Predicting Equity Prices in the Hotel, Restaurants, and Leisure Industry: A Regression Analysis Using Financial Metrics

I. Introduction

The Hotel, Restaurants, and Leisure industry is an essential part of the global economy, attracting significant attention from investors and analysts. This research aims to predict equity prices in this sector by analyzing key financial metrics, including EPS, BVPS, DTA, and MV. The purpose of the study is predictive, focusing on developing a reliable regression model to forecast equity price movements. Such insights are particularly relevant for investors, financial analysts, and industry stakeholders seeking to make informed decisions. By exploring these relationships, the research contributes to a deeper understanding of financial dynamics in this important industry.

II. Previous Research

There has been a lot of previous research, but none right on point with this.

III. Methodology

This study uses cross-sectional secondary data from the S&P 1500, collected via FactSet on November 30, 2024, comprising 47 observations. Graphical techniques such as histograms and scatterplots were employed for visualization, while descriptive statistics, correlation, and regression analyses provided deeper insights. The analysis, conducted entirely in Excel, offers a systematic approach to predicting equity prices within the dataset.

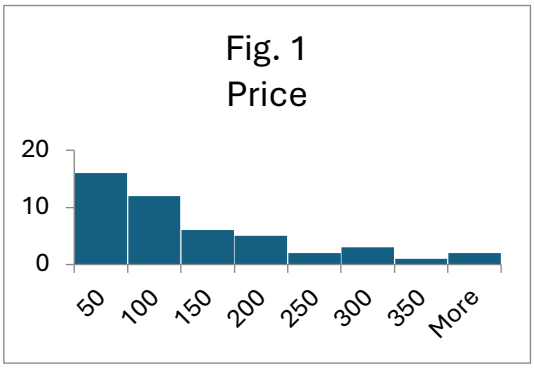
$$\text{Eqn. 1} \qquad \text{Price} = f\ (\ \text{EPS}^{+},\ \text{bvps}^{+},\ \text{dta}^{-},\ \text{mv}^{+})$$

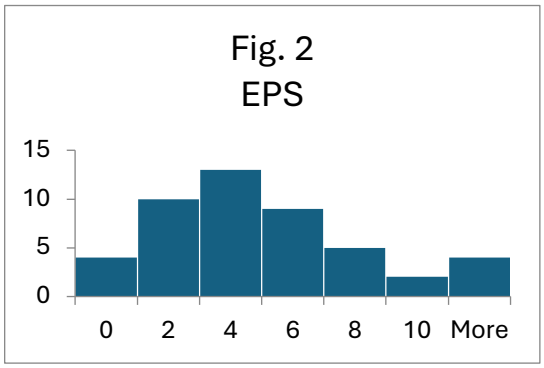
$$\text{Eqn. 2} \qquad \text{Price} = \alpha + \beta_{EPS}*\text{EPS} + \beta_{bvps}*\text{bvps} + \beta_{dta}*\text{dta} + \beta_{mv}*\text{mv}$$

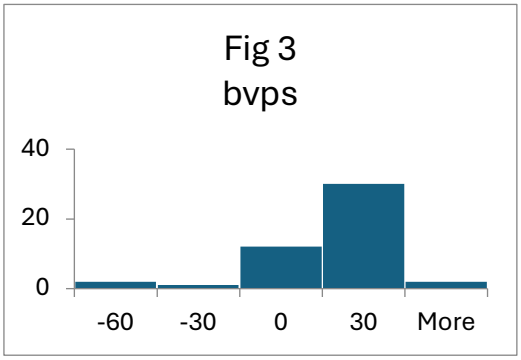
$$\text{Eqn. 3} \qquad \text{Price} = a + b_{EPS}*\text{EPS} + b_{bvps}*\text{bvps} + b_{dta}*\text{dta} + b_{mv}*\text{mv}$$

