

# FUNDAMENTAL ANALYSIS FROM VALUE DRIVERS: THE CASE OF BANKING, INDUSTRIAL, CONSUMER GOODS, HEALTHCARE AND TECH FIRMS LISTED ON THE JOHANNESBURG STOCK EXCHANGE

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## ABSTRACT

*Fundamental trends usually drive the market price of a stock. A healthy and good security is usually reflected in its fundamentals and can be used to provide the direction of trade for investors and investment practitioners. Fundamental drivers can last for years and at times minutes. The purpose of this study was to use fundamental value drivers to provide signals for stocks in the banking, industrial, consumer goods, healthcare and technology firms listed on the Johannesburg stock exchange (JSE). Using a sample of 56 firms from different sectors and a multiple regression analysis, the findings reveals that 50% of the largest 10 firms in the banking sector according to market capitalisation are undervalued. In the industrial sector, 44% of the largest 14 firms where undervalued. Furthermore, only 36% of the 14 largest firms in the consumer goods sector are undervalued while 44% and 45% of the largest 9 and 11 firms in the healthcare and Tech firms respectively listed in the JSE are undervalued. These findings can be used to provide suitable investment strategies for investors and industry practitioners.*

**Keywords:** Fundamental Analysis, Value Drivers, Market Efficiency, Asset Pricing, Johannesburg Stock Exchange, Price Earnings Ratio, Earnings Per Share.

## INTRODUCTION

Most firms have specific fundamental value drivers that can significantly propel the business to profitability because of the impact it has on the success of the firm (Tiwari & Kumar, 2015). These value drivers are at times generic but can be industry or firm specific. Financial performance measures such as revenues, Earnings per share (EPS), price earnings ratio (P/E ratio), Earnings yield (E/Y), Book-to-market value per share are at times the most important value drivers because they provide strong indicators for the firm and can be used to gain valuable insights into the financial performance of a business (Panigrahi et al., 2014). It is worth noting that financial performance is not limited to profitability, other metrics such as expected future cash flows can be used to access the financial strength of a business. Fundamental analysis using value drivers derived from empirical methodologies has shown to be a useful tool for predicting a stock's future prospects (Segal, 2021). This is because fundamental analysis in the context of value drivers aims to discover the underlying variables that influence a particular security and predicts what buy/sell orders should be placed (Segal, 2021). In so doing, the analysis can be used to evaluate the aspects that affects the value of the security. In applying the concept of fundamentals, the intrinsic value, earnings, book values, price earnings ratios and fair values concepts are important considerations for analysis the prospect of a stock (Doblas et al., 2020). From an investor's perspective, intrinsic values are the cash flows that can be taken out of the company and be returned to the investor during the holding period of the stocks (Bhattacharyya, 2013).

Intrinsic values are significant and important for cash flow generating assets since they are a function of the magnitude of predicted cash flows (Subramanyam & Venkatachalam, 2001). Earnings events are important to investors for several reasons and have significant impact on the price of a stock where it can result in price volatility (Sharma & Chander, 2009). Public companies are required to publish their earnings reports at least once a year in order for investors and prospective investors to evaluate the performance of the firm. Although no single metric can tell the whole financial story, positive earnings announcement is very important as it shows how profitable the business has been. Most often, the actual earnings are benchmarked against the expected where earnings above the expected signals a strong firm and vice versa (Schrand & Walther, 2000). The market tends to absorb this information and the stock price jumps in the direction of earnings expectation (Fama, 1970). Fair values are more of a financial reporting concept where it represents the price that will be received if an asset is sold in the market (Chen, 2021) and assumes that the market participants are knowledgeable, independent and willing to enter into a transaction. There are basically three ways of determining the fair value of an asset which are the income approach, market approach and cost approach (Merriman, 2017). The market approach is considered important for the purpose of this study. Fundamental analysts are more interested in securities that have a market price below the intrinsic value and will seek the stock when the price exceeds the intrinsic value (Figurska & Wisniewski, 2016). Therefore, this study applied multiple regression to fundamental analysis to determine stocks that are overvalued and undervalued in the banking and retail industry.

