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A comparison of investors' sentiments and risk premium effects on valuing shares

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Abstract

This paper investigates at what extent deviations between market share prices and their fundamental values can be explained by risk premium and/or investors' sentiment effects. This is done based on recent panel data econometric techniques controlling for the effects of unobserved common factors on our estimation and inference procedures. To calculate the fundamental values of the shares, the paper relies on book value and yearly earnings forecasts of the listed companies, over period 1987-2012. The results of the paper indicate that share price deviations from their fundamental values can be explained by both risk premium and sentiment effects. The latter lead to overvaluation of market share prices during normal market time times. In contrast, during periods of financial crises, share prices tend to reverse to their fundamental values. The unobserved common factors identified by fitting our model into the data do not add too much to the explanatory power of it, compared to the observed economic variables often used in the literature to capture the sentiment and/or risk premium effects.

JEL classification: G12, G14, G15

Keywords: share prices, risk premium, sentiments, panel data, firm specific effects.

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1 Introduction

Based on Ohlson's (1995) share price valuation model, this paper examines if deviations of share prices from their fundamental values can be explained by missing risk premium effects (see, Fama and French (1993,2014)) and/or investors' behavioral biases (e.g., excessive optimism or other psychological characteristics referred to as investors' sentiments, see De Bondt and Thaler (1987), Barberis et al (1998), and Baker and Wurgler (2006)). Ohlson's model has the following attractive features. It treats investment in a share as a balance sheet factor, and not as one that reduces cash flows (see Penman and Sougiannis (1998)). It relies its valuation on the book value of a firm, which is a readily available variable, and on the present value of future abnormal earnings for some years ahead, which can be obtained from financial statement data announced by firms. Thus, it avoids making assumptions about future dividends processes.

Our empirical methodology employs recently developed panel data econometric techniques controlling for the effects of unobserved common factors on the explanatory power of regressors capturing risk premium and/or sentiment effects. Identifying these factors and measuring their explanatory power on share prices can indicate at what extent compared to the observed ones can explain cross-sectional and time-series, total variation of share prices from their fundamental values. The data used in our analysis includes 37 companies from the FTSE 100 index, traded continuously in the UK stock market between years 1987 and 2012. This period covers a number of extraordinary events, like the years 1987, 1997, 2001, 2008 and 2010 stock markets crises, which may have triggered behavioral effects on share prices.

The paper is organized as follows. Section 2 presents the share price valuation model, while Section 3 the empirical methodology of the paper and it discuss the estimation results. Section 4 concludes the paper.

2 Share valuation

Ohlson's model (see also Feltham and Ohlson (1995)) suggests that the fundamental (theoretical) value of share i, at time t (denoted P^*_{it}), is determined by the book value and discounted future abnormal earnings, i.e.,

$$P^*_{it} = B_{it} + \sum\nolimits_{\tau=1}^{n} \frac{\mathcal{E}_t(E_{it+\tau} - r_f B_{it+\tau-1})}{(1+r_f)^{\tau}}, \text{ for all } i, \tag{1}$$

where $B_{it+\tau-1}$ and $E_{it+\tau}$ respectively denote the book value and company (firm) earnings per share, r_f is the risk-free interest rate (known as discount factor), $\mathcal{E}_t(.)$ denotes the expectations' operator conditional on the current t-time information set I_t and $E_{it+\tau} - r_f B_{it+\tau-1}$ presents the abnormal earnings of firm i in future period $t+\tau$. These earnings constitute the difference between firm's i earnings $E_{it+\tau}$ and its opportunity cost of capital. As competition forces, earnings $E_{it+\tau} - r_f B_{it+\tau-1}$ are assumed to converge to zero. Thus, they are set to zero in (1), after period $t+n$.

As it stands, model (1) does not allow for risk premium and/or investors' sentiment effects. These effects can explain deviations between the fundamental values of share prices, P^*_{it}, and their market values, denoted as P_{it}. Risk premium effects are expected to reduce the actual (market) share price P_{it}, at time t, compared to its fundamental value P^*_{it} in order to discount for possible future loses, or reductions, in future earnings $E_{it+\tau} - r_f B_{it+\tau-1}$. Such loses will require higher expected returns on a share i, compared to that implied by its fundamental value P^*_{it}. On the other hand, investors' sentiment effects will tend to overvalue price P_{it} during periods of optimism of the market. In contrast, in periods of financial crises (often associated with bubbles burst), sentiment effects will have reverse effects on P_{it} (see, Brown and Cliff (2004), Shan and Gong (2012), and Smales (2014)). These will tend to revert P_{it} towards its fundamental value P^*_{it}.

