Stock Price Determinants: Evidence From Philippine Stock Exchange Index Firms

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Abstract - **In the light of growing interest in capital markets, particularly those in the newly emerging economies, this paper attempted to identify the determinants of stock prices through regression analysis using secondary data. Through sample companies that make up the Philippine Stock Exchange Index, the researcher gathered stock prices from 2010 – 2015 and regressed it with independent variables covering company fundamentals and macro-economic figures. Results showed that book value per share and return on equity have a positive significant correlation to share price. A negative significant relationship however was noted between share price and current ratio. The book value per share emerged as having the greatest influence to share price because investors would expect that as the company increase in equity, the value of their investment is positively influenced. Other company fundamentals such as dividends per share and price earnings ratio, registered an insignificant negative effect to share price. Country specific factors were determined to be insignificant to share prices, though the model predicts different directions for each. Gold price, foreign exchange rate and inflation have insignificant negative effects to share prices. Meanwhile, the country's credit rating and the average annual lending interest rates by banks insignificantly impact share prices in a positive way. Further studies can be ventured into by increasing the number of observations and perhaps covering a longer period with a corresponding emphasis on 'noises' during those period. While many researches have been conducted to predict share price, this paper offers novelty to existing literatures by (1) combining macro-economic variables and company fundamentals in a regression model; (2) adding new variables such as current ratio and return on equity as significant predictors of share price; and (3) employing a two-step way of normalizing a continuous data which exhibits non-normality as developed by Tembleton (2010).**

Keywords - **current ratio, Philippine Stock Exchange Index Firms, return on equity, stock price determinants**

I. INTRODUCTION

As individuals and corporate investors are being lured to capital markets investing, additional information that would validate the value of shares being bought become a paramount concern. Researches from different parts of the world have contributed to existing literatures by trying to introduce models that would determine the variables affecting share prices. Malhotra (2013) in a study of 100 companies trading in National Stock Exchange in India determined that the firms' book value, earnings per share and price per earnings ratio have significant positive association with the firm's stock price, while dividend yield showed a significant inverse association with the firm's stock price. In another study covering Indian firms, Patel (2012) found out that certain macro-economic factors also influence the stock price of the firms. In his study, he concluded that interest rates, index of industrial production, money supply and commodity prices such as gold, silver and oil, are significant determinants of stock prices of Indian firms. In the Philippines, Menaje in 2012 studied that financial variables that could potentially affect the share prices of selected publicly listed firms. His study involved 50 listed firms and used data from 2009 financial reports these firms submitted. He found out that earnings per share had strong positive correlation with share price while return on asset showed weak negative correlation with share price.

This paper intends to propose a model that would predict the stock price of a publicly listed firm in the Philippines. Company fundamentals (book value per share, dividend per share, return on equity, current ratio, and price earnings ratio) and the macro-economic variables (interest rates, gold price, inflation, foreign exchange rate and credit) were regressed in the proposed model, an attempt to construct an equation that would incorporate both macro-economic factors and company fundamentals in a single regression model. It is in the belief of the author that the academic community, investment professionals and even investors are benefited in this study as results can be used as reference for classroom instructions and investment decisions. This is also serving as a base line study for those who want to venture into similar investigation, combining company fundamentals and macro-economic variables in a model.

Statement of the Problem. This paper intended to identify the determinants of stock price of publicly listed firms that compose the Philippine Stock Exchange Index. Specifically, it aims to answer the following questions: (1) is there a significant relationship between share prices and the following variables: interest rates; gold price; inflation; foreign exchange rate; credit rating; book value per share; dividend per share; return on equity; current ratio; and price-earnings Ratio; and (2) what are the significant predictors of share prices of Philippine Stock Exchange Index Firms?

Research Hypotheses. The following hypotheses are tested in this paper: (1) there is no significant relationship between share price and interest rates; (2) there is no significant relationship between share price and gold price; (3) there is no significant relationship between share price and inflation; (4) there is no significant

relationship between share price and foreign exchange rate between peso and US dollar; (5) there is no significant relationship between share price and country credit rating; (6) there is no significant relationship between share price and book value per share; (7) there is no significant relationship between share price and dividends per share; (8) there is no significant relationship between share price and return on equity; (9) there is no significant relationship between share price and current ratio; and (10) there is no significant relationship between share price and price-earnings ratio.

Theoretical Framework

Valuation of any security, a stock for instance, requires assumptions. Increase in stock prices is what a rational investor would want, thus measuring it as returns. The general notion in finance, asserting that risks are associated with the expected returns, has led scholars to value share prices by evaluating the risks associated with it.

Perhaps the oldest of modern finance valuation techniques is the Capital Asset Pricing Model (CAPM), developed by Markowitz in 1959. CAPM assumes that investors are risk averse and, when choosing among portfolios, they care only about the mean and variances of their one-period investment return. This model tries to establish the return an investor expects from his assets by using a formula expressed below (Brigham E, et. al, 2014):

$r = r_{rf} + b\,(r_m - r_{rf})$

where: r - the expected return

r_{rf} - risk free rate, normally represented by Treasury Bill rate

r_m – market return

b – beta or the sensitivity of the asset to the changes in market return

$(r_m - r_{rf})$ – market risk premium of the excess of market return over the return of risk-less asset

CAPM model has been criticized for its relatively unreal assumptions that include: financial markets are perfect thus, no income taxes and other transaction costs are incurred; investors have unlimited borrowing capacity at the same risk free rate; and that all investors have the same information at the same time. In addition to this, the model assumes that the earnings on asset is affected by its sensitivity to the changes in market, having a single risk factor to asset valuation (Nguyen, et. al, 2017).

