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# Assessment of the correlation between price-earnings ratio and stock market returns of universal banks in the Philippines

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### ABSTRACT

Universal banks are important economic drivers in the Philippines since they provide the financial backbone for businesses and investments. Universal banks comprise 90% of the country's banking system resources. Eleven [11] of the twenty-one [21] universal banks in the country are listed in the Philippine Stock Exchange, and these banks are the top universal banks based on capitalization. Price to Earnings Ratio [PER] is a commonly utilized investment assessment tool and this ratio indicates how much investors are willing to pay for a stock and is calculated as the ratio of the stock price over earnings per share. Since the stock price is dictated by the stock market, this paper seeks to determine if the P/E ratio of universal banks in the Philippines is correlated to its stock returns, the implication of which is how to form an appropriate balance between stock price volatility and banks' valuation. The paper uses panel data of the 11 listed universal banks from 2010 to 2018, using Pearson Correlation. The study resulted in a generally weak correlation, however, there were banks that exhibited strong, positive, significant correlation.

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## Introduction

The Philippines is a fast growing, developing country in Southeast Asia whose economy has several important economic drivers, one of which are universal banks. It is estimated that 90% of the country's banking system resources come from these banks, and to date, there are twenty-one [21] universal banks in the Philippines. According to the Bangko Sentral ng Pilipinas [BSP], universal banks offer the widest range of banking services that includes commercial banking, investment banking, and investment in non-allied equities. As of June 2019, overall total assets of universal and commercial banks is estimated at Php 16 trillion, with liabilities amounting to Php 14 trillion (BSP Website). Among the 21 universal banks, eleven [11] are listed in the Philippine Stock Exchange [PSE], and these banks are the top universal banks based on capitalization. It is necessary then that these banks undergo valuation to overcome economic and financial crises (Tabara & Vasiliu, 2011). Valuation of banks is significant to shareholders, interested and potential investors, government entities, management, and society at large because safety and profitability of funds are at stake (Gounder & Venkateshwarlu, 2017; Previtali, 2013). Banks that create value represents stability of economic systems, as evidenced by the recent financial crisis on how financial stability is a factor of confidence in banks, and a requisite for a well-grounded economic growth (Previtali, 2013). Bank valuation is relevant to policy makers as it examines whether transparency of government bailouts is necessary, as evidenced by the United States' Troubled Assets Relief Package [TARP] that included the Capital Purchase Program [CPP], in the same way bank managers need to assess the impact of accepting government intervention programs (Ng, Vasvari, &

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Moerman, 2015). Several valuation techniques have been developed by scholars and experts, one of which is the Price Earnings Ratio [PER]. Another term for PER is Price Earnings Multiple.

Most stock investments are focused on popular, global organizations but through rigorous readings made by this researcher, the interest to invest in universal banks that are owned in majority by Filipinos was awakened. The significant contribution of universal banks to the country's economy was the motivation for this paper because not only would it contribute to academic literatures but the much needed attention from stock investors that these banks deserve can be realized.

PER is one of the most useful financial indicators for stock valuation is the price-earnings ratio or PER or P/E multiple. PER provides assessment of value per unit of current firm's earnings to investors. Fundamentally, it shows how much investors are willing to pay per peso of earnings. Firms having higher PER are considered to have significant prospects for growth (Hillier et al., 2010). It indicates therefore, whether a stock is cheaper or expensive, cheaper stocks are the more valuable ones. Price-earnings ratio is also employed in valuations associated with corporate transactions. Management uses it to gauge performance relative to their peer groups. It aids them in strategizing needed funding for their company. It also helps investors make prediction into what firms' future performances may look like (Afza & Tahir, 2012). As such, PER is one of the ratios used in relative valuation methods to determine whether a particular firm is trading at higher or lower multiples than its peers (Larsen, Fabozzi, & Gowlland, 2013). Since top universal banks in the Philippines are publicly listed in PSE, the market largely influences prices of shares. This study examines the correlation of PER with stock market returns of the top 11 universal banks in the Philippines, and seeks to determine if a correlation exists. The results of this study would be valuable to investors since it would help predict stock return trends.

The objective of the study is to determine if correlation exist between stock returns and PER of universal banks, in order to gain the appropriate valuation needed since the economy of the country strongly depends on the strength and resiliency of these banks. The rest of the paper is organized as follows: literature review, research method, analysis of findings, conclusion, and recommendation. For uniformity purposes, stock return shall be referred to as stock price return, which is the change in stock price from previous to current year.

## Literature Review

### On relationship between stock return and Price-Earnings ratio

The study of Sezgin (2010) included empirically analyzing the relationship between PER and stock return for firms listed in the Istanbul Stock Exchange from year 2000 to 2009. The study showed stock returns to negatively impact PER in the long-run, and there is a unidirectional Granger causality from stock returns to PER, meaning, stock returns can predict PER but not vice-versa (Sezgin, 2010). The study of Fun & Basana (2012) examined the use of PER in predicting short-term and long-term stock returns. The study used Liquidity 45 stocks listed in the Indonesia Stock Exchange [IDX] with average holding period return as dependent variable and the P/E ratio as the independent variables (Fun & Basana, 2012). Using ordinary least squares regression (OLS), the study found that there is no significant relationship between P/E ratio and stock returns, and the implication is, investors may not earn a systematically above average return in liquid stocks with low P/E ratio (Fun & Basana, 2012).