## Purpose of Study

The main aim of this study is to use fundamental analysis to generate a value that an investor can weigh against the current price of the security with the goal of outlining the type of position to take that security whether it is under-priced therefore a buy or overpriced which is a sell.

## Hypothesis

Considering the purpose of this study, the hypothesis to be investigated are:

*H<sub>0</sub>: All the stocks in the banking, industrial, consumer goods, health care and Tech sectors are undervalued therefore a "Buy" signal.*

*H<sub>1</sub>: All the stocks in the banking, industrial, consumer goods, health care and Tech sectors are overvalued and therefore a "Sell" signal.*

*H<sub>2</sub>: Majority of the stocks in the banking, industrial, consumer goods, health care and Tech sectors are undervalued.*

*H<sub>3</sub>: Fewer stocks in the banking, industrial, consumer goods, health care and Tech sectors are undervalued.*

## LITERATURE

### Theoretical Concept

Asset pricing is the basic foundation of financial theories (Tallman, 1989). These theories are used to determine how much an investor is willing to pay for a stock. Theoretically, rational investors are willing to pay the present value of future cash flows of a stock, all things remaining constant, investors will pay more for higher expected earnings and

less for lower earnings (Ivanovska et al., 2014). As explained by Fama (1970), efficient markets fully reflect prices where these informational efficiencies stem from competition in profits, low transaction cost and readily available information. If there is information suggesting that the value of an asset will be higher in the future, competitive traders will purchase the asset today increasing its price. The competition to incorporate new information for profits means that prices should change quickly as new information develops. The fundamental index of investing proposes that if prices changes are based on new information and cannot be predictable then trying to predict prices should not be expected to improve the outcome (Malkiel, 2003). The concept of market efficiency proposes that prices are random and active managers should not be successful in beating the market and prices should change quickly based on new information (Fama,1970). Although this prediction attempts to describes real markets and prices do at times changes randomly, active managers do on average trail the market after cost (Investment institute company, 2021). Market efficiency and inefficiency is a very important concept in finance and is at the centre of investment valuation. This is because prices represent the best indication of a firm's value in an efficient market, where the valuation process is not justified. On the other hand, if markets are inefficient, implying that the market price does not reflect the firm's value, the valuation procedure to identify the firm's fair value is warranted. Inefficiencies in the market can be used to screen stocks in order to find undervalued securities (Latif et al., 2011). In essence, in an efficient market, a security's market price can be used as an impartial estimation of the stock's true value. Market efficiency implies that the probabilities of spotting undervalued assets should not be structured, and that random investment techniques will outperform fundamental analysis (Haqqani et al., 2021). However, there are several evidence contradicting the market efficiency concept where active managers have consistently beat the market south Africa (Heymans & Santana, 2018; Fusthane & Kapingura, 2017). When applied to this study, it can be suggested that the South African market is not efficient and fundamental analysis can be used to provide valuable investment advice. It is also worth noting that fundamental analysis emphasis on the use of financial statement in valuing stocks based on revenues, earnings profit margins and other relevant data.

## Review of Prior Literature

With regards to the literature on prior studies, not so much have been published on value drivers from fundamental analysis. More specifically, very few studies were found on this topic meaning very little research has been done around the niche area. The table 1 below presents a summary of the review on prior literature.

<b>Study (Author &amp; year of study)</b>	<b>Model</b>	<b>Period</b>	<b>Country</b>	<b>Key variables</b>	<b>Findings</b>
Akalu (2002)	Ordinary least squares	1 January 1994 to 31 December 1999	Netherlands	Free cash flow, net sales, operating cost, interest expense on long term debt, income taxes, fixed cost of investment, replacement cost of investment and working capital investment	Value drivers display similar trends across industries. Operating cost and interest expense significantly affects free cash flow.