In an attempt to improve CAPM, Arbitrage Pricing Theory (APT) has been developed by Ross in 1976. APT is an asset pricing model which uses one or more common factors to price returns hence, a multifactor model with more factors (Devinaga and Peongkwee, 2011). Nguyen et. al, 2017 cited that one primary assumption of the APT entails the use of arbitrage portfolio. This can be seen as an investment tactic that involves a short position on a security at a high price and a simultaneously long position of the same security or its equivalent at a low price. They further stated that APT is a more generalized version of CAPM that allows the modeler to extend the CAPM by adding additional macroeconomic factors to the model. In other words, it is a general theory of asset pricing that holds that the expected return of a financial asset can be modeled as a linear function of various macro-economic factors or theoretical market indices, where sensitivity to changes in each factor is represented by a factor-specific beta coefficient (Jugu & Amodu, 2014). As cited by Nguyen et al, Ross and his collaborators has used rate of inflation, growth rate in industrial production, spread between long-term and short-term interest rate and spread between high-grade and low-grade bond as their factors in their model (2017).

Asset Pricing Theory indeed allows the modeler to include any variable as he see fits, thus making other authors skeptical about it. For one, Morel (2001) observes that the most disappointing feature of APT is that it does not identify the common factors (or even their number). Gilles and LeRoy (1990) also believes that APT does not include any clear restrictions and it can be thought as a too general asset pricing model, resulting to it being unable to provide information about prices.

This study uses the Asset Pricing Theory as a framework. Such theory, however is to be taken in the context of variables being directly associated with the stock price, and not on the return on stock prices. Moreover, to draw inspiration on how the study is to be conducted, researches done by Malhorta (2013) and Murcia (2014), which are discussed in the succeeding paragraphs, were reviewed.

A study conducted by Malhorta (2013) entitled Determinants of Stock Prices: Empirical Evidence from NSE 100 Companies is one of the bases of this study. This paper examined the factors that influenced the stock prices of 100 firms listed in National Stock Exchange (NSE) in India, covering the period from 2007 – 2012. The following model was developed under this method:

MP = f (BV, EPS, DPS, DC, DY & P/E ratio)
Where:
MP = Market Price of the Stock
BV = Book Value
DPS = Dividend Per Share
EPS = Earning per Share
DC = Dividend Cover
DY = Dividend Yield
P/E Ratio = Price Earnings ratio

After applying various statistical tests, Malhorta's (2013) final model was derived as follows:

$$MP = -170.092 + 1.649BV + 6.019EPS + 4.24DPS - 5.917DC - 6.607DY + 13.328PE\ Ratio$$

Equation 1. Malhorta's Regression Model

Murcia's study in 2014 focused on macro-economic factors affecting the Philippine Stock Market Indices. The study looked into the effects of country specific factors including Philippine peso-dollar exchange, gold reserves, consumer price index, wholesale price index, investments and OFW remittances as possible determinants of the stock market returns of banking and financial sector, holding sector and the Philippine Stock Composite Indices. His study involved the creation of three models, that explains the variability of the market returns of the selected indices. Among the three models, the one that tackles Philippine Stock Composite Index is the closest to this proposed study, thus such model is used.

In Murcia's model, regression analysis was used as he believes that determining variables have individual effects of several explanatory variables on a single dependent variable (2014). The estimation model suggested was expressed in the following equation:

$$Y = \beta + \beta exch + \beta gold + \beta CPI + \beta WPI + \beta FDI + \beta remit + \varepsilon$$

Where:
Y = stock market's performance (Index)
exch = peso-dollar exchange rate
gold = gold reserves
CPI = Consumer Price Index
WPI = Wholesale Price Index
FDI = Foreign Direct Investment
remit = OFW Remittances
ε = error term

In the said paper, Murcia concluded that only peso-dollar exchange rate, gold reserves and consumer price index are significantly related to stock market performance (as represented by PSE Index), thus only these variables were included in the estimation model. The final model which registered an R2 of 0.854 is expressed as follows:

$$YPSEi = 7479.785 - 96.889xexch + .146xgold - 157.083xCPI$$

Equation 2. Murcia's Regression Model

Operational/Conceptual Framework

The models introduced by Malhorta (2013) and Murcia (2014) employed company fundamentals and macro-economic variables, respectively, to predict the stock prices and stock market performance. This paper attempted to link both company fundamental and macro-economic variables with the stock prices of the firms that compose the Philippine Stock Exchange Index. The addition of other variables is justified by the Asset Pricing Theory, introduced by Ross in 1976.

The macro-economic factors identified are interest rates, gold prices, inflation, foreign exchange rate and the country's credit rating. All of these data are sourced out from the website of Banko Sentral ng Pilipinas (BSP) which publishes the same information. Company fundamentals are ratios developed from the firms' financial statements published in their official website. For the purpose of this paper, fundamentals used were book value per share, dividend per share, return on equity, current ratio and price-earnings ratio. Stock prices of the companies covering the Philippine Stock Exchange Index were derived from an online data base provided by investogram.com. The period covered with this study is from 2010 – 2015.

Since the company fundamentals were figures derived in an annual basis, stock prices and macro-economic factor figures were also year-end amounts so that consistency is achieved. The regression analysis assumes a linear relationship between the stock prices and other variables, such that the stock price is a function of the company fundamentals and macro-economic factors. The independent variables were all included in the final model that attempted to collectively explain the variability of the share prices. Figure 1 that follows summarized the operational framework of the paper.