The study of Wagdi, Sherif, & Azmy (2013) analyzed the correlation between common stock return and PER using data of Egyptian Exchange Index [EGX] from 2008 to 2015. The study showed no significant correlation between PER and common stock return (Wagdi, Sherif & Azmy, 2013). The study of Gacheri (2014) looked into the relationship between PER and stock returns in the Nairobi Securities Exchange, from 2008 to 2013. The study found no significant relationship between PER and stock returns, and this implied that PER alone is not sufficient to estimate stock returns (Gacheri, 2014). Arslan (2014) analyzed the impact of PER on future stock price using data of 111 non-financial firms listed in Karachi Stock Exchange. The study showed that PER significantly impacts stock price, and this criteria can be used to earn abnormal returns, and moreover, the positive impact of PER may even work as an indicator of economic recessions and unfavorable conditions in the market in the future (Arslan, 2014). The study of Jagannathan & Suresh (2015) concluded that there is no relationship between PER and stock price gains, using data of 500 firms included in S&P 500. This implies that stocks with low PER are not expected to perform better than stocks with high PER in the short-run (Jagannathan & Suresh, 2015). The study of Thalmann (2016) posited that there is substantial evidence that low PER strategies outperformed high PER strategies, and value stocks that were distinguished on the basis of PER were able to generate higher returns compared to growth stocks. Using market capitalization, PER, and monthly total returns of all firms listed in the SIX Swiss Stock Exchange from January 2005 to December 2015, the study found that the effect of PER exists for stocks over the period defined, and is confirmed to persist even in low interest periods, during times of market turbulence, and slow economic growth (Thalmann, 2016). The study of Kumar (2017) examined the impact of EPS and PER on stock market price using a sample of 8 companies in the automotive sector using Nifty auto index from 2011 to 2012, and 2015 to 2016. The study found PER to significantly impact prediction of stock market price of the sector as a whole (Kumar, 2017). The study of Baek & Lee (2017) investigated how structural changes in market PER affect long-term stock market returns. Data from monthly returns of S&P real prices, consumer price index, real earnings, real dividends, 10-year government security yields, and PER over a period of 142 years, from 1871 to 2012 were downloaded from Schiller's website (Baek & Lee, 2017). The study confirmed the inverse relationship between PER and long-run stock returns (Baek & Lee, 2017). The study of Ali (2017) explored the trend of PER and how it impacts fluctuations in

price in an emerging market, the Dhaka Stock Exchange. According to the study, no significant relationship exists between PER and stock price fluctuation (Ali, 2017).

The study of Bhargava and Malhotra (2018) analyzed if PER impacted price or yields of four [4] major stock market indices: S&P 500, MSCI World, MSCI Europe, and EAFE indexes using VECM and VAR methods to explore the relation, and Granger causality to test if the relation is causal was causal. According to the study, subsequent prices will increase and subsequent yields will decrease to an increase in the P/E ratio, and when adjustments for autocorrelation, heteroscedasticity, unit roots, and non-stationarity were made, PER do not significantly impact prices as expected, and have no significant impact on subsequent yields (Bhargava & Malhotra, 2018). The study of Musallam (2018) explored the relationship of financial ratios, one of which is PER and stock market returns of 26 companies listed in Qatar Stock Exchange. The study revealed that PER does not significantly impact market stock return. The study of Singh (2018) focused on the determinants of share price using closing annual stock prices of 26 non-financial companies listed in Muscat Securities Market in Oman. PER is found not to be statistically significant in impacting stock price (Singh, 2018). Banerjee (2019) investigated the impact of firm performance on stock return by analyzing how stock return can be predicted using financial ratios, one of which is PER. Using 30 companies listed in Dubai Financial Market and Abu Dhabi Stock Exchange, the study showed a weak correlation between PER and stock returns (Banerjee 2019).

There are varied findings on how PER impacts stock return but majority of the findings reveals that PER does not influence stock return. This was found in the studies of Sezgin (2010), Fun & Basana (2012), Gacheri (2014), Wagdi, Sherif, & Azmy (2013), Jagannathan & Suresh (2015), Ali (2017), Bhargava and Malhotra (2018), Musallam (2018), and weak correlation between PER and stock returns as revealed in the study of Banarjee (2019). On the other hand, the utility of PER is found in predicting stock prices, according to the study of Kumar (2017), but not in the study of Singh (2018). At present, to the best knowledge of this researcher, no study has been made yet in the Philippines, particularly in the sector of banking, as to PER's impact on stock market returns.