IV. Results

a. Histograms







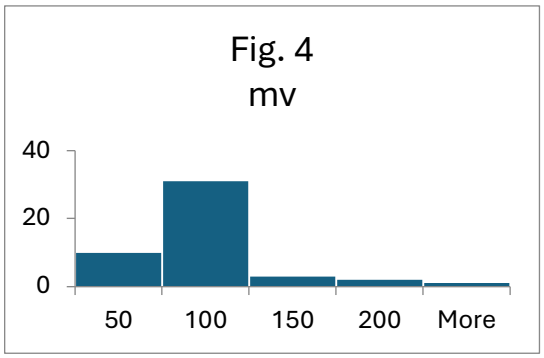
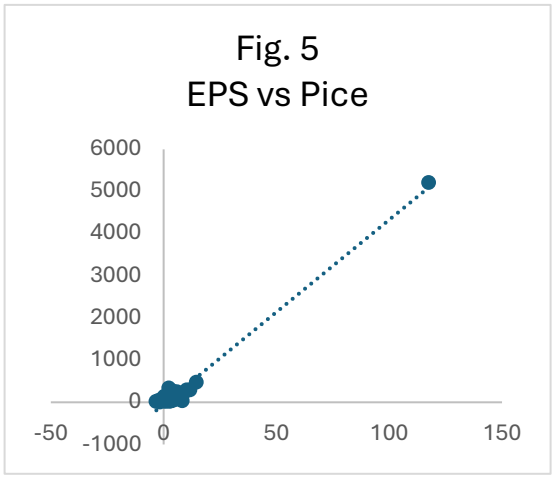
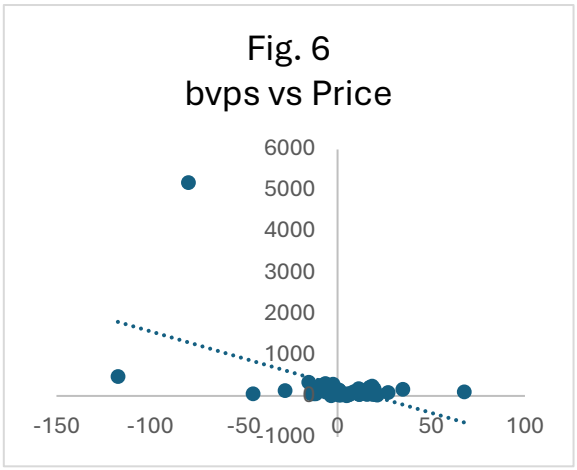
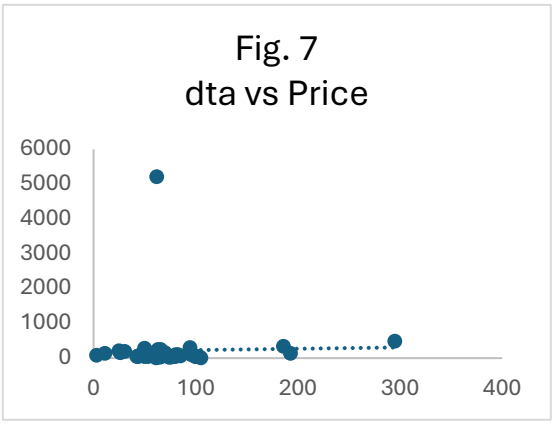


Fig. 1 and Fig. 4 are right-skewed, while Fig. 2 and Fig. 3 have irregular distributions.

b. Scatter plots:







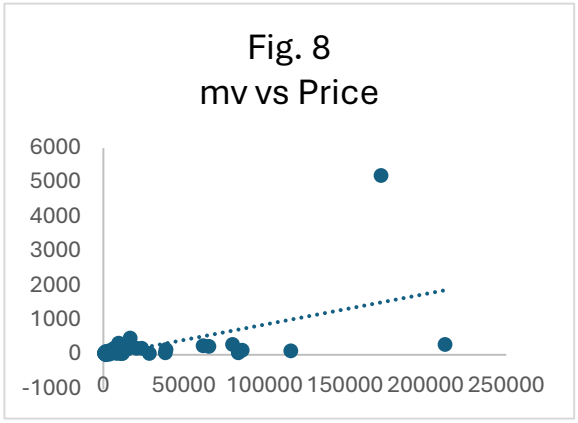


Fig. 5 and Fig. 8 show a strong positive linear relationship, while Fig. 6 displays a weak positive relationship, and Fig. 7 reveals a moderate negative relationship.
In Fig. 5, the dot alone at the top represents "Booking Holdings Inc.", which we consider an outlier. Similarly, in Fig. 6, the dot alone on the left-hand side represents "Domino's Pizza Inc.", and we will remove both outliers, bringing our number of observations to 45 for a more accurate analysis.