Eriksson, Forsberg & Gustavsson (2011)	multiple regressions	2008 - 2011	United States	Free cash flow, Enterprise value to Earnings before interest, tax and depreciation (EV/EBITDA), price earnings ratio	EV/EBITDA and price earnings ratio are better measures of stock price return.
Ali (2014)	Multiple regression	2001- 2011	United Kingdom and United states	Price-to-Earnings, Price-to-Net Income, Price-to-EBITDA, Price-to-Sales, and Price-to-Book.	Price to sales and price to book drivers were the most consistent and significant drivers
Wafia, Hassan & Mabrouk (2015)	Qualitative review	2015	Italy and United Kingdom	Discounted Dividend Model, Discounted Cash Flow Model and Residual Income Model	The Residual Income Model is a better predictor of stock value.
Muhammad & Ali (2018)	Common effect model, fixed effect model, and random effect model	2007 to 2017	Pakistan	Profitability ratios, liquidity ratios, leverage ratios, and market-based ratios	Fundamental analysis can be used to predict the direction of trade and a security returns.
Daniswara & Daryanto (2019)	Regression analysis	2014 - 2018	Indonesia Stock Exchange	Earning Yield, Price Book Value, Return On Asset, and Return On Investment.	Earning Yield , Price Book Value, Return on Asset and Market Return has affecting stock return

Source: Author

From the above literature there is still a paucity of research that needs to be conducted on value drivers from fundamental analysis. None of the studies above highlights the main drivers of stock return and a propose buy/sell order from the fundamental analysis. Hence, this study fills in the gap in literature. Also, similar studies can be conducted in other markets using the same methodology.

## Methodology

A purposive sampling was used to select 58 firms in the banking, industrial, consumer goods, healthcare and Tech sector. More specifically, 10 firms from the banking sector, 14 from the industrial sector, 14 from the consumer goods sector, 9 from the healthcare and 11 from the tech sector respectively. The selection was based on the market capitalisation from the largest to the smallest. Large market capitalization stocks tend to pay consistent dividends and are less hazardous due to lesser volatility, resulting in adequate analytical coverage (Horton, 2021). The values for all the variables were retrieved on 23/December/ 2021 from yahoo finance providing an up to date market values. In line with the study of this study also used P/E, EPS, E/Y and book-market-ratio to estimate the coefficients of the independent variable in order to estimate the fair value. The values of P/E ratio, EPS were retrieved directly from yahoo finance while the E/Y, book value and book-to-market value per share were calculated based on the following formulas (Daniswara & Daryanto, 2019).

$$E/Y = \frac{EPS}{Stock\ price}$$

$$Book\text{-}market\text{-}value\ per\ share = \frac{Book\ value\ per\ share}{Stock\ price}$$

$$\text{Book value per share} = \frac{\text{Total equity}}{\text{Number of outstanding shares}}$$

These valuation multiples were applied to determine whether the stock is undervalued or overvalued where a multiple regression analysis was used in the valuation process. The choice of using a multiple regression was because fundamentals such as price-to-book and P/E ratios multiples can be used to value one stock at a time and cannot be applied to stocks with negative EPS or negative book values which make this approach more relevant. The model specification is highlighted below

$$\text{Stock price } it = \beta_0 + \beta_1 \text{ P/E } it + \beta_2 \text{ EPS } it + \beta_3 \text{ E/Y } it + \beta_4 \text{ Book-market-ratio } it + \epsilon_{\mu t}$$

Firstly, the coefficient for the independent variables were determined which were used to calculate the value factors. The value factors are the weighted average of the coefficients and the values of the independent values. The value factors were then multiples by the stock price to determine the fair values. The results and discussion is presented below Table 2.

### Data Results and Analysis

	Value Factor	Fair value	Signal	Stock price	EPS	P/E ratio	Book value per share
Standard bank	100%	13273.1	Buy	13229	12.54	1062.46	135.14
Firststrand	96%	5693.0	Sell	5918	4.77	1245.12	29.92
ABSA	115%	92599.8	Buy	80600	17.94	4528.68	186.67
Nedbank	100%	979.2	Buy	979	10.14	96.51	3026.75
Investec	109%	9037.6	Buy	8302	8.56	973.37	5.49
Capitec bank	91%	179533.8	Sell	196716	66.93	2965.32	258.72
Sanlam ltd	98%	5616.9	Sell	5737	4.81	1210.97	37.46
Discovery limited	92%	12611.0	Sell	13781	4.75	2924.48	70.67
Rand merchant	90%	3960.4	Sell	4407	1.88	2337.4	18.97
old mutual	103%	1291.8	Buy	1250	0.79	1580.6	14.72