3 Empirical analysis

To investigate the relative importance of risk premium and/or sentiment effects in explaining deviations of share prices from their fundamental values, i.e., $P_{it} - P^*_{it}$, we consider the following panel data model:

$$P_{it} - P_{it}^{*} = c_i + \sum_{j=1}^{J} \beta_{ij} z_{ijt} + \sum_{k=1}^{K} \gamma_{ik} x_{kt} + \delta_i SENT_t + u_{it}, \text{ for } i = 1, 2, ..., N \text{ and } t = 1, 2, ..., T, \tag{2}$$

where u_{it} stands for the error term which has a common factor representation, i.e.,

$$u_{it} = \sum_{m=1}^{M} a_{im} f_{mt} + e_{it}, \ with \ e_{it} \sim IID(0, \sigma_e^2). \tag{3}$$

Model (2) considers three different groups of variables in explaining $P_{it} - P_{it}^{*}$. The first contains variables z_{ijt}, reflecting J-different firm specific effects, like the size of a firm i (denoted as $SIZE$), its earning-price, and its book-to-market and dividend-price ratios, denoted respectively as E/P, B/M and D/P. These variables can capture the Fama-French risk premium factors. The second group, defined by variables x_{kt}, includes K-observed macroeconomic variables reflecting business cycle movements of the risk premium (see Ferson and Harvey (1993) and Flannery and Protopapadakis (2002)). These variables are common, for all shares i. They often include the GDP growth rate ($GROWTH$), inflation rate (INF), the term spread between the long and short term interest rates ($TERM$), the discount interest rate factor (DF) and the real effective exchange rate ($EXCH$), as well as the stock market aggregate return ($MARKET$), used by the CAPM to price the market risk premium effects. Finally, the last group of explanatory variables contains those capturing investors' sentiment effects (denoted as $SENT$).

One attractive feature of model (2) is that, apart from observed economic variables, it allows for M-unobserved common factors f_{mt} to explain price deviations $P_{it} - P_{it}^{*}$. Estimating the model with these factors can evaluate if there are any remaining factors with significant explanatory power on $P_{it} - P_{it}^{*}$, beyond those captured by the observed economic variables considered above. The relative importance of these factors on $P_{it} - P_{it}^{*}$ can be assessed by a fit performance measure of the model, like the coefficient of determination R^2 and/or an information criterion. Panel data methods enable us to estimate the time series observations of factors f_{mt} from the residuals of model (2), obtained in a first step, by exploiting the cross-section dimension of the data.

3.1 Data

Our data is expressed in nominal values and have annual frequency. They are available from the Datastream. The market share prices P_{it} are are obtained 15 days after the announcement date of the yearly financial statements of the listed companies. This is done in order to share prices absorb any market news incorporated in the financial statements of the firms. On the other hand, the fundamental prices P_{it}^{*} are calculated based on data for earnings and book values on the date of the yearly financial statement announcements.[1] The variable of $SIZE$ is calculated as the market share price P_{it} times the number of shares in circulation (see Fama and French (1993)).

More specifically, B_{it} is calculated based on data of the balance sheet and E_{it} is obtained from the profits and loss accounts. E_{it} is used to calculate future abnormal earnings (denoted as AE), given by $AE = \sum_{\tau=1}^{N} \frac{\mathcal{E}_t(E_{it+\tau} - r_f B_{it+\tau-1})}{(1+r_f)^{\tau}}$, where $E_{it+\tau}$ is calculated for $N = 5$ periods ahead and the forecasts of $B_{it+\tau}$ are obtained as $B_{it+\tau} = B_{it+\tau-1} + E_{it+\tau} - D_{it+\tau}$, where $D_{it+\tau}$ denotes the forecast of dividend per share in period $t + \tau$ (see Lee et al (1999)). This is estimated using the current dividend payout ratio k as $D_{it+\tau} = E_{it+\tau} \times k$.