## Research and Methodology

### Research method

This paper utilizes correlation analysis of secondary data from financial statements of universal banks listed in the Philippine Stock Exchange. Data collection is from 2010 to 2018. Stock return is calculated using the following formula:

Stock Return = (Stock Price (Current Year) - Stock Price (Previous Year)) / Stock Price (Previous Year)

Price Earnings Ratio [PER] is calculated as:

$$PER = \frac{\text{Stock Price (Current Year)}}{\text{Earnings Per Share}}$$

Stock price is the market value of the share at the last trading day of each year; while earnings per share is the earnings per common share found in each firm's financial statements. Pearson correlation is used to evaluate the strength of relationship between return and PER. Pearson correlation

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

where: x and y are the variables PER and Stock Return; r is Pearson correlation. To determine strength of correlation, (Evans, 1996 as cited in "Pearson's Correlation") the following interpretations for the absolute values of r were suggested:

- 0.00 – 0.19 "very weak"
- 0.20 – 0.39 "weak"
- 0.40 – 0.59 "moderate"
- 0.60 – 0.79 "strong"
- 0.80 – 1.00 "very strong"

There are 21 universal banks in the Philippines, 11 of which are listed in the Philippine Stock Exchange [PSE]. As required for publicly listed firms, financial statements should be available and downloadable from the firm's company website. Financial statements are the main source of data and are retrieved in full from the websites. Stock prices were taken from PSE website. To protect anonymity of the 11 banks, names were withheld, and alphabetical codes Bank A, Bank B, Bank C, Bank D, Bank E, Bank F, Bank G, Bank H, Bank I, Bank J, and Bank K were used.

### Brief background of the selected universal banks

Bank A – a pioneer bank in the Philippines that offers a wide range of banking services for both retail and corporate clients. Among its products and services are deposits, loans, asset management, investment banking, and insurance. Its current market capitalization is estimated to be at P425 billion.

Bank B – a bank that was recently acquired by one of the country’s Filipino-Chinese business tycoon, with similar products and services as Bank A. Its current market capitalization is estimated to be at P642 billion.

Bank C – a bank that was initially organized to serve the financial needs of the Filipino-Chinese community, it later expanded its services to serve the banking and finance needs of all sectors of the Philippine economy. Its current market capitalization is estimated to be at P286 billion.

Bank D – a bank that started as a commercial bank in 1951, then got approval from the BSP to operate as a universal bank in 1994. Its current market capitalization is estimated to be at P146 billion.

Bank E – a bank that serves banking and finance needs of individual and enterprises, including overseas Filipino workers, the Philippine national government, government agencies, and local government units. Its current market capitalization is estimated to be at P76 billion.

Bank F – a bank that was the first privately owned, established in 1920, and was later listed in the PSE in 1927, and in 1991, it got the BSP approval to be converted to a universal bank. Its current market capitalization is estimated to be at P72 billion.

Bank G – a bank that formerly operated as a savings and mortgage bank established in 1968, it became a universal bank in 1992. Its current market capitalization is estimated to be at P73 billion.

Bank H – a bank that started as a development bank in a province in 1960, it was converted to a commercial bank in 1963, and later got its universal bank license to operate in 1989. Its current market capitalization is estimated to be at P52 billion.

Bank I – established in 1994 as a commercial bank, and in 2012 began its operation as a universal bank. Its current market capitalization is estimated to be at P27 billion.

Bank J – established in 1997 as a commercial bank that was a joint venture between Filipino businessmen and Taiwanese investment banks, in 2013, the bank became a universal bank. Its current market capitalization is estimated to be at P28 billion.

Bank K – a private bank that is one of the oldest in the country, it was established in 1916 as a bank for estate administration and trust services. It was later listed in PSE in 1988 and by 2007, it formally became a universal bank. Its current market capitalization is estimated to be at P111 billion.

Data gathered were analyzed using Statistical Package for Social Sciences SPSS version 23.

## Result and Discussion

### Descriptive statistics

Table 1 summarizes the descriptive statistics of Bank A to Bank K.

**Table 1:** Descriptive Statistics

	Return		PER	
	Mean	Standard Deviation	Mean	Standard Deviation
<b>Bank A</b>	0.113	0.278	17.85	1.902
<b>Bank B</b>	0.218	0.365	17.00	3.779
<b>Bank C</b>	0.149	0.289	12.62	2.208
<b>Bank D</b>	0.337	0.823	10.71	5.715
<b>Bank E</b>	0.169	0.571	11.17	3.911
<b>Bank F</b>	0.086	0.276	9.91	4.215
<b>Bank G</b>	0.162	0.298	8.20	2.464
<b>Bank H</b>	0.163	0.508	10.98	3.298
<b>Bank I</b>	0.054	0.378	6.76	2.559
<b>Bank J</b>	0.011	0.148	11.66	2.283
<b>Bank K</b>	0.115	0.128	82.19	49.723