	Price	Constant	Earnings yield (E/Y)	Book-to-market value per share	P/E ratio
Standard bank	100%	7.55915E-05	0.0009	0.0102	1062.46
Firststrand	100%	0.000168976	0.0008	0.0051	1245.12
ABSA	100%	1.24069E-05	0.0002	0.0023	4528.68
Nedbank	100%	0.00102145	0.0104	3.0917	96.51
Investec	100%	0.000120453	0.0010	0.0007	973.37
Capitec bank	100%	5.08347E-06	0.0003	0.0013	2965.32
Sanlam ltd	100%	0.000174307	0.0008	0.0065	1210.97
Discovery limited	100%	7.25637E-05	0.0003	0.0051	2924.48
Rand merchant	100%	0.000226912	0.0004	0.0043	2337.40
old mutual	100%	0.0008	0.0006	0.0118	1580.60

	<b>P/E ratio</b>	<b>Book-to-market value per share</b>	<b>E/Y</b>	<b>Constant</b>
<b>Coefficients</b>	0.0002	-2.53	825.97	254.37
<b>Standard error</b>	0.0000	0.22	71.49	141.57
<b>R-square</b>	0.9942			
<b>Adjusted R square</b>	0.8246			
<b>t-stat</b>	12.1448	-11.36	11.55	1.80
<b>p-value</b>	0.0000	0.0000	0.0000	0.1225

Source: Author

	<b>Value Factor</b>	<b>Fair Value</b>	<b>Signal</b>	<b>Stock price</b>	<b>EPS</b>	<b>P/E ratio</b>	<b>Book value per share</b>
Bidvest Group	92.7%	17212.3	Sell	18577	11.31	1648.83	84.7
Textainer group	70.2%	38378.6	Sell	54634	76.59	724.01	25.48
Barloworld limited	98.8%	14719.0	Sell	14896	13.76	1077.55	108.38
Imperial logistics	96.8%	6098.4	Sell	6300	4.89	1292.64	40.63
Super group limited	119.5%	4073.6	Buy	3410	2.84	1201.83	38.17
Kap Industrial	118.3%	496.7	Buy	420	0.38	1096.61	4.12
Reunert limited	102.5%	5284.5	Buy	5156	4.81	1082.33	40.52
Afrimat Limited	77.9%	4457.4	Sell	5725	5.34	1076	16.41
PPC limited	111.3%	578.8	Buy	520	0.55	948.62	4.46
Raubex group limited	101.9%	4055.3	Buy	3980	2.51	1599.04	25.84
Wilson Bayly Holmes	121.4%	13785.8	Buy	11354	5.94	1919.02	105.74
Murray & Roberts	35.4%	504.3	Sell	1425	-0.45	0	12.71
Mix Telematics	81.1%	669.4	Sell	825	0.39	1987.18	0.22
Mpact Limited	99.5%	3312.5	Sell	3330	3.04	1096.48	24.04

	<b>Price</b>	<b>Constant</b>	<b>Earnings yield (E/Y)</b>	<b>Book-to-market value per share</b>	<b>P/E ratio</b>
Bidvest Group	100%	5.38E-05	0.001	0.005	1648.830
Textainer group	100%	1.83E-05	0.001	0.000	724.010
Barloworld limited	100%	6.71E-05	0.001	0.007	1077.550
Imperial logistics	100%	0.000159	0.001	0.006	1292.640
Super group limited	100%	0.000293	0.001	0.011	1201.830
Kap Industrial	100%	0.002381	0.001	0.010	1096.610
Reunert limited	100%	0.000194	0.001	0.008	1082.330
Afrimat Limited	100%	0.000175	0.001	0.003	1076.000
PPC limited	100%	0.001923	0.001	0.009	948.620
Raubex group limited	100%	0.000251	0.001	0.006	1599.040
Wilson Bayly Holmes	100%	8.81E-05	0.001	0.009	1919.020
Murray & Roberts	100%	0.000702	0.000	0.009	0.000
Mix Telematics	100%	0.001212	0.000	0.000	1987.180
Mpact Limited	100%	0.0003	0.001	0.007	1096.480

