall sample, and both variables are significant at least at the 5 percent level. In fact, using a three-day window UE and FRY have a similar marginal impact on stock returns (.042 and .048, respectively). Although quantitatively different, there is little qualitative difference between the coefficients and t-statistics of the two variables. The results for both the U.S. and China were qualitatively the same when we defined good news as "positive" unexpected earnings as opposed to "non-negative."

Table 4: Impact of Unexpected Earnings and Forecast Revisions on Stock Returns in the U.S. for Good and Bad News 3-Day Window

Three-Day Event Window
Model: $CAR3_{it} = \beta_0 + \beta_1 UE_{it} + \beta_2 FRY_{it} + \varepsilon_{it}$

	Estimate	t-stat	N	Adj. R^2	F-stat
Good News (UE ≥ 0)					
Intercept	.005	1.05	287	.036	6.3***
UE	.042**	2.13			
FRY	.046***	2.86			
Bad News (UE < 0)					
Intercept	-.021***	-3.20	118	.135	10.2***
UE	-.023	-.94			
FRY	.088***	4.50			

CAR3: Three-day cumulative abnormal return around the earnings announcement date.
UE: Unexpected earnings for year t. UE is calculated as the actual EPS for year t minus the pre-announcement analysts' forecast of EPS for year t, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t.
FRY: Analysts' forecast revision of EPS for year t+1 made after the earnings announcement for year t. FRY is calculated the post-announcement analysts' forecast of EPS for year t+1 minus the pre-announcement analysts' forecast of EPS for year t+1, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t+1.
****, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.*

Table 5: Impact of Unexpected Earnings and Forecast Revisions on Stock Returns in the U.S. for Good and Bad News 5-Day Window

Five-Day Event Window
Model: $CAR5_{it} = \beta_0 + \beta_1 UE_{it} + \beta_2 FRY_{it} + \varepsilon_{it}$

	Estimate	t-stat	N	Adj. R^2	F-stat
Good News (UE ≥ 0)					
Intercept	.004	.82	287	.069	11.6***
UE	.051**	2.37			
FRY	.073***	4.19			
Bad News (UE < 0)					
Intercept	-.022***	-2.92	118	.072	5.6***
UE	-.010	-.35			
FRY	.075***	3.33			

CAR5: Five-day cumulative abnormal return around the earnings announcement date.
UE: Unexpected earnings for year t. UE is calculated as the actual EPS for year t minus the pre-announcement analysts' forecast of EPS for year t, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t.
FRY: Analysts' forecast revision of EPS for year t+1 made after the earnings announcement for year t. FRY is calculated the post-announcement analysts' forecast of EPS for year t+1 minus the pre-announcement analysts' forecast of EPS for year t+1, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t+1.
****, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.*

In the bad news group, there exists a significant difference in the marginal impact of unexpected earnings and analysts' forecast revisions with both event windows. With the three-day window, the coefficient on UE is -.023 and insignificant while the coefficient on FRY is .088 and significant at the 1 percent level. The negative sign of the UE coefficient is not troublesome since it is not even close to significant.

The results suggest that in periods of normal U.S. economic activity (and normal activity for a typical NYSE firm during 2003-2006 was one of growth) the informational distinction between actual earnings announcements and forecast revisions is diminished. The two could even possibly provide similar and reliable information affecting stock returns. However, when U.S. companies publish negative information concerning last year's earnings, investors appear to look very carefully at the future and use information directly relevant towards the future to guide their behavior and affect stock returns. These results are consistent with Cornell and Landsman, particularly the results of the bad news sub-analysis.

China Sample

Table 6 shows the regression results of the abnormal returns model for the complete China sample using a three-day window. Once again, the overall model is significant and the adjusted R^2 is in line with Cornell and Landsman and Atiasi et. al. The results of this analysis are interesting, to say the least. While the coefficients for UE and FRY are both positive (.016 and .003, respectively), UE is significant at the 1 percent level while FRY is insignificant. Results using a five-day window were qualitatively the same in terms of relative coefficient values and significance.