**Source:** Authors

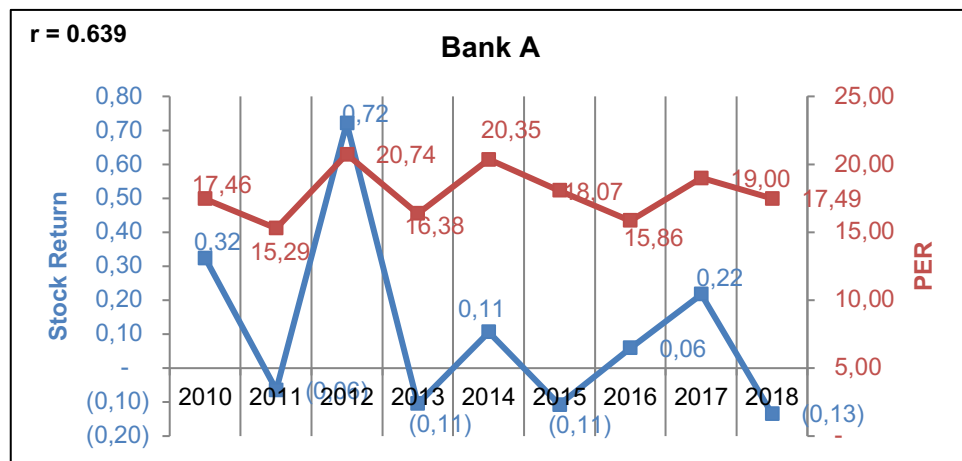
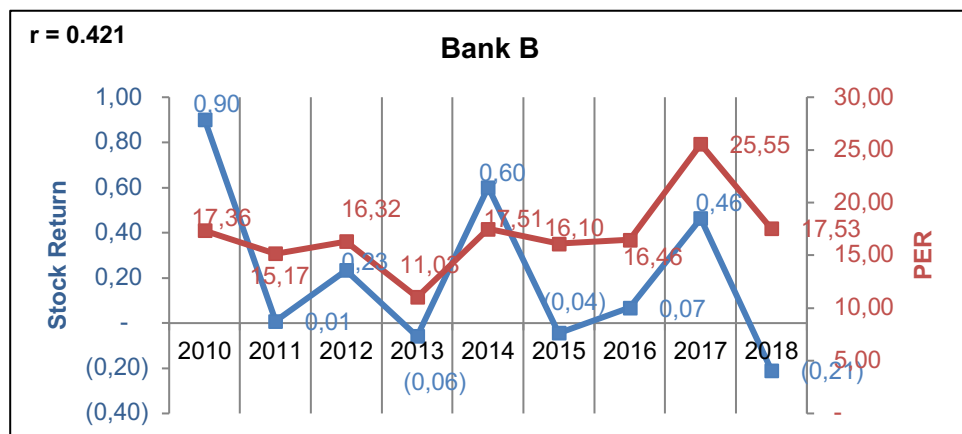
Except for Bank K, all banks have similar levels of standard deviation relative to the mean, for both stock return and PER.

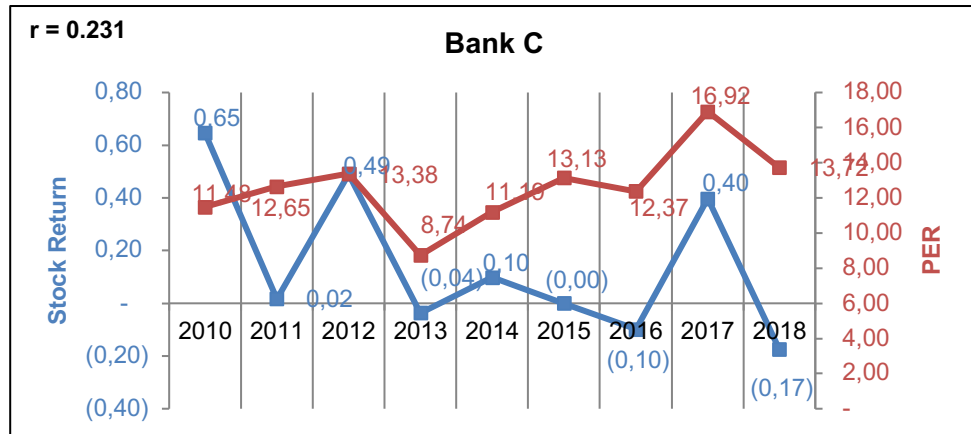
The correlation coefficient for stock return and PER are shown in Table 2

**Table 2:** Correlation Coefficients ( $p > 0.05$  is not significant)

	Correlation	Significance	Remarks
<b>Bank A</b>	<b>0.639</b>	<b>0.05</b>	<b>Strong, positive correlation, significant</b>
<b>Bank B</b>	0.421	0.24	Moderate, positive correlation, not significant
<b>Bank C</b>	0.231	0.48	Weak, positive correlation, not significant
<b>Bank D</b>	0.163	0.76	Weak, positive correlation, not significant
<b>Bank E</b>	0.010	0.90	Very Weak, positive correlation, not significant
<b>Bank F</b>	<b>(0.683)</b>	<b>0.025</b>	<b>Strong, negative correlation, significant</b>
<b>Bank G</b>	(0.460)	0.221	Moderate, negative correlation, not significant
<b>Bank H</b>	0.140	0.757	Weak, positive correlation, not significant
<b>Bank I</b>	0.159	0.396	Weak, positive correlation, not significant
<b>Bank J</b>	0.275	0.86	Weak, positive correlation, not significant
<b>Bank K</b>	(0.077)	0.804	Very weak, negative correlation, not significant