	<b>P/E ratio</b>	<b>Book-to-market value per share</b>	<b>E/Y</b>	<b>Constant</b>
<b>Coefficients</b>	0.0003	48.83	326.80	30.73
<b>Standard error</b>	0.0001	18.12	168.62	0.30
<b>R-square</b>	0.9480			
<b>Adjusted R square</b>	0.8324			

<b>t-stat</b>	2.5864	2.69	1.94	0.30
<b>p-value</b>	0.0271	0.02	0.08	0.77

**Table 8**  
**FUNDAMENTAL RESULTS FOR THE CONSUMER GOODS SECTOR**

	<b>Value Factor</b>	<b>Fair Value</b>	<b>Signal</b>	<b>Stock price</b>	<b>EPS</b>	<b>P/E ratio</b>	<b>Book value per share</b>
Anheuser-Busch	78.70%	74464.7	Sell	94600	39.14	2427.43	39.72
British american Tobacco	105.50%	60892.2	Buy	57700	56.33	1030.52	27.44
Compagnie fin Richmont	82.00%	18712.9	Sell	22832	7.46	3092.83	31.61
Distell group	79.80%	13192.1	Sell	16530	8.78	1862.61	61.54
Tiger brands	85.10%	15040.5	Sell	17676	11.3	1576.02	87.48
AVI limited	83.90%	6253.2	Sell	7451	4.97	1488.74	13.33
RCL Foods limited	85.50%	1162.2	Sell	1360	1.12	1217.55	11.15
Astral foods limited	89.40%	15213.3	Sell	17026	12.17	1406	107.15
Oceana Group limited	117.80%	6526	Buy	5540	6.33	877.45	51.22
Metair Investment limited	135.60%	3575.1	Buy	2636	3.72	708.03	21.89
Libstar Holdings limited	127.20%	825.2	Buy	649	0.08	8036.15	9
Sea Harvest group	116.60%	1544.4	Buy	1325	1.66	800.12	9.99
RFG holding	76.00%	895.1	Sell	1177	0.82	1433.62	10.52
Quantum foods holdings	81.70%	436.9	Sell	535	0.53	1009.43	10.29

**Table 9**  
**FUNDAMENTAL RESULTS FOR THE CONSUMER GOODS SECTOR**

	<b>Price</b>	<b>Constant</b>	<b>Earnings yield (E/Y)</b>	<b>Book-to-market value per share</b>	<b>P/E ratio</b>
Anheuser-Busch	100%	1.06E-05	0.000	0.000	2427.430
British american Tobacco	100%	1.73E-05	0.001	0.000	1030.520
Compagnie fin Richmont	100%	4.38E-05	0.000	0.001	3092.830
Distell group	100%	6.05E-05	0.001	0.004	1862.610
Tiger brands	100%	5.66E-05	0.001	0.005	1576.020
AVI limited	100%	0.000134	0.001	0.002	1488.740
RCL Foods limited	100%	0.000735	0.001	0.008	1217.550
Astral foods limited	100%	5.87E-05	0.001	0.006	1406.000
Oceana Group limited	100%	0.000181	0.001	0.009	877.450
Metair Investment limited	100%	0.000379	0.001	0.008	708.030
Libstar Holdings limited	100%	0.001541	0.000	0.014	8036.150
Sea Harvest group	100%	0.000755	0.001	0.008	800.120
RFG holding	100%	0.00085	0.001	0.009	1433.620
Quantum foods holdings	100%	0.001869	0.001	0.019	1009.430

**Table 10**  
**FUNDAMENTAL RESULTS FOR THE CONSUMER GOODS SECTOR**

	<b>P/E ratio</b>	<b>Book-to-market value per share</b>	<b>E/Y</b>	<b>Constant</b>
Coefficients	0.000171	2.89	902.30	-163.17
Standard error	0.000032	31.74	145.46	275.33
R-square	0.960501			
Adjusted R square	0.848651			
t-stat	5.346260	0.09	6.20	-0.59
p-value	0.000325	0.93	0.00	0.57