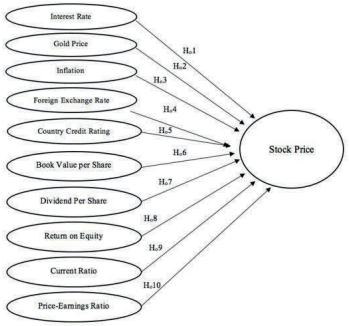

Figure 1. Conceptual/Operational Framework

In the end, the proposed model is expected to predict the share price of a stock, having as inputs the both company specific measures, the ratios, and the country specific measures, the macroeconomic variables. The proposed equation is presented as follows:

$$SP = a + a\,IR + a\,GP + a\,I + a\,Fx + a\,CCR + a\,BVPS + a\,DPS + a\,ROE + a\,CR + a\,PER + \varepsilon$$

Equation 3. Proposed Regression Model

Where:
SP = Stock Price
a = Constant
IR = Interest Rate
GP = Gold Price
I = Inflation
Fx = Foreign Exchange Rate of Peso vs. US Dollars
CCR = Country Credit Rating
BVPS = Book Value Per Share
DPS = Dividend Per Share
ROE = Return on Equity
CR = Current Ratio
PER = Price-Earnings Ratio
ε = Error Term

Review of Related Literature

Company Fundamentals as Variables to Stock Price. Various academic works used company fundamental to predict stock price by employing regression model. Dawar (2012) attempted to explain the effects of dividend decision, investment decision and financing decisions of Auto Industry companies in India

to their stock price. The results of this study indicate that fundamental corporate financial variables play an important role in stock pricing in Indian Auto sector. These variables are earnings per share, dividends per share and book value per share, all of which are highly positively correlated with stock price. In a different study covering period from 2007 – 2012 and using 95 sample companies from New Delhi Stock Exchange, Malhorta also concluded that firms' book value and earning per share have a significant positive association with firm's stock price. Another variable, the price-earnings ratio was also found to be positively related to stock price while dividend yield was found to have a significant inverse association with the market price of the firm's stock (2013). In another study, about banks in Amman Stock Exchange, Almumani (2014) agreed with Malhorta and Dawar that EPS, BPS and PER are significant determinants of stock prices. Size, in terms of assets was also found by Almumani as a significant driver of equity prices. Khan (2009) likewise agrees that price earnings ratio is a determinant of stock price.

Uddin, Rahman and Hossain (2013) performed regression on a yearly basis and over-all for 2005 – 2010 among the companies belonging to the financial sector in Bangladesh. Results revealed that EPS and Net asset value per share registered statistically significant relationship with stock price within the model, and net profit after tax and price earnings ratio with positive relationship but statistically insignificant. The over-all constructed model explained 84% of the variation in Stock Price. It is noteworthy so far, that the results, particularly with earnings per share, book value per share and price-earnings ratio are consistent among the literatures reviewed.

Results by Chala & Chalam (2015) revealed that book value per share and return on net worth are significant determinants of stock price. Other variables identified such as dividends per share, size of the firm, dividend pay-out ratio, earnings per share, dividend yield and price-earnings ratio did not appear to have significant effect on stock prices. These results are inconsistent with that of Malhorta (2013) and Dawar (2012) and Almumani (2014). Chughtai, Azeem, Amara and Ali (2013) further disagreed with Chala & Chalam's results, contending that dividends per share and earnings per share were found to have a positive significant effect on share prices of companies in Pakistan. In a study entitled, Determinants of Equity Share Prices in India, Sharma (2011) was consistent with the findings that earning per share, dividend per share and book value per share have significant impact on the market price of share.

A different approach was done by Al-Deehani in 2005 where he used Extreme Bound Analysis and ran over 1,300 regression models. The approach was to regress a model by adding one variable of interest at a time in the model. Al-deehani identified Book Value Per Share and Earnings per Share as 'free variables' (the only two dependent variables that remain in the model while adding one at a time). The basis for this designation is that much literatures have already identified BVPS and EPS as most common variables in regression models, and thus are presumed to be stable variables. Eleven variables of interest are added on by one and regression is run. These variables include previous earnings per share, Cash dividends per share, Previous cash dividends per share, return on equity, Growth rate, Debt to total assets ratio, Retention ratio, Price to book value ratio, Price earnings ratio, cash flow per share and previous cash flow per share. Based on 1320 regressions, only three out of eleven potentially important variables passed the test. These are previous earnings per share, previous cash flow per share and the price to book value ratio. The final model that included these variables in addition to the earnings per share and the book value per share as the free variables produced a very strong explanatory power.

Srinavasan (2012) studied the determinants of share prices in India from 2006 – 2011 and included six industries, using a panel data approach. The empirical results revealed that the dividend per share has a negative and significant impact on the share price of manufacturing, pharmaceutical, energy and infrastructure sectors. Evidences showed that earning per share and price-earnings ratio are being the crucial determinants of share prices of manufacturing, pharmaceutical sector, energy, infrastructure and commercial banking sectors. Moreover, the book value per share positively influences the share prices of pharmaceutical, energy, information technology and Infrastructure. Their study confirms that performance of the fundamental ratios of the industry will be essential and immense helpful to investors and analysts in assessing the better stocks that belong to different industry groups. In short, effects of dependent variables, vary per industry.

Macro-economic Factors as Variables to Stock Price Performance. Murcia (2014) conducted a study about macro-economic factors that influence stock market performance in the Philippines. He found out that as a whole, the peso-dollar exchange rates, the gold reserves, and the Consumer Price Index prove to be the most predominant and influential macroeconomic variables on the banking and financial (FIN) and holdings (HDG) sector as well as the Philippine Stock Market Composite Index (PSEi). In addition, foreign direct investment was also found to positively influence stock market returns under the holdings sector. Wu, Lu, Jono and Perez investigated the interrelationship between Philippine Stock Exchange Index and US Dollar Exchange rate in 2012. The covered period was between July 1997 to July 2010. The group found out the USD Exchange rate does not significantly affect PSE Index.

In Malaysia, Rahman, Sidek & Tafri (2009) examined the factors that affect the Malaysian stock market from the macroeconomic perspective. They used the monthly composite index from Kuala Lumpur Stock Exchange from January 1986 to March 2008. The study revealed that the monetary policies variables (proxied by money supply, exchange rate, reserves and interest rate) and domestic supply factor (presented by industrial production) have significant long run effects on Malaysia's stock market in a VECM (Vector Error Correction Model) framework. In other words, the variables mentioned indeed determine the stock market performance.

A panel analysis was also conducted by Jamaludin, Ismail and Manaf in 2017 covering selected ASEAN countries. The study showed that that both stock market returns are significantly affected by the exchange rate and inflation rate. Money supply is found to be insignificant. The findings also conclude that inflation poses a greater effect and inversely related to the stock market returns.