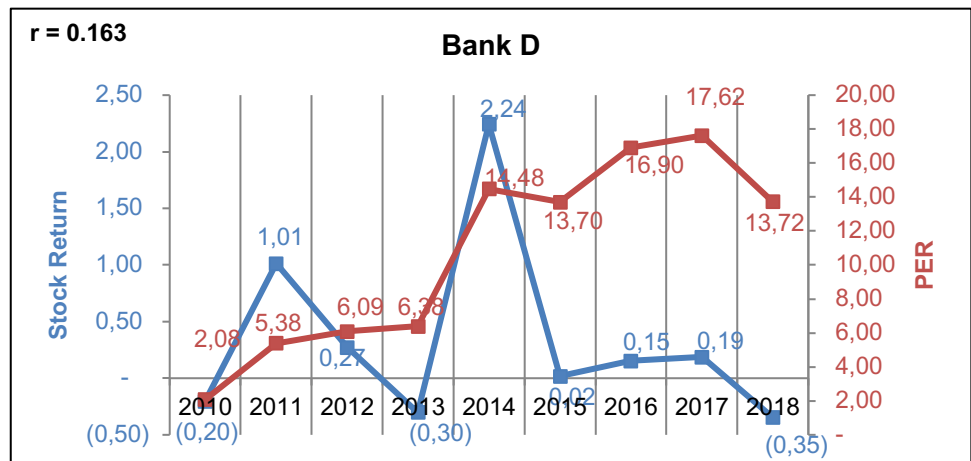
To further illustrate the correlation between the two variables, graphical representation of each bank's return and PER are shown in the succeeding graphs


**Figure 1:** For Bank A

**Figure 2:** For Bank B

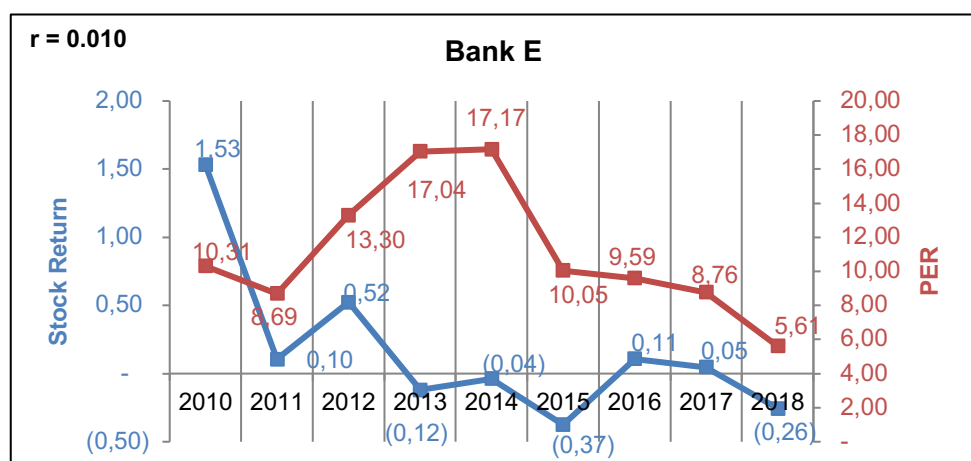


**Figure 3:** For Bank C

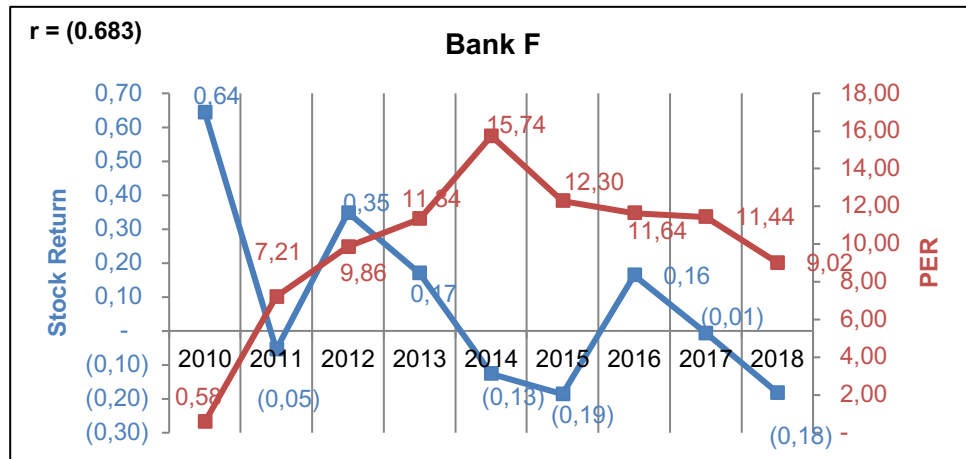
Banks A and B appear to have returns and PER that trends in a similar manner with slight deviations in 2015 and 2016. Bank C had trend deviation in 2015, then from 2016 to 2018, the two variables followed similar trends