	<b>Value Factor</b>	<b>Fair value</b>	<b>Signal</b>	<b>stock price</b>	<b>EPS</b>	<b>P/E ratio</b>	<b>Book value per share</b>
Aspen Pharmacare	112%	24683.7	Buy	22016	10.53	2131.17	144.18
Mediclinic international	80%	5142.6	Sell	6449	3.34	1962	4.02
Life healthcare group	102%	2379.4	Buy	2323	1.2	1951.79	13.18
Netcare Limited	136%	2044.7	Buy	1501	0.54	2847.15	7.91
Investec	41%	3432.6	Sell	8302	8.56	973.37	5.49
Adcock Ingram Holdings	75%	3767.9	Sell	5000	3.96	1260.79	28.95
Afrocentric investment corp	94%	475.4	Sell	505	0.51	988.26	5.68
Ascendis health limited	97%	74	Sell	76	-2.27	0	1.07
Advance health limited	102%	45.7	Buy	45	-0.05	0	0.36

	<b>Price</b>	<b>Constant</b>	<b>Earnings yield (E/Y)</b>	<b>Book-to-market value per share</b>	<b>P/E ratio</b>
Aspen Pharmacare	100%	4.54215E-05	0.0005	0.007	2131
Mediclinic international	100%	0.000155063	0.0005	0.001	1962
Life healthcare group	100%	0.000430478	0.0005	0.006	1952
Netcare Limited	100%	0.000666223	0.0004	0.005	2847
Investec	100%	0.000120453	0.0010	0.001	973
Adcock Ingram Holdings	100%	0.0002	0.0008	0.006	1261
Afrocentric investment corp	100%	0.001980198	0.0010	0.011	988
Ascendis health limited	100%	0.013157895	-0.0299	0.014	0
Advance health limited	100%	0.022222222	-0.0011	0.008	0

	<b>P/E ratio</b>	<b>Book-to-market value per share</b>	<b>E/Y</b>	<b>Constant</b>
<b>Coefficients</b>	0.0004	44.07	1.35	29.92
<b>Standard error</b>	0.0001	33.88	16.93	20.46
<b>R-square</b>	0.9337			
<b>Adjusted R square</b>	0.6939			
<b>t-stat</b>	3.4981	1.30	0.08	1.46
<b>p-value</b>	0.0173	0.25	0.94	0.20

	<b>Value Factor</b>	<b>Fair Value</b>	<b>Signal</b>	<b>Stock price</b>	<b>EPS</b>	<b>P/E ratio</b>	<b>Book value per share</b>
Prosus N.V	26%	31697.73342	Sell	122346	199.04	624.02	26.71
Naspers limited	25%	59163.53942	Sell	236005	558.08	427.9	97.85
Bytes Technolgy group	110%	595.7918408	Buy	543	9.3	58.53	0.06
Karoooo ltd	102%	53450.14299	Buy	52399	14.61	3619.57	56.16
Datatec ltd	121%	4677.883873	Buy	3871	0.92	4268.19	3.18
Capital appreciation limited	121%	205.8568835	Buy	170	0.13	1287.88	1.11
Alviva holdings limited	74%	1223.639731	Sell	1650	2.59	636.93	21.7
AYO Tech Solutions	124%	494.8696322	Buy	400	-0.6	0	12.99
EOH holdings	8%	46.27371295	Sell	605	-1.66	0	0.85
Adapt IT holding	83%	580.5719073	Sell	700	0.5	1391.65	5.84
Mustek limited	83%	1102.362584	Sell	1336	4.24	312.37	20.56