According to this analysis, backward-looking actual earnings information is more price relevant than forward-looking earnings forecast revisions in the China financial market. Taken at face value, one cannot say if this is due to a lack of trust in the accuracy of unverified and less refined forecast numbers (relative to the U.S.) or if this is due to an over-reliance on the perceived rigor of the reported earnings number. However, it is a significantly different result from that observed in the more mature U.S. market and it warrants further inquiry.

Table 6: Impact of Unexpected Earnings and Forecast Revisions on Stock Returns in China

Model: $CAR3_{it} = \beta_0 + \beta_1 UE_{it} + \beta_2 FRY_{it} + \varepsilon_{it}$

	Estimate	t-stat	N	Adj. R^2	F-stat
Intercept	-.000	-.028	207	.129	16.2***
UE	.016***	5.67			
FRY	.003	.48			

CAR3: Three-day cumulative abnormal return around the earnings announcement date.
UE: Unexpected earnings for year t. UE is calculated as the actual EPS for year t minus the pre-announcement analysts' forecast of EPS for year t, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t.
FRY: Analysts' forecast revision of EPS for year t+1 made after the earnings announcement for year t. FRY is calculated the post-announcement analysts' forecast of EPS for year t+1 minus the pre-announcement analysts' forecast of EPS for year t+1, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t+1.
****, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.*

Just as was done with the U.S. data, we partitioned the China sample into two groups, those with good news (N = 113) and those with bad news (N = 94). Tables 7 and 8 show the results of the regression analysis for three-day and five-day event windows, respectively. In the good news group, neither UE nor FRY has significant explanatory power with either event window. The marginal effect of UE has diminished with good news, and, in fact, turned negative (but not remotely significant). In the bad news group with a three-day window, there is a strong and significant relationship between stock returns and UE (.017) while the marginal impact of FRY (.013) is positive but insignificant. With a five-day window, there is still a strong and significant relationship between stock returns and UE (.016) while the marginal impact of FRY (.023) is larger but still insignificant.

The general outcome of this partitioning with a three-day window is similar to that found in the U.S. market in the sense that whatever is of the most marginal value in the overall group seems to be of relatively less value in the good news group and of relatively equal or greater value in the bad news group. With a five-day window, the results are similar in the aforementioned sense when significance is taken into account. Notice that FRY does not have significant explanatory power in all of the China sample specifications.

Table 7: Impact of Unexpected Earnings and Forecast Revisions on Stock Returns in China for Good and Bad News 3-Day Window

Three-Day Event Window
Model: $CAR3_{it} = \beta_0 + \beta_1 UE_{it} + \beta_2 FRY_{it} + \varepsilon_{it}$

	Estimate	t-stat	N	Adj. R^2	F-stat
Good News (UE ≥ 0)					
Intercept	.003	.55	113	.012	.3
UE	-.014	-.78			
FRY	.002	.33			
Bad News (UE < 0)					
Intercept	.004	.61	94	.253	16.7***
UE	.017***	5.77			
FRY	.013	1.01			

CAR3: Three-day cumulative abnormal return around the earnings announcement date.
UE: Unexpected earnings for year t. UE is calculated as the actual EPS for year t minus the pre-announcement analysts' forecast of EPS for year t, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t.
FRY: Analysts' forecast revision of EPS for year t+1 made after the earnings announcement for year t. FRY is calculated the post-announcement analysts' forecast of EPS for year t+1 minus the pre-announcement analysts' forecast of EPS for year t+1, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t+1.
****, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.*

Table 8: Impact of Unexpected Earnings and Forecast Revisions on Stock Returns in China for Good and Bad News 5-Day Window

Five-Day Event Window
Model: $CAR5_{it} = \beta_0 + \beta_1 UE_{it} + \beta_2 FRY_{it} + \varepsilon_{it}$

	Estimate	t-stat	N	Adj. R^2	F-stat
Good News (UE ≥ 0)					
Intercept	.005	.59	113	-.018	.01
UE	-.002	-.10			
FRY	-.000	-.01			
Bad News (UE < 0)					
Intercept	.011	1.42	94	.172	10.7***
UE	.016***	4.49			
FRY	.023	1.49			