**Figure 4:** For Bank D

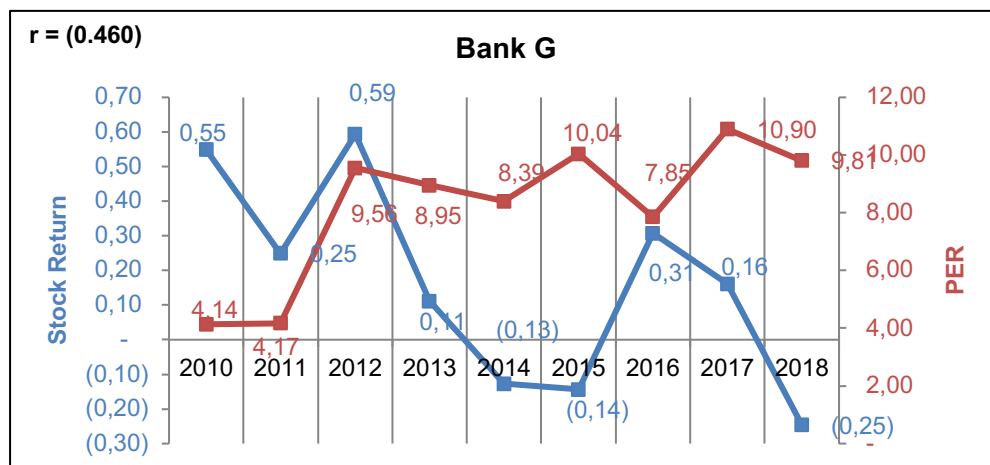


**Figure 5:** For Bank E



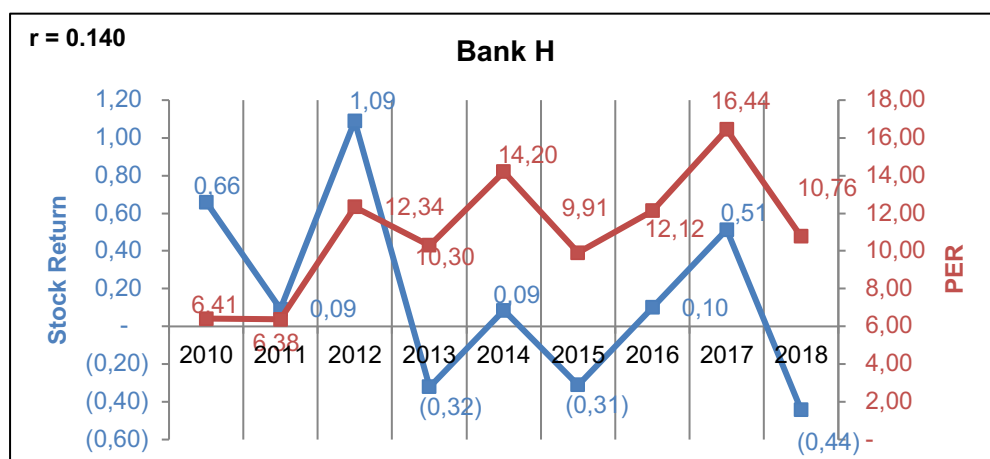
**Figure 6:** For Bank F

Bank D, E and F have patterns that became similar from 2016 to 2018, and deviations where observed between the years 2013 to 2016.