The macroeconomic variables used in our analysis are measured as follows. $GROWTH$ is the UK GDP growth rate, INF is based on the UK consumer price index, $TERM$ is the difference between the yield of the 10-years government bond and three-month T-bill interest rate, DF is the three-month T-bill rate and $EXCH$ is the percentage change of the real effective exchange rate. The stock market annual return ($MARKET$) is calculated based on the FTSE100 UK price index. The sentiment variable $SENT$ is the percentage change of sentiment index, denoted as SI. This index is a weighted average of individual confidence indicators, such as the industrial confidence indicator, services confidence and financial services confidence indicators, consumer confidence indicator, retail trade confidence indicator and construction confidence indicator. Compared to consumer confidence indicator often used in empirical studies to proxy sentiment effects (see, Schmeling (2009)), SI may give a more representative measure of investors' sentiments conditions held in the economy, at any point of time.

[1] These data are available on annual basis. Earnings forecasts are based on combined estimates of the analysts about a company's earnings per share that concerns the next fiscal year. They are based on projections, models and research on the future plans of companies.

Table 1 presents descriptive statistics of price deviations $P_{it} - P_{it}^*$ and the different groups of explanatory variables of model (2), including correlation coefficients. As in other studies, the results of the table indicate that the average values of E/P, B/M, D/P and $MARKET$ are positive over our sample. With the exception of B/M, D/P and $SENT$, all the other variables exhibit substantial volatility. The average value of $P_{it} - P_{it}^*$ is 1.5 and it is different than zero at the 5% level of significance, which is consistent with the sentiment hypothesis predicting that $P_{it} > P_{it}^*$ due, for instance, to investors' excess optimism. However, the standard deviation and minimum value of $P_{it} - P_{it}^*$ reported in the table indicate that there is high probability of a negative value of $P_{it} - P_{it}^*$ (i.e., $P_{it} < P_{it}^*$) for some sample points of our data, as predicted by the risk premium hypothesis. Finally, the results of the table indicate that there is a very small degree of correlation between the firm specific and macroeconomic variables of the model, which means that these two different groups of variables may be thought of as independent sources of risks. The sentiment variable $SENT$ is found to be correlated more with macro variables $TERM$ and $EXCH$ than with $GROWTH$.

Table 1: Summary statistics

	$P_{it}-P^*_{it}$	E/P	B/M	D/P	$SIZE$	DF	$MARKET$	$SENT$
Mean	1.49	0.13	0.56	0.04	-0.08	5.83	2.10	-0.97
SD	3.34	1.33	0.48	0.03	0.35	(3.81)	6.87	9.89
Min	-21.23	-2.84	-1.12	0	-3.22	0.24	-16.32	-19.49
Max	23.49	26.60	4.25	0.31	1.79	14.48	13.06	24.43

Correlation Coefficients

	$P_{it}-P^*_{it}$	E/P	B/M	D/P	$SIZE$	DF	$MARKET$	$SENT$	$GROWTH$	INF	$TERM$	$EXCH$
$P_{it}-P^*_{it}$	1	-0.08	-0.45	-0.23	0.15	-0.06	0.05	0.06	-0.05	-0.05	-0.005	0.09
E/P		1	0.15	-0.01	0.06	-0.08	-0.00	0.01	-0.06	0.02	0.07	0.02
B/M			1	0.48	-0.18	0.15	-0.06	-0.10	0.07	0.16	-0.10	-0.05
D/P				1	-0.25	0.12	-0.04	-0.10	0.02	0.08	-0.07	-0.04
$SIZE$					1	0.06	0.31	0.21	0.11	-0.04	0.08	0.15
DF						1	0.23	-0.24	0.65	0.60	-0.69	0.23
$MARKET$							1	0.17	0.13	-0.03	0.03	0.20
$SENT$								1	0.14	-0.24	0.40	0.31

Notes: The table presents summary statistics of price deviations $P_{it} - P^*_{it}$ and the different groups of explanatory variables of model (2), including correlation coefficient values among all of them.

3.2 Estimates

To estimate model (2), we will employ the mean group panel data estimator (see Pesaran and Smith (1995)). This gives consistent estimates of the mean of slope coefficients β_{ij}, γ_{ij} and δ_{ij}, over all cross-section units of the panel i. In our analysis, we employ an extension of this estimator which also allows for the unobserved common factors in the RHS of the model f_{mt}. These factors are obtained by applying principal component analysis to the residuals of model (2) estimated, separately, for all individual units of the panel i, in the first step. The estimates of f_{mt} are included as regressors in the RHS of the model, in the second step. The augmented by the estimates of f_{mt} specification of the model will be also estimated by the group mean estimator.