c. Table 1: Descriptive Statistics

	Price	EPS	bvps	dta	mv
μ	104.42	3.50	6.66	68.26	23360.35
Median	84.01	3.19	6.28	64.95	8178.37
StdDev	82.40	3.04	17.42	34.95	39735.04
k	0.56	0.44	3.65	5.20	11.34
Sk	1.12	0.38	0.22	1.69	3.08
Range	324.86	14.79	112.68	190.13	211249.53
Min	3.91	(3.22)	(45.24)	2.96	877.07
Max	328.77	11.56	67.44	193.08	212126.60

d. Table 2: Correlation Matrix

	EPS	bvps	dta	mv
Price	0.593	(0.070)	0.121	0.511

The correlation results largely align with the original hypotheses: EPS and MV show positive relationships with Price, while DTA has a weak positive correlation, and BVPS shows an almost negligible relationship with Price. However, the weak correlation between BVPS and Price does not fully support the hypothesis that BVPS should have a positive impact on equity price.

e. Table 3: Regression Results

Eqn. 4	P = 19.7 + 12.7 * EPS + 0.05 * bvps + 0.38 * dta + 0.0006 * mv				
t-stat	(0.62)	(3.34)	(0.07)	(1.04)	(2.02)
p-value	(0.54)	(0.002)	(0.95)	(0.31)	(0.05)

n = 43 r-sq. = 44% F = 7.696 SE = 64.47

F-test: The model is statistically significant, meaning at least one independent variable affects Price.

R-squared: 44% of the variation in Price is explained by the independent variables.

Standard Error: The average prediction error is 64.47, indicating moderate variability.

Significant Coefficients: EPS (12.7, p = 0.002) and MV (0.0006, p = 0.05) significantly impact Price while BVPS and DTA are not significant and should be removed from the equation.

Interpretations for the slopes:

- As EPS increase by one dollar the equity price increase by $12.7 on average.
- As mv increase by one dollar the equity price increases by $0.0006 on average.

V. Conclusion

The research was successful, as it identified EPS and MV as significant predictors of equity price, while BVPS and DTA were not predictive. The model captured a meaningful portion of the variation in equity prices, although there remains room for improvement due to moderate error levels. Public policy implications may include emphasizing the importance of earnings and market confidence in determining stock values. Future research could improve by increasing the sample size, including more relevant variables, or using longitudinal data to assess trends over time.