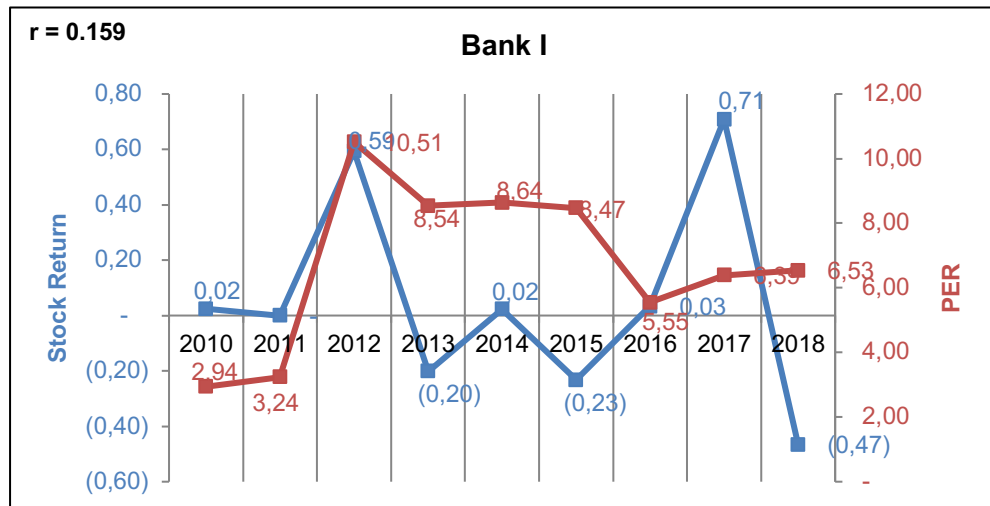
**Figure 7:** For Bank G

Bank G followed the same trend as Bank F

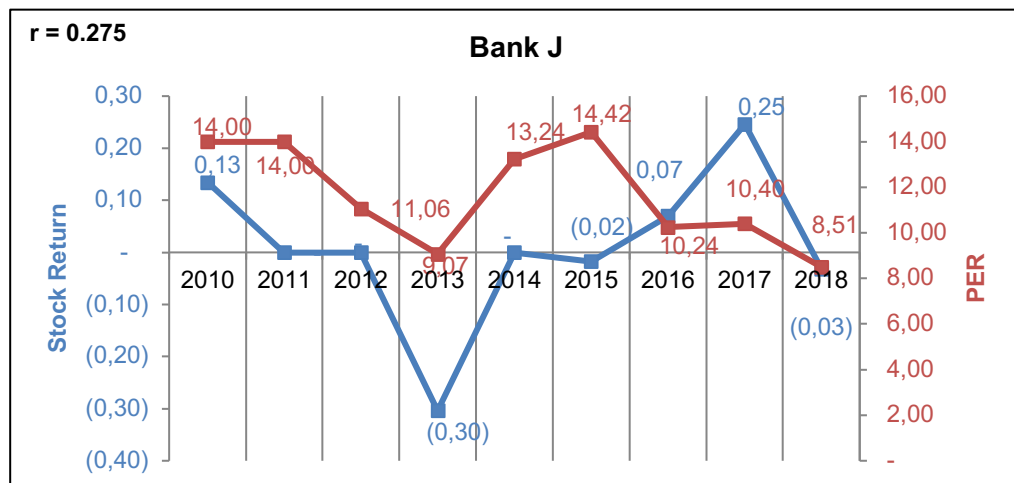


**Figure 8:** For Bank H

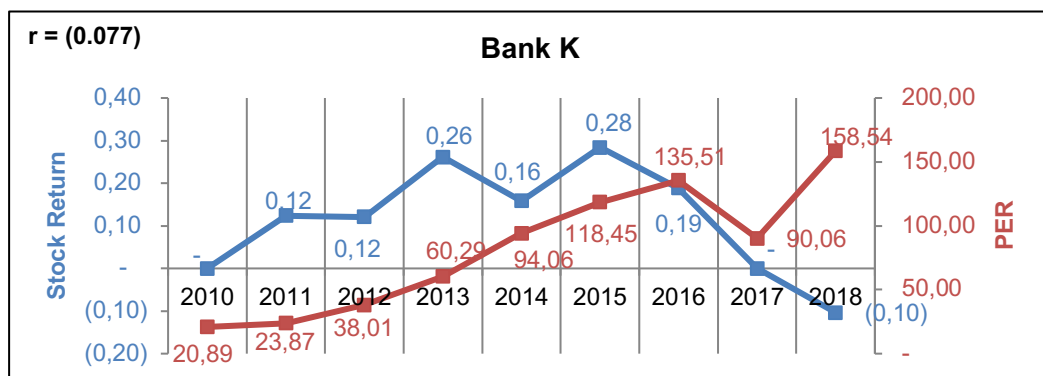
Bank H had similar trends as Bank A and Bank B



**Figure 8:** For Bank I



**Figure 9:** For Bank J



**Figure 10:** For Bank K



Banks I, J, and K did not follow any trend.

Banks A and F have correlations between stocks returns and PER that are strong, with Bank A having strong positive correlation, and Bank F having strong negative correlation. It is also noticeable that majority of the banks trended in similar manner from 2016 to 2018, such that when stock returns go up, so does the PER. According to a published report released by BSP during the second semester of 2016, the year marked a turning point for the banking system in the country because it was able to sustain the momentum for growth even with uncertainties in the global financial markets still lingering (BSP, 2016). The main driving force towards the growth of the banking system was streamlining of processes through technology, making it possible for banks to expand its reach (BSP, 2016). Oxford Business Group (2018) likewise reported that the banking sector in the Philippines has grown rapidly, almost at double digits per year from 2013 to 2017, making this sector highly liquid and well provisioned. This reflects an increasing predictability of returns among bank investments, particularly universal banks, since stock returns and following the pattern of PER. This means, PER prediction, using models that have been developed through research, can be a basis for forming stock return prediction

## Conclusions

The statistical results of the study reveal consistent findings with previous studies on the weak, insignificant relationship between stock returns and PER. However, it cannot be generalized for all universal banks because there are two banks, one of which is a major bank in terms of market capitalization that showed a positive, statistically significant, and strong correlation between the two variables. The other is a strong, negative, statistically significant correlation. The utility of this result is, investors can take advantage of choosing which bank to invest on, since the weak correlation cannot be standardized to be applicable to all banks. In other words, PER can be a basis for predicting future stock returns.