Estimates of model (2), with and without unobserved factors f_{mt}, based on the above estimation procedure are presented in Table 2. To evaluate the relative importance of the sentiment and risk premium effects in explaining variations of $P_{it} - P^*_{it}$, the table presents estimates of the model for five different specifications of it. The first includes in the RHS of the model only the variable capturing sentiment effects, i.e., $SENT$, while the second includes only the group of the firm specific variables z_{it} $(E/P, B/M, D/P,\ SIZE)$. The third includes only the set of macroeconomic variables ($GROWTH, INF, TERM, EXCH$, $MARKET$), while the fourth includes all the above different groups of variables, simultaneously. Finally, the fifth specification of the model includes the unobserved factors f_{mt} found to have important effects on $P_{it} - P^*_{it}$. To choose the total number of factors f_{mt} included in the model, we rely on the Akaike information criterion (AIC).

In addition to the above, in Table 2 we also consider two other specifications of the model. The first (see Column VII) employs the percentage change of the consumer confidence index, denoted as CC, instead of the sentiment variable $SENT$, while the second (see Column VIII) includes a dummy variable (denoted as $CRISIS$) into the RHS of the model to capture reversals effects of investors' sentiment on share prices. These effects are often associated with periods of collapsing bubbles (financial crises), where share prices P_{it} tend to revert to their fundamental values P^*_{it}. In particular, for our sample $CRISIS$ takes the value of unity for the year following a bubble burst, and zero otherwise. Since P_{it} (or P^*_{it}) are measured in the begging of each year, in our sample variable $CRISIS$ takes unity in years 1988, 1998, 2002 and 2008, following the financial crises effects of years 1987, 2001 and 2008, respectively. The interaction of variable $CRISIS$ with $SENT$ (or CC), defined as $CRISIS \times SENT$, can capture the negative sentiment effects on share prices P_{it}, discussed above.

The results of Table 2 indicate that, across all the alternative specifications of the model estimated, the variable capturing investors' sentiment effects ($SENT$) has significant and positive impact on price deviations $P_{it} - P^{*}_{it}$. This variable interactively with the firm specific or macroeconomic variables explain a significant proportion the total variation of $P_{it} - P^{*}_{it}$. The effects $SENT$ on $P_{it} - P^{*}_{it}$ remain significant, even if these two groups of variables and unobserved factors f_{mt} are included into the RHS of the model. The estimate of the slope coefficient of $SENT$ for the results of Column VIII has the interpretation that, during normal times, 1% growth in the economic sentiment indicator causes a 2 pence increase in P_{it} relative to P^{*}_{it}, ceteris paribus. The consumer confidence variable CC is also found to be significant at 8% level. The negative estimates of slope coefficients of $CRISIS$ and $CRISIS \times SENT$ are also consistent with the predictions of the sentiment hypothesis for financial crises periods. These are due to corrections of share prices P_{it} to their fundamental values P^{*}_{it}.

Table 2: Estimates of alternative specifications of model (2)

	I	II	III	V	VI	VII	VIII
$CONST$	1.54 (5.52)	5.32 (8.62)	3.18 (4.04)	6.54 (7.19)	6.03 (7.40)	6.11 (7.34)	6.12 (7.25)
$CRISIS$							-0.74 (-1.40)
$SENT$	0.19 (5.52)			0.01 (1.96)	0.02 (2.50)		0.02 (2.14)
$CRISIS \times SENT$							-0.13 (-1.82)
CC						0.13 (1.71)	
E/P		0.05 (1.10)		0.02 (0.50)	0.06 (1.32)	0.05 (1.12)	0.05 (1.11)
B/M		-0.08 (-3.59)		-0.06 (-4.42)	-0.05 (-4.20)	-0.05 (-3.65)	-0.04 (-3.77)
D/P		-0.34 (-3.20)		-0.36 (-2.62)	-0.26 (-1.98)	-0.37 (-2.61)	-0.49 (-3.00)
$SIZE$		0.01 (0.04)		0.44 (1.10)	0.36 (0.99)	0.27 (0.78)	0.21 (0.70)
$GROWTH$			-0.08 (-1.53)	-0.13 (-2.24)	-0.09 (-1.20)	-0.06 (-0.76)	-0.04 (-0.52)
INF			-0.02 (-0.16)	0.05 (0.37)	0.05 (0.30)	0.052 (0.34)	0.09 (0.62)
$TERM$			-0.35 (-4.48)	-0.35 (-3.72)	-0.40 (-3.83)	-0.42 (-3.81)	-0.40 (-3.89)
$EXCH$			0.07 (4.36)	0.05 (2.43)	0.05 (2.49)	0.05 (2.34)	0.05 (2.52)
$MARKET$			0.05 (3.43)	0.01 (0.41)	0.02 (1.29)	0.01 (1.24)	0.01 (0.66)
DF			-0.19 (-3.00)	-0.13 (-1.78)	-0.20 (-2.64)	-0.21 (-2.93)	-0.19 (-2.97)
f_1					-0.06 (-0.09)	0.02 (0.04)	-0.09 (-0.14)
f_2					-2.12 (-5.26)	-2.09 (-5.36)	1.94 (-5.40)
f_3					-1.19 (-3.44)	-1.08 (-3.19)	-1.63 (-3.75)
$RMSE$	2.62	1.98	1.81	1.24	0.54	0.55	0.44
AIC	4889.83	4642.92	4864.54	4630.63	4458.95	4459.32	4462.93
R^2	0.02	0.20	0.04	0.22	0.24	0.24	0.23