In 2010, Garza-Garcia and Yu, made a study about the stock market performance in China. They argued that the stock market is not just affected by the domestic economy but rather influenced as well by global markets. The main findings suggest that Chinese stock prices are determined by changes in domestic variables, namely: inflation, industrial production, money supply, short-term interest rates and the exchange rate. They also found that the US economic and financial indicators, namely the Dow Jones Industrial Average, industrial production and the consumer confidence index, are significantly related to Chinese stock prices, proving their earlier claim about the relatedness of global markets.

In attempting to measure the relevance of macro-economic variables to the specific stock prices of companies in Nairobi, Kenya, Gatua (2013) was unable to establish a strong link between variables lending Interest Rate (IR), Foreign Exchange Rate (FOREX), Equity Turnover (ET), NSE 20-share index (NSI), NSE all-share index (NASI) to stock prices of companies. However, a study by Ngugi in 2017 about Factors Influencing Share Price Volatility of Firms Listed at the Nairobi Securities Exchange, found contradicting result. The study concludes that GDP, inflation rate, dividend policy, and trading volume, influenced share price volatility, all of which in a positive manner. The study further found that these variables explain a substantial 80.7% of share price volatility among firms listed at the Nairobi Securities exchange. Chaw, Koh, Lim, Lok & Tan (2012) in their study about Determinants of Stock Price Movements in United States of America, were able to figure out that expected inflation has a significant negative relationship with stock price. In their paper, Udegbunam and Eriki (2001) also concluded that Inflation exerts a significant negative influence on the behavior of stock prices in Nigeria.

In Namibia, stock returns are significantly determined by economic activity, interest rates, inflation, money supply and exchange rates. Increases in economic activity and money supply increases stock market prices while increases in inflation and interest rates decrease stock price (Eita, 2012). The same was observed in Iraq, when Kaehler, Weber and Arif (2014) found that the Iraqi Stock Exchange index is mainly driven by exchange rates and interest rates, coupled by the overall security situation as measured by an index for civilian deaths from violence. In Nepal, a contradictory result was observed after Shrestha & Subedi (2014) concluded that performance of stock market is found to respond positively to inflation and broad money growth, and negatively to interest rate.

II.RESEARCH METHOD

Research Design. Descriptive research design was primarily used in this study. The descriptive research design is appropriate in this study for it describes the relationship between the identified variables. Likewise, this study is a relational one. This was appropriate to the study since the proponent determined the direction and extent of relationship between two or more paired variables or two or more sets of data (Ardales, 2008). With this, correlation analysis was employed and multiple linear regression model was used to ultimately predict the value of the stock prices, using company fundamentals and macro-economic variables.

Sample Companies and Data Sources. Secondary data were primarily used in this research which covers the 28 of the 30 publicly listed companies that compose the PSE Index as of September 11, 2017. PSE conducts periodic review of the companies' performance and based on their assessment, determines which firms are added in the 30 PSE Index firms. Based on PSE's criteria, the firms must exhibit the following during a particular review to be included in the index: (a) free float level of at least 12%; (b) must be among the 25% by median daily value per month for at least nine out of the twelve months; and (c) top 30 based on full market capitalization (MCAP). All the 30 companies mentioned exhibit all the criteria identified. The review period nearest to September 11, 2017 was July 2016 to June 2017.

PSE changes this composition from time to time based on the above disclosed guidelines. With such, the proponent decided to subject only those firms included as of the date mentioned. In addition, for the companies to be included in the study, they must as well exhibit the following: (a) the necessary financial data required for calculating the measures independent variables (company fundamentals) are available and disclosed in their financial statements; (b) variables pertaining to all the required years (2010-2015) are available; (c) the companies did not skip dividend for any two successive years in the time span of 2010-2015; (d) the average earning per share of any three successive years is not zero or negative during the period 2010-2015 and (e) financial statements must be presented in Philippine Peso.

GT Capital Holdings Inc. was only made public in 2012. Also, International Container Terminal Services, Inc.'s financial statements are presented in US Dollars. Because of this, the firms were excluded from the list, leaving only 28 companies to be included in the final sample. These companies are presented on the table that follows

Equation 3. Proposed Regression Model

Company Name	Code
Ayala Corporation	AC
Aboitiz Equity Ventures, Inc.	AEV
Alliance Global Group, Inc.	AGI
Ayala Land, Inc.	ALI
Aboitiz Power Corp.	AP
BDO Unibank, Inc.	BDO
Bank Of The Philippine Islands	BPI
DMCI Holdings, Inc.	DMC

Energy Development Corporation	EDC
First Gen Corporation	FGEN
Globe Telecom, Inc.	GLO
*GT Capital Holdings, Inc.	GTCAP
*International Container Terminal Services, Inc.	ICT
Jollibee Foods Corporation	JFC
JG Summit Holdings, Inc.	JGS
Lt Group, Inc.	LTG
Metropolitan Bank & Trust Company	MBT
Megaworld Corporation	MEG
Manila Electric Company	MER
Metro Pacific Investments Corporation	MPI
Petron Corporation	PCOR
Puregold Price Club, Inc.	PGOLD
Robinsons Land Corporation	RLC
Semirara Mining And Power Corporation	SCC
Security Bank Corporation	SECB
Sm Investments Corporation	SM
San Miguel Corporation	SMC
Sm Prime Holdings, Inc.	SMPH
PLDT Inc.	TEL
Universal Robina Corporation	URC

** Excluded from the companies studied for failing to exhibit all criteria set.*

Data Gathering Procedures. The marcoeconomic data needed were taken from the databank of Bangko Sentral ng Pilipinas (BSP) website at www.bsp.gov.ph. Such data includes the interest rate, the gold price, the US to Peso exchange rate and the credit rating from S&P. For the stock prices, since the study covered period that are no longer available online, the researcher sourced the data from investogram.com, an online database that also published stock quotations from the Philippine Stock Exchange. Data about the company fundamentals such as the book value per share, dividend per share, return on equity, current ratio and price-earnings ratio were taken from the published financial statements of these firms.