CAR5: Five-day cumulative abnormal return around the earnings announcement date.
UE: Unexpected earnings for year t. UE is calculated as the actual EPS for year t minus the pre-announcement analysts' forecast of EPS for year t, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t.
FRY: Analysts' forecast revision of EPS for year t+1 made after the earnings announcement for year t. FRY is calculated the post-announcement analysts' forecast of EPS for year t+1 minus the pre-announcement analysts' forecast of EPS for year t+1, deflated by the absolute value of the pre-announcement analysts' forecast of EPS for year t+1.
****, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.*

Overall, the storyline appearing from the China market is of a similar vein to the findings in the U.S. market, but with different earnings information variables taking the lead. When positive information comes to the market, investors do not tend to favor one earnings information source over the other in any substantial way (or, at a minimum, adjust *towards* favoring both types of information). However, when negative information comes to the market, investors in the U.S. tend to look to more relevant forward-looking earnings forecasts to guide their behavior and investors in China tend to look to more reliable backward-looking earnings announcements to guide their behavior. Investors in China seem to focus on the negative information as a very bad signal and either ignore relevant forward-looking earnings information or discount its validity or precision.

In an attempt to understand the difference between how earnings information impacts stock returns in the U.S. and China (or more broadly thought of as more mature and less mature markets) we examined the relative accuracy of current earnings announcements and future earnings forecasts in predicting earnings for the following year across the two countries. Which source of earnings information is better at predicting next year's actual earnings in each country, current actual earnings or a current forecast of next year's earnings? Most research in forecast accuracy in U.S. markets has found that earnings forecasts are better predictors of next year's earnings than current earnings. We found that both current earnings and earnings forecasts are good predictors of future earnings when each is the sole explanatory variable. However, in a model where they jointly predict future earnings, earnings forecasts are the better predictor in the U.S. market and current earnings are the better predictor in the China market. Thus, in the U.S. market we see the typical result in which forward-looking earnings forecasts have better predictive accuracy than backward-looking current earnings. In China, the opposite is true.

So, do investors in China put more weight on backward-looking earnings announcement information because they are not sufficiently experienced to know how to evaluate and use forward-looking forecast information? Do they put more weight on actual earnings because they understand the earnings announcement process whereas they view earnings forecasting more along the lines of a "rabbit out of the hat" process? Do they put more weight on actual earnings because forecasting in China lacks substantial refinement and accuracy due to the lack of maturity of the market itself? Given the evidence on forecast accuracy and variance in China relative to the U.S., we do not believe that investors in China look to less relevant, backward-looking information to guide their behavior towards securities because they do not know any better or lack the skill to evaluate the forecast process. Instead, we believe that the evidence here points to the fact that the forecast process in China is much less refined and accurate relative to the

U.S. and, therefore, investors optimally look to the next best substitute, actual earnings information. However, the explanation of our results is not rigorous and would be an interesting avenue for future research.

CONCLUDING REMARKS

Cornell and Landsman and Atiase et. al. provided insights into investor uses of backward-looking and forward-looking earnings information and their results were somewhat contradictory (even though Atiasi et. al. examine management earnings guidance instead of analysts' earnings forecasts). We have attempted to address this issue further, providing evidence consistent with Cornell and Landsman that forward-looking earnings data has greater security price relevance than backward-looking earnings data in a well-developed, mature investing market. However, this result does not hold in a less developed, less mature investing market such as China. Our original hypothesis was that investors in China would place relatively more weight on backward-looking earnings announcement data than investors in the U.S. To our surprise, not only do investors in China place more *relative* weight on backward-looking earnings announcement data, but they also place more *absolute* weight on such information.

The U.S. financial market has had over 100 years of active trading by individuals, reporting of earnings by companies, and forecasting of earnings by analysts. There are many regulations and safeguards in place, analysts have a wealth of experience, and investors have a wealth of experience interpreting and acting on both pieces of earnings information. In other markets, there is a much shorter trading history, fewer regulatory safeguards, less experience reporting by companies, and less experience forecasting by analysts. Our study makes the case that factors such as these can substantially affect how investors use current earnings and future earnings forecast information to guide their behavior. We believe that the less mature nature and refinement of forecasting in China mainly drives the observed difference between the U.S. and China, but we cannot conclude so with scientific certainty.

This research is a scratch in the surface in the analysis of inter-market investor differences in the uses of information. The international dimension of this issue is fertile ground for considerable future research in terms of both documenting and explaining inter-market differences.

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