Notes: t-statistics are reported in parentheses.

The second conclusion that can be drawn from the results of Table 1 is that the firm specific variables explain a bigger percentage of the total variation of price deviations $P_{it}-P_{it}^{*}$ than the macroeconomic variables. Taking together these two groups of variables increase significantly the explanatory of model (2), which, in terms of R^2, reaches to level 22%. The augmentation of the model with unobserved factors f_{mt} increase only by 2% the explanatory power of the model. These results indicate that most of the variability of $P_{it} - P_{it}^{*}$ may be attributed to non-systematic (noise) factors, which are not associated with systematic factors f_{mt} and the different groups of observed explanatory variables considered by the model.

Turning into the discussion about the sign effects of the firm specific and macroeconomic variables on $P_{it} - P_{it}^{*}$, the results of the table indicate the following. The effects of B/M and D/P on $P_{it} - P_{it}^{*}$ are negative which is consistent with the risk premium hypothesis and the Fama-French model. An increase in B/M or D/Y reduces share price P_{it} relative to P_{it}^{*} in order to P_{it} reflect risk premium effects, compensating investors for possible loses of firms' future growth opportunities and earnings (see Bhar and Malliaris (2011)). Moreover, the negative relationship between $P_{it} - P_{it}^{*}$ and B/M can be attributed to the fact that value firms, embodied all their value in the book value, do not have any future growth and earnings opportunities. Thus, their current prices P_{it} should discount possible loses of this lack of earning opportunities. A similar argument can be put forward for variable D/P. An increase in dividends (D) decreases the retained earnings of a company resulting in lower future investment and growth opportunities.

Regarding the group of macroeconomic variables, our results indicate that $TERM$, $EXCH$ and DF have a significant impact on $P_{it} - P_{it}^{*}$, at the 5% level, for all the specifications of the model considered. Economic growth ($GROWTH$) is found to be significant, at the 5% level, only for the specification of the model without factors f_{mt}. The signs of the estimates of the slope coefficients of the above all macroeconomic variables are consistent with those reported in the literature (see Ferson and Harvey (1991)). They can be given the interpretation of reflecting cyclical movements of the risk premium on $P_{it} - P_{it}^{*}$. The negative estimates of the slope coefficients of variables $TERM$ and DF can be taken to reflect potential loses in share prices driven by future increases in interest rates, while those of $GROWTH$ may reflect deteriorating conditions in future growth prospects of the firms.

Finally, the positive sign of the estimate of the slope coefficient of $EXCH$ is also consistent with the risk premium hypothesis. It can be attributed to the fact that an increase in effective real exchange rate means an improvement of the international competitiveness of the domestic economy which, in turn, decreases the currency risk of share prices.

To see if our above conclusions remain robust to endogeneity issues, arisen from the contemporaneous correlation between our explanatory variables and error terms u_{it}, in Table 3 we present estimates of model (2) without unobserved factors f_{mt} based on the first-difference, two-step GMM estimator (see Arellano and Bond (1991)). Instead of f_{mt}, to capture the adjustments of past share prices on $P_{it} - P^*_{it}$ note that all the specifications of the model estimated include in its RHS the one-period back price deviations $P_{it-1} - P^*_{it-1}$ as a dynamic regressor. The regression diagnostics reported at the bottom of the table are all very supportive of the above dynamic specification of the model. As a final, note that the table also presents estimates of the versions of model including dummy variable $CRISIS$ and using variable CC to capture sentiment effects, instead of $SENT$.