Statistical Treatment of Data. All data gathered were processed using SPSS. The paper wanted to describe whether certain factors influence the stock prices of the firms. All data, except the country credit rating are at least interval in nature. The credit rating is an ordinal data that depicts the credit score of the country/firm. A dummy variable was assigned to this variable so that it can be appropriately related to the stock price, which is and interval type of data. For the credit rating, a value of one (1) was assigned if the rating is "Investment Grade" or zero (0) if otherwise.

Mean and standard deviation were used to describe, in general, the independent variables. This was applied to variables price-earnings ratio, book value per share, dividends per share, current ratio, return on equity, interest rate, gold price and inflation.

Multiple linear regression was done to determine which of the identified variables collectively affect the stock prices. The data were first tested for normality assumption. Descriptive measures using Skweness and Kurtosis were applied. This was then verified using Kolmogorov-Smirnov and Shapiro-Wilk tests as tests of normality. Violations as to normality of share prices were observed hence the share prices were normalized using an approach introduced by Templeton in 2011. The process involved two steps: Step 1 transformed the variable into a percentile rank, which then resulted to uniformly distributed probabilities. Step 2 applied the inverse-normal transformation to the results of the first step to form a variable consisting of normally distributed z-scores.

An issue for regression analysis is the presence of multi-collinearity. The use of Variance Inflation Factor (VIF) to detect multi-collinearity was observed in this paper. VIF has to be relatively low for the variable to be considered as not having a correlation with other independent variables. As a rule of thumb, greater than 10 VIF creates a concern for researchers. Independent variables that would register higher than 10 VIF would be dropped from the model, starting from the variable that resulted to highest VIF.

Another concern for regression analysis is the issue of heteroskedasticity and this paper used Breusch-Pagan and Koenker tests statistics. Although heteroskedasticity does not affect the consistency of the regression parameter estimators, it can lead to mistakes in inference (CFA Institute, 2016).

For all tests of significance, a 5% significance level was used as the basis.

III. RESULTS AND DISCUSSION

Independent Variables' Descriptive Information. Table 2 shows the descriptive summary of the identified independent variables. Price earnings ratio has the minimum of a negative figure because the of a negative earnings per share computed for one company. Dividends per share also has a zero minimum amount since there are years when chosen companies were not able to declare cash dividends. The highest registered return on equity was 44%. During the 6-year period of 2010 – 2015, the country had the lowest inflation at 1.40% and highest at 4.60%, averaging 3.35%. As to the interest rates, banks average lending rates played between 5.49% – 7.22%, way above the inflation rates recorded. Price of gold per ounce reflected a maximum value of above P2,200, with close to P1,600 at its lowest level. There has been a relatively steady level of peso to dollar exchange rate, with an average of P43.83 to a US dollar. Credit standing was not included in the presentation for Table 2 since the data is a nominal variable. For the purpose of this paper, credit rating is only categorized into two: investment grade or non-investment grade. According to the data from Banko Sentral ng Pilipinas, Standard and Poor's (S&P) rated the Philippines as non-investment grade in 2010 and 2011 and raised the rating to investment grade from years 2012 to 2015.

Table 2. Descriptive Statistics of Independent Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Price Earnings Ratio	167	-70.67	698.89	36.4026	101.26329
Book Value Per Share	168	.30	717.51	74.0301	141.06978
Dividends Per Share	162	.00	156.00	9.5781	28.15579
Current Ratio	168	.27	4.52	1.6108	.83053
Return on Equity	168	.03	.44	.1667	.08607
Interest Rate	168	5.49	7.22	5.9833	.59733
Gold Price	168	1597.99	2211.05	1906.3900	246.90715
Inflation	168	1.40	4.60	3.3500	1.02572
Forex Rate	168	42.23	45.50	43.8322	1.26153

Tests Prior to Regression Analysis. To run a regression model, the dependent variable has to be normally distributed. Statistical tests were made to verify if the normality assumption is preserved. The descriptive figures in Table 3 reveal that the share price is positively skewed (3.73). The kurtosis of figure further reveals in Table 3 that the data is leptokurtic at 13.508, normal is 3.0 or near 3 (De Carlo, 1997). To further test the normality, Kolmogorov-Smirnov and Shapiro-Wilk tests were further conducted, with results shown on Table 4. Both test, were consistent in accepting the null hypothesis that the data is not normally distributed, at significance level of 0.000 for both. Thus, the tests proved that the share prices are not normally distributed.

Table 3. Descriptive tests for Normality of Share Price

		Statistic	Std. Error
Share Price	Mean	203.8579	40.88090
	Skewness	3.730	.187
	Kurtosis	13.508	.373

Table 4. Test Statistics for Normality of Share Price

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Share Price	.369	168	.000	.398	168	.000

To address the issue of normality, an approached proposed by Templeton (2011) was used. The process involves two steps: Step 1 involves transforming the variable into a percentile rank, which will result in uniformly distributed probabilities. Step 2 applies the inverse-normal transformation to the results of the first step to form a variable consisting of normally distributed z-scores (Templeton, 2011). Following the procedures and with the use of SPSS, the share prices were transformed using inverse-normal distribution function. After which, the data were tested form normality. Tests revealed that the transformed variable share price is now normally distributed, with improved skewness and kurtosis, shown in Table 5. Kolmogorov-Smirnov and Shapiro-Wilk tests revealed significance level of 0.20 and 1.0, respectively, in Table 6, now rejecting the null-hypothesis of non-normality of data.