	<b>Price</b>	<b>Constant</b>	<b>Earnings yield (E/Y)</b>	<b>Book-to-market value per share</b>	<b>P/E ratio</b>
Prosus N.V	100%	8.17E-06	1.63E-03	2.18E-04	624.02
Naspers limited	100%	4.24E-06	2.36E-03	4.15E-04	427.90
Bytes Technolgy group	100%	1.84E-03	1.71E-02	1.10E-04	58.53
Karooooo ltd	100%	1.91E-05	2.79E-04	1.07E-03	3619.57
Datatect ltd	100%	2.58E-04	2.38E-04	8.21E-04	4268.19
Capital appreciation limited	100%	5.88E-03	7.65E-04	6.53E-03	1287.88
Alviva holdings limited	100%	6.06E-04	1.57E-03	1.32E-02	636.93
AYO Tech Solutions	100%	2.50E-03	-1.50E-03	3.25E-02	0.00
EOH holdings	100%	1.65E-03	-2.74E-03	1.40E-03	0.00
Adapt IT holding	100%	1.43E-03	7.14E-04	8.34E-03	1391.65
Mustek limited	100%	7.49E-04	3.17E-03	1.54E-02	312.37

	<b>P/E ratio</b>	<b>Book-to-market value per share</b>	<b>E/Y</b>	<b>Constant</b>
Coefficients	0.0003	32.44	51.70	104.52
Standard error	0.0001	17.13	32.68	101.48
R-square	0.7960			
Adjusted R-square	0.5657			
t-stat	2.7292	1.89	1.58	1.03
p-value	0.0294	0.10	0.16	0.34

Source: Author

The coefficients of P/E, E/Y and Book-to-market ratio are all positive as expected except in the banking sector where the book-market-ratio is negative Tables 2 to 16. Although, most of the p-values of these variables are not significant at 5% with the exception of the banking sector, the announcement of these positive value drivers such as P/E, EPS and book-market-value per share positively affect stock prices. This finding is in line with the findings of (Eriksson et al., 2011; Daniswara & Daryanto, 2019). A value factor of less than 100% indicates that the stock is backed up by a smaller proportion of the fundamental value meaning the stock is overvalued. On the other hand, a value factor of more than 100% means that the stock is undervalued. Therefore, stock highlighted in green are undervalued hence the “Buy” signal and stocks in yellow are overvalued with a “Sell” signal.

## CONCLUSION

These recommendations are based on the fact that the stocks are justified or not by the fundamental value drivers. It is also worth noting that the  $R^2$  and Adjusted  $R^2$  indicates that more than 50% of stock price volatility can be explained by the P/E ratio, E/Y and book-to-market ratio. In some cases, the variables accounted for more than 80% of the stock price. With regards to specific sectors the following can be concluded;

1. Banking sector – 50% of the largest 10 banks listed on the JSE are undervalued while 50% are overvalued
2. Industrial sector – Approximately 43% of the largest 14 firms in the industrial sector listed on the JSE are undervalued while 57% are overvalued.
3. Consumer goods sector – Approximately 36% of the largest 14 firms in the consumer goods sector listed on the JSE are undervalued while 64% are overvalued.
4. Healthcare sector – Approximately 44% of the largest 9 firms in the healthcare sector listed on the JSE are undervalued while 56% are overvalued.

5. Tech sector – Approximately 45% of the largest 11 firms in the Tech sector listed on the JSE are undervalued while 55% are overvalued.

From the above analysis, investing in selected firms in the banking and Tech sectors listed in the JSE will provide the optimal returns for investors. This is evident in the 50% and 45% of undervalued stocks in the market. From the above analysis, hypothesis 3 ( $H_3$ ) is accepted and  $H_0$ ,  $H_1$  and  $H_2$ , are all rejected.

### Significance of Study

This study empirically applied the concept of fundamental analysis in the different sectors on the JSE to provide insights on which stocks are good investment opportunities in the South African market and also makes inferences on the different sectors highlighted in section 1.1. The study uniquely combines multiple regression and value factor to determine the fair values which is the first study in the South African market as per the authors knowledge. Industry practitioners in other geographical regions can apply the same methodology in other markets.

### Limitation of the Study

The main limitation of this study is that it assumes that P/E ratio, E/Y, book-to-market ratio are the only determinants of stock price movements. However, there are other factors that should be considered when investing in equity securities such as governance of the firm, management capabilities and the amount and nature of tangible and intangible assets.

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