The results of Table 3 do not change the main conclusions drawn above, based on the results of Table 2. They indicate that the effects of investors' sentiments on $P_{it} - P^*_{it}$ become stronger than those based on the mean group estimator. This is also true for the specification of the model including variable $CRISIS$ into its RHS. As before, the negative estimates of slope coefficients of variables $CRISIS$ and $CRISIS \times SENT$ (or $CRISIS \times CC$) reflect corrections of prices P_{it} to their fundamental values P^*_{it}, occurring in periods of financial crises. The estimates of the slope coefficients of dynamic variable $P_{it-1} - P^*_{it-1}$ are also found to be significant and their positive sign means that they may capture mean reversion effects of P_{it} to P^*_{it} due to price corrections triggered by investors' positive (or negative) sentiment effects.

Regarding the status of significance of the remaining explanatory variables of the model, this seems to change only for variable $SIZE$. This variable now becomes significant at the 5% level, for all the versions of the model considering the effects of financial crises on $P_{it} - P^*_{it}$. The positive relationship between this variable and $P_{it} - P^*_{it}$ may reflect investors' judgements that large cap stocks provide higher prices compared to small cap stocks (see Baker and Wurgler (2006)), since they are associated with lower risk of bankruptcy due to their size. This is in line to the behavioral approach of share valuation.

Table 3: GMM estimates of model (2)

	I	II	III	V
$P_{it-1} - P^*_{it-1}$	0.53 (27.29)	0.54 (31.39)	0.52 (23.12)	0.52 (20.36)
$CRISIS$			−0.59 (−6.01)	−0.28 (−3.43)
$SENT$	0.004 (1.96)		0.006 (2.10)	
CC		0.03 (2.21)		0.01 (0.33)
$CRISIS \times SENT$			−0.1 (−8.72)	
$CC \times SENT$				−0.19 (−1.97)
E/P	0.00 (0.90)	0.00 (0.47)	0.00 (0.99)	0.00 (0.24)
B/M	−0.01 (−2.94)	−0.007 (−3.74)	−0.007 (−2.66)	−0.006 (−2.71)
D/P	−0.01 (−0.44)	−0.02 (−0.94)	−0.001 (−0.03)	−0.01 (−0.45)
$SIZE$	1.56 (10.56)	1.53 (12.11)	1.48 (7.36)	1.57 (9.65)
$GROWTH$	−0.07 (−5.87)	−0.07 (−5.25)	−0.03 (2.07)	−0.06 (−4.56)
INF	0.03 (2.53)	0.04 (3.26)	0.02 (1.16)	0.01 (0.41)
$TERM$	−0.14 (−7.94)	−0.13 (−5.33)	−0.12 (−6.47)	−0.13 (−4.80)
$EXCH$	0.04 (7.54)	0.04 (7.87)	0.04 (5.11)	0.04 (6.30
$MARKET$	0.02 (6.45)	0.02 (5.98)	0.01 (2.77)	0.02 (5.06)
DF	−0.05 (−3.09)	−0.05 (−3.08)	−0.05 (−2.47)	−0.05 (−2.05)
$p\text{-}value_{OIT\ stat}$	1	1	1	1
$p\text{-}value_{AB(1)}$	0.033	0.033	0.034	0.030
$p\text{-}value_{AB(2)}$	0.320	0.324	0.308	0.316

Notes: The table presents GMM (generalized method of moments) estimates of model (2) based on the Arellano-Bond estimator. This estimator considers the first difference of the model in the estimation procedure. We instrument the first differenced RHS variables using lagged values of the original regressors. $p\text{-}value_{OIT\ stat}$ is the p-value of Hansen's over-identification test statistic, while $p\text{-}value_{AB(1)}$ and $p\text{-}value_{AB(2)}$ are the p-values of the Arellano-Bond test statistics for AR(1) and AR(2) autocorrelation in the residuals of the model.

4 Conclusions

Based on a share valuation model which relies on analysts' earnings forecasts and book values, this paper shows that deviations of the market share prices from their fundamental values can be explained both by risk premium an/or investors' sentiment effects. The paper provides clear cut evidence that positive sentiment effects (due, for instance, to investors' optimism) lead to overvaluation of the current market share prices, compared to their fundamental values. On the other hand, sentiment effects occurring in periods of financial crisis, often associated with collapsing bubbles, lead to share price corrections to their fundamental values. Regarding the risk premium effects, the results of the paper show that these can be captured by firm specific variables, like the book-to-market and dividend-price ratios, and macroeconomic variables, like the spread between long and short term government yields, the change of the three month T-bill rate and the effective real exchange rate.

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