Table 5. Descriptive tests for Normality of Transformed Share Price

		Statistic	Std. Error
SP_Normal_IDF	Mean	203.8585	40.04639
	Skewness	.000	.188
	Kurtosis	-.250	.374

Table 6. Test Statistics for Normality of Transformed Share Price

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
SP_Normal_IDF	.010	167	.200*	.999	167	1.000

An issue for regression analysis is the presence of multi-collinearity. Paul (n.d) contends that multi-collinearity is a case of multiple regression in which the predictor variables are themselves highly correlated. Such brings problem to regression models because the higher is the observed multi-collinearity, the estimates become extremely imprecise and unreliable. Furthermore, it becomes practically impossible to distinguish the individual impacts of the independent variables on the dependent variable (CFA Institute, 2016), which defeats the purpose of regression model aiming to quantify the effects of each independent variable to the variable being predicted. The use of Variance Inflation Factor (VIF) to detect multi-collinearity was used in this paper. Table 7 shows the VIF for each independent variable. VIF has to be relatively low for the variable to be considered as not having a correlation with other independent variables. As a rule of thumb, greater than 10 VIF creates a concern for researchers. The tolerance level is just the inverse of VIF. All variables were below the 10 threshold, thus, multi-collinearity in the model is not an issue. In addition, mean for the VIF is at 3.54 level, indicating that there is no problem of multi-collinearity in the chosen variables for the regression model.

Table 7. Test Statistics for Normality of Transformed Share Price

Variables	Tolerance	VIF
Price Earnings Ratio	0.963	1.038
Book Value Per Share	0.215	4.658
Dividends Per Share	0.202	4.943
Current Ratio	0.841	1.189
Return on Equity	0.753	1.328
Gold Price	0.275	3.641
Forex Rate	0.335	2.984
Credit Rating	0.121	8.282
Inflation	0.474	2.11
Interest Rate	0.192	5.211
Mean VIF		3.5384

**mean value of all VIF is less the 5.*

Another concern for regression analysis is the issue of heteroskedasticity. In running the regression test, there is an assumption that the variance of error term is constant, that is Homoskedasticity is expected (Williams, 2015). Although heteroskedasticity does not affect the consistency of the regression parameter estimators, it can lead to mistakes in inference. When errors are heteroskedastic, the F-test for the overall significance of the regression is unreliable (CFA Institute, 2016), thus resulting to erroneous conclusions, even the coefficients in the model. To test for heteroskedasticity, Breusch-Pagan and Koenker tests statistics were used. These tests take the null hypothesis that heteroskedasticity is not present at 0.05 significance level. Table 8 reveals that both tests for heteroskedasticity resulted to null hypothesis being accepted, (p-value 0.715 and p-value 0.404) thus the model does not violate the assumption of homoskedasticity.

Table 8. Test for Heteroskedasticity

Test	LM	Sig.	Decision	Implication
Breusch-Pagan	7.984	0.715	Accept Null	Homoskedasticity observed
Koenker	11.474	0.404	Accept Null	Homoskedasticity observed

Regression Analysis. Regression analysis including five company fundamentals and five macro-economic variables as predictors to stock price resulted to only three variables being statistically significant at 0.05 significance level. All those that registered significant effects are company fundamentals namely the book value

per share, current ratio and return on equity, all with p-values less than 0.05, as presented in Table 9.

With a constant value in the model of 850.71, shown on Table 9, it is believed that when the value of all independent variables named is zero, the stock price will be worth 850.71 pesos. The coefficient of 2.221 for book value per share, in Table 9, indicates that for every peso increase in its value, the share price is expected to increase by 2.221 pesos as well, holding all other coefficients of other variables constant. This finding is consistent with Malhorta (2013), Almumani (2014), Dawar (2012), Chala and Chalan (2015), Sharma (2011), and Aldebisi (2015). Indeed, book value per share, as proven by other studies, is a significant determinant of stock price (p-value = 0.000 in Table 9), thus rejecting the null hypothesis that book value per share has no significant relationship with stock price. Table 9 further shows that current ratio, proved to be statistically significant (p-value = 0.006) determinant of stock price, having a negative effect. Current ratio, is construed to be the measure of liquidity in this paper. As the current ratio increases by 1%, it is expected that the stock price will decrease by close to 117%. The increase liquidity of the firm is viewed adversely by the market as to the pricing of stock price. This is maybe due to the fact that stocks are long-term investments and solvency is more important than current liquidity. By their nature, stocks are intended for longer duration as an investment, as they are perceived to increase in value over time. Literatures reviewed did not include current ratio as a predictor of stock price, thus this paper, additionally contributes to existing literature on valuation of shares. In this light, the hypothesis which states that current ratio is not having significant correlation with share price is hereby rejected.

Return on equity, is a measure of profitability that most finance professionals include in their company performance analysis. In this model, it has been found to have a larger positive impact on share prices (p-value = 0.013 as depicted by Table 9). For every percent increase in return on equity, holding all other variables' coefficient in the model constant, one can expect a 10.72 times increase in stock price. Return on equity is not a common variable used to predict stock price. Previous literatures incorporate profitability as a predictor in terms of earnings per share (Chughtai, Azeem, Amara and Ali, 2013, Al-Deehani, 2005, Kamran, Yousaf & Iqbal, 2014 and Malhorta, 2013) and concluded that earnings per share, profitability in this manner, is a significant predictor of share price. Accordingly, the hypothesis negating the effect of return on equity to stock price is also rejected. Literatures reviewed did not include current ratio and return on equity as a predictors of stock price, thus this paper, additionally contributes to existing literature on valuation of shares by introducing these other factors as determinants.

Results of this study contradicted that of Khan (2009) who noted a significant contribution of price earnings ratio in stock price. Uddin, Rhaman & Hossain's study in 2013 further disagrees with the effect of price earnings ratio as depicted in this paper. According to them, price earnings ratio, though statistically insignificant to stock price, has a positive impact. Results of the regression in the model proposed in Table 9 shows that for every point increase in price-earnings ratio, stock price is repressed at 0.079 times, though statistically insignificant (p-value is 0.831). Outcome of the model also brings controversy with respect to dividends per share's impact to stock price. Chughtai, Azeem, Amara and Ali (2013) earlier concluded that share price is positively impacted by dividends per share in a significant manner. This however is contradicted by Srinavasan (2012) who contended that though dividends significantly affect the stock price, it is on a negative manner. Somehow, the results of this study is consistent with that of Srinavasan as to direction, but contradicts as to the significance level of dividends to share price. With this, hypotheses stating the price earnings ratio and dividends per share do not have significant effect to share price, are hereby accepted.

All macro-economic variables identified did not register statistically significant impact to share price. For one, Table 9 determines that gold is insignificant (p-value = 0.958) to share price but the model predicts a 1.3 pesos decline in share price for every 100 pesos increase in price per ounce of gold, considering all other independent variables in the model retain their association level with share price. Patel (2012), meanwhile, carries that gold is a determinant of stock price. For this reason, the hypothesis about non-significant relationship of stock price and gold is accepted. The devaluation of peso is predicted to shrink share prices, though statistically insignificant at p-value = 0.491 (shown in Table 9), rendering the acceptance of null hypothesis that share price is not relevantly affected by foreign exchange rate. For every unit devaluation of peso against US dollar, the share price is expected to decrease by around 30 pesos. Country's credit rating is likewise insignificant to stock price valuation registering a significance level at 0.652 echoed in Table 9. As expected, inflation depresses stock prices but the regression model flagged it as an irrelevant determinant. This is consistent with Kamran and Iqbal (2014) in their study about stock prices in Pakistan. Interest rates also did not register a statistical significance with stock prices. Therefore, hypotheses about the absence of material influence of inflation and interest rates to share price are both accepted. Gatua (2013), being unable to establish a strong link between stock prices and interest and between stock prices and foreign exchange rate, is consistent with the results of this article.

Table 9 summarizes the p-values generated for each independent variable and the corresponding decision as to the rejection or acceptance of the null hypotheses.

Table 9. Regression Analysis Results and Decision for Null Hypotheses

Variables	B	Beta	t	Sig.	Decision
(Constant)	850.71		0.35	0.727	N/A
Interest Rate (IV)	87.123	0.101	0.717	0.475	Accept the null hypothesis
Gold Price (IV)	-0.013	-0.006	-0.053	0.958	Accept the null hypothesis
Inflation (IV)	-7.211	-0.014	-0.157	0.875	Accept the null hypothesis
Foreign Exchange Rate (IV)	-30.284	-0.073	-0.69	0.491	Accept the null hypothesis
Credit Rating	125.803	0.116	0.652	0.515	Accept the null hypothesis
Book Value Per Share	2.221	0.588	4.419	0.000*	Reject the Null Hypothesis
Dividends Per Share	-1.401	-0.073	-0.53	0.597	Accept the null hypothesis
Return on Equity	1072.473	0.179	2.523	0.013*	Reject the Null Hypothesis
Current Ratio	-116.56	-0.189	-2.808	0.006*	Reject the Null Hypothesis
Price Earnings Ratio	-0.079	-0.013	-0.214	0.831	Accept the null hypothesis

Null hypotheses: The independent variables (IV) above do not have significant relationship with share price at 0.05 level of confidence.

Another concern for regression analysis is the issue of heteroskedasticity. In running the regression test, there is an assumption that the variance of error term is constant, that is Homoskedasticity is expected (Williams, 2015). Although heteroskedasticity does not affect the consistency of the regression parameter estimators, it can lead to mistakes in inference. When errors are heteroskedastic, the F-test for the overall significance of the regression is unreliable (CFA Institute, 2016), thus resulting to erroneous conclusions, even the coefficients in the model. To test for heteroskedasticity, Breusch-Pagan and Koenker tests statistics were used. These tests take the null hypothesis that heteroskedasticity is not present at 0.05 significance level. Table 8 reveals that both tests for heteroskedasticity resulted to null hypothesis being accepted, (p-value 0.715 and p-value 0.404) thus the model does not violate the assumption of homoskedasticity.

The proposed model is depicted as follows:

$$NorSP = 850.71 + 87.123\ IR - 0.013\ GP - 7.211\ I - 30.284\ Fx + 125.803\ CCR + 2.221\ BVPS - 1.401 DPS + 1,072.473\ ROE - 116.56\ CR - 0.079\ PER + \varepsilon$$

Equation 4. The Final Regression Model

Where:
SP = Stock Price
a = Constant
IR = Interest Rate
GP = Gold Price
I = Inflation
Fx = Foreign Exchange Rate of Peso vs. US Dollars
CCR = Country Credit Rating
BVPS = Book Value Per Share
DPS = Dividend Per Share
ROE = Return on Equity
CR = Current Ratio
PER = Price-Earnings Ratio
ε = Error Term

Table 10 presents the value of R-squared and adjusted R-squared. The value of coefficient of determination or R2 is 0.430 which shows how much variation in the market price of the share has been explained by all the explanatory variables in the study. At the same time the adjusted value of R2 is also shown which refers to the adjusted value of R2 according to the sample size of the study. As adjusted to the sample size, the model is able to explain 39.2% of the changes of the share price and the other 60.8% is explained by factors outside the model. ANOVA test also revealed a statistical significance of the model, at 0.000, lesser than 0.05 confidence level.

Table 10. Model Summary

R	R Squared	Adjusted R-Squared	ANOVA p-value	F
0.656	0.430	0.392	0.000	11.328

IV. CONCLUSIONS AND RECOMMENDATIONS

Various finance and economic literatures have attempted to uncover what determines the price of a share. Conclusions as variables that are quantifiable, may vary on a market specific basis (e.g, the country and maturity of the stock market). As much as one tries to predict what factors are relevant, a comprehensive and conclusive study might be difficult to obtain considering that the market value of the stock is mainly driven by how the investors react to it: their presumptions, premises and behavior. Nevertheless, the results of this study is relevant as an addition to existing literatures on studies about stock price determinants.

The final model of this study was able to explain 39.2% of the variability in share prices of Philippine firms that compose the Philippine Stock Exchange Index. In other words, the included variables in the model determines close to 40% of the prices of stock but the other 60% is attributed to factors not covered in the model. A unique way of normalizing a continuous variable using a two-step approach by Tembleton (2010) was employed in this study. Such approach is not a common way to normalize a non-normally distributed variable. The model was tested for multi-collinearity using Variance Inflation Factor and heteroskedasticity using a test developed by Breusch-Pagan and Koenker. All of the tests confirmed that multi-collinearity and heteroskedasticity were not a threat to the model.

The empirical findings of the study revealed that book value per share and return on equity have a positive significant correlation to share price, which indicates that as these variables increase, one can expect an increase in the value of the share price as well, and vice versa. A negative significant relationship however was noted between share price and current ratio. As current ratio increases, the value of the share price tends to decrease.

The book value per share emerged as having the greatest influence to share price. This is because investors would expect that as the company increase in equity, the value of their investment is positively impacted, thus driving the value of the stock upward. In the event of liquidation, the investor can actually receive his share on the assets of company less all liabilities, that is the book value per investor. Other company fundamentals such as dividends per share and price earnings ratio, registered an insignificant negative effect to share price, which means that though such variables tend to decrease the value of the share, their effect is negligible to none. Country specific factors, or the macroeconomic variables as referred to in this study were determined to be insignificant to share prices, meaning these macro-economic variables do not contribute to the changes in the values of the share price, though the model predicts different directions for each. Gold price, foreign exchange rate and inflation have insignificant negative effects to share prices, which means that as these variables increase in value, the share prices tend to decrease. Meanwhile, the country's credit rating and the average

annual lending interest rates by banks insignificantly impact share prices in a positive way, hence may increase the value of the stock.

The finance professionals and academic community can further improve the study by increasing the number of companies covered in the future research endeavors. At the same time, the period covered can also be extended and 'noises' for those periods be accounted to have a better context of the market situation. Other potential variables can also be looked into in the future, considering that the model is only able to predict less than 50% of the prices of stocks. While many researches have been conducted to predict share, this paper offers novelty to existing literatures by (1) combining macro-economic variables and company fundamentals in a regression model to predict share price; (2) adding new variables such as current ratio and return on equity as significant predictors of share price; and (3) employing an uncommon way of normalizing a continuous data which exhibits non-normality.

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APPENDICES

Appendix A. Company Stock Prices at each Year End

Company	Share Price					
	2010	2011	2012	2013	2014	2015
AYALA CORPORATION	12.48	10.34	16.76	25.80	22.55	16.10
ABOITIZ EQUITY VENTURES, INC.	37.10	40.15	52.95	54.55	52.70	57.95
ALLIANCE GLOBAL GROUP, INC.	12.10	10.34	16.76	25.80	22.55	16.10
AYALA LAND, INC.	19.00	20.00	21.00	22.00	23.00	24.00
ABOITIZ POWER CORP.	25.00	26.00	27.00	28.00	29.00	30.00
BDO UNIBANK, INC.	59.20	59.00	72.80	68.60	109.80	105.00
BANK OF THE PHILIPPINE ISLANDS	59.00	59.20	95.00	85.00	94.00	83.85
DMCI HOLDINGS, INC.	7.28	8.26	10.79	11.20	15.70	13.80
ENERGY DEVELOPMENT CORPORATION	5.78	6.29	6.75	5.33	8.20	6.20
FIRST GEN CORPORATION	12.18	14.62	22.30	13.06	22.50	22.60
GLOBE TELECOM, INC.	800.00	1133	1092	1640	1730	1852
JOLLIBEE FOODS CORPORATION	88.90	90.45	102.00	173.10	215.00	219.00
JG SUMMIT HOLDINGS, INC.	19.60	25.15	38.50	38.55	66.00	73.30
LT GROUP, INC.	3.00	4.40	13.38	15.44	12.14	14.78
METROPOLITAN BANK & TRUST COMPANY	55.38	52.27	78.46	75.55	83.00	80.50
MEGAWORLD CORPORATION	2.48	1.70	2.77	3.24	4.68	4.25
MANILA ELECTRIC COMPANY	228.00	247.20	260.60	251.00	256.00	320.00
METRO PACIFIC INVESTMENTS CORPORATION	3.89	3.66	4.43	4.32	4.60	5.20
PETRON CORPORATION	18.82	12.60	10.46	13.96	10.60	6.99
PUREGOLD PRICE CLUB, INC.	12.50	17.88	33.00	37.90	38.55	34.70
ROBINSONS LAND CORPORATION	16.30	11.30	20.75	19.96	26.50	27.50
SEMIRARA MINING AND POWER CORPORATION	15.42	18.45	19.45	24.00	35.50	54.15
SECURITY BANK CORPORATION	71.46	81.21	130.00	115.60	132.00	142.00
SM INVESTMENTS CORPORATION	362.00	388.53	588.00	474.00	543.33	576.00
SAN MIGUEL CORPORATION	163.80	116.80	105.40	62.50	73.80	49.90
SM PRIME HOLDINGS, INC.	11.38	13.30	16.30	14.68	17.04	21.70
PLDT Inc.	2554	2542	2530	2666	2906	2060
UNIVERSAL ROBINA CORPORATION	34.95	48.00	83.85	113.10	196.00	186.00

Source: Investogram.com

Appendix B. Company Price Earnings Ratio

Company	Price-Earnings Ratio					
	2010	2011	2012	2013	2014	2015
AYALA CORPORATION	0.73	0.73	0.98	1.26	0.76	0.48
ABOITIZ EQUITY VENTURES, INC.	9.37	10.46	12.20	14.32	15.87	18.22
ALLIANCE GLOBAL GROUP, INC.	17.04	8.76	12.14	15.18	17.21	11.84
AYALA LAND, INC.	40.15	27.56	38.90	29.46	32.10	28.71
ABOITIZ POWER CORP.	9.15	10.17	11.13	13.49	18.90	17.45
BDO UNIBANK, INC.	18.16	15.17	16.11	13.03	17.31	13.35
BANK OF THE PHILIPPINE ISLANDS	17.46	15.29	20.65	16.38	20.35	18.07
DMCI HOLDINGS, INC.