VI. Appendix - Dataset used

Symbol	Name	Price	EPS	bvps	dta	mv
YUM	Yum! Brands, Inc.	138.94	5.6035	-27.96441	193.083	38774.24
WYNN	Wynn Resorts, Limited	94.38	6.3223	-2.24976	95.86031	10364.34
WH	Wyndham Hotels & Resorts, Inc.	98.18	3.404	9.16462	54.82271	7637.354
WING	Wingstop, Inc.	328.77	2.3504	-15.58958	186.171	9604.122
WEN	Wendy's Company	18.36	0.9665	1.5082	73.71277	3742.596
MTN	Vail Resorts, Inc.	179.24	6.0702	19.30188	53.43265	6714.772
TNL	Travel + Leisure Co.	55.87	5.2133	-12.85161	85.08459	3821.794
TXRH	Texas Roadhouse, Inc.	205.27	4.5403	17.09344	25.2928	13694.4
SBUX	Starbucks Corporation	102.46	3.3069	-6.57159	82.33464	116169.1
FUN	Six Flags Entertainment Corporation	46.19	2.4182	-11.53119	103.4277	4631.875
SHAK	Shake Shack, Inc. Class A	133.73	0.4616	11.23305	47.89944	5681.32
SABR	Sabre Corporation	3.91	-1.5635	-3.65804	105.0021	1508.689
RCL	Royal Caribbean Group	244.06	5.9965	18.42259	62.9928	65621.7
PLNT	Planet Fitness, Inc. Class A	99.55	1.6237	-1.33298	80.79118	8428.762
PENN	PENN Entertainment, Inc.	21.59	-3.2216	21.12862	62.10593	3295.269
PZZA	Papa John's International, Inc.	49.83	2.4759	-14.13112	101.2073	1626.532
NCLH	Norwegian Cruise Line Holdings Ltd.	26.89	0.3888	0.70687	75.54919	11823.76
MCRI	Monarch Casino & Resort, Inc.	84.01	4.2027	26.87793	2.957519	1544.865
MGM	MGM Resorts International	38.34	3.1908	11.67101	65.46275	11415.37
MCD	McDonald's Corporation	296.01	11.5647	-6.43607	94.55766	212126.6
VAC	Marriott Vacations Worldwide Corporation	99.25	6.2759	67.44187	54.20455	3464.933
MAR	Marriott International, Inc. Class A	289.09	10.1783	-2.34735	50.10906	80336.21
LNW	Light & Wonder, Inc.	95.04	1.7527	8.5	70.82133	8392.781
LVS	Las Vegas Sands Corp.	53.06	1.5961	5.46554	65.66259	38469.89
JACK	Jack in the Box Inc.	48.85	-1.8749	-45.23753	99.78928	919.8722
H	Hyatt Hotels Corporation Class A	157.94	2.0422	34.59088	26.26042	15168.3
HLT	Hilton Worldwide Holdings Inc.	253.44	4.322	-9.3101	65.71002	61783.56
HGV	Hilton Grand Vacations, Inc.	42.39	2.8047	19.96014	52.88428	4174.933
GDEN	Golden Entertainment, Inc.	33.74	8.3089	18.7566	50.10922	925.4529
EXPE	Expedia Group, Inc.	184.62	5.3053	11.19336	30.64874	23695.24
DPZ	Domino's Pizza, Inc.	476.19	14.6638	-117.2132	295.0062	16445.3
PLAY	Dave & Buster's Entertainment, Inc.	39.32	2.8795	6.23789	79.86896	1545.327
DRI	Darden Restaurants, Inc.	176.27	8.5066	18.86627	51.93049	20711.81
CBRL	Cracker Barrel Old Country Store, Inc.	55.56	1.8338	19.82381	49.7748	1233.672
CHDN	Churchill Downs Incorporated	142.11	5.4836	11.99463	69.51379	10444.62
CHH	Choice Hotels International, Inc.	151.24	5.0716	0.71877	70.22468	7094.264
CMG	Chipotle Mexican Grill, Inc.	61.52	0.8868	2.23307	44.03056	83826.73
CAKE	Cheesecake Factory Incorporated	50.64	2.0663	6.27934	65.48085	2584.652
ABNB	Airbnb, Inc. Class A	136.11	7.2387	12.79781	11.13958	86289.88
CCL.U	Carnival Corporation	25.43	-0.0586	5.44462	64.92467	28544.02
CZR	Caesars Entertainment Inc	38.49	3.6389	21.12909	77.32123	8178.37

EAT	Brinker International, Inc.	132.27	3.3982	0.87556	64.9511	5876.503
BYD	Boyd Gaming Corporation	73.85	6.1162	17.64706	57.11729	6527.536
BKNG	Booking Holdings Inc.	5201.98	117.4104	-79.7729	61.63421	172168.4
BLMN	Bloomin' Brands, Inc.	13.94	2.5648	4.70425	61.28392	1182.712
BJRI	BJ's Restaurants, Inc.	38.44	0.8218	15.77644	42.49075	877.0672
ARMK	Aramark	40.69	0.9862	11.51388	43.92038	10740.03