Another important finding is that almost all banks' (except for Banks I, J, and K) stock return and PER followed a similar trend beginning 2016 to 2018. This may be an indicator that PER is slowly gaining strength in predictability of stock returns, though previous periods showed the same trend.

The financial system of the Philippines is primarily bank-based, and still financial inclusion remain weak because less than 50% of the population save in banks, and a huge percentage of borrowers transact with informal resources (Llanto & Rosellon, 2017). This can be a challenge for listed universal banks since market attraction becomes an important driving force to increase value. On the other hand, the situation is also an opportunity because a larger percentage of the population still saves money at home. This means that universal banks can take aggressive, state-of-the art mediums to convince people to save in banks, engage in socially and economically enterprising activities that will boost borrowing, while enhancing their value in stock exchanges. Combining these will help strengthen current resiliency levels, and universal banks stock price returns become more predictable.

## References

- Ali, M. (2017). Movement of PE ratio and its impact on price fluctuations: a case study of Dhaka Stock Exchange in Bangladesh. *Global Journal of Management and Business Research*, 17(1), 1-9.
- Arslan, M. (2014). Impact of dividend yield and price earnings ratio on stock returns: A study on non-financial listed firms of Pakistan. *Research Journal of Finance and Accounting*, 5(19), 68-75
- Back, C., & Lee, I. (2017). U.S. Stock Market P/E ratios, structural breaks and long-term stock returns. *Journal of Business Economics and Management*, 19(1), 110-123. doi:<https://doi.org/10.3846/16111699.2017.1409263>
- Banarjee, A. (2019). Predicting stock return of UAE listed companies using financial ratios. *Accounting and Finance Research*, 8(2), 214-225. doi: 10.5430/afr.v8n2p214
- Bangko Sentral ng Pilipinas Website. [http://www.bsp.gov.ph/banking/pbs\\_new/12.htm](http://www.bsp.gov.ph/banking/pbs_new/12.htm)
- BSP. (2016). The Philippine Banking System. [http://www.bsp.gov.ph/downloads/Publications/2016/StatRep\\_2Sem2016b.pdf](http://www.bsp.gov.ph/downloads/Publications/2016/StatRep_2Sem2016b.pdf)
- Bhargava, V., & Malhotra, D. (2006). Do price-earnings ratio drive stock values? *The Journal of Portfolio Management*, 82-96.
- Fun, L.P., & Basana, S.R. (2012). Price earning ratio and stock return analysis (evidence from Liquidity 45 stocks listed in Indonesia Stock Exchange). *Jurnal Manajemen Dan Kewirausahaan*, 14(1), 7-12
- Gacheri, N. (2014). The relationship between price earnings ratio and stock return of firms listed at the Nairobi Stock Exchange. Thesis. University of Nairobi
- Hillier, D., Ross, S. A., Westerfield, R. W., Jaffe, J. F., & Jordan, B. D. (2010). *Corporate finance*. London: McGraw-Hill Higher Education.
- Kumar, P. (2017). Impact of earnings per share and price earnings ratio on market price of share: a study on auto sector in India. *International Journal of Research – Granthaalayah*, 5(2), 113-118. doi: <https://doi.org/10.5281/zenodo.345456>
- Llanto, G., & Rosellon, M. (2017). What determines financial inclusion in the Philippines? Evidence from a national baseline survey. Philippine Institute for Developmental Studies. <<https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps1738.pdf>>
- Mussalam, S. (2018). Exploring the relationship between financial ratios and market stock returns. *Eurasian Journal of Business and Economics*, 11(2), 101-116. doi:<https://doi.org/10.17015/ejbe.2018.021.06>

- Oxford Business Group. (2018). The outlook of the Philippine banking sector remains strong, with robust credit growth and ongoing reforms. <https://oxfordbusinessgroup.com/overview/stable-expansion-robust-credit-growth-and-ongoing-reforms-contribute-positive-sector-outlook>
- “Pearson’s Correlation”. Statstutor. <http://www.statstutor.ac.uk/resources/uploaded/pearsons.pdf>
- Sezgin, F. H. (2010). An empirical investigation of the relationship among P/E ratio, stock returns and dividend yields for Istanbul Stock Exchange. *International Journal of Economic and Finance Studies*, 2(1), 15–23.
- Singh, D. (2018). Stock price determinants: empirical evidence from Muscat Securities Market, Oman. *Intechopen*, 21-31. doi:<http://dx.doi.org/10.5772/intechopen.77343>
- Thalmann, G.-L. (2016). The Performance of SPI Stocks in Relation to their P/E Ratios. *Zurich University of Applied Sciences*, 1-45.
- Wagdi, O., Sherif, A., & Azmy, M. (2015). The correlation between common stock return and price earnings ratio [PER]: Egypt case. *SSRN*. 1-7. doi: <http://dx.doi.org/10.2139/ssrn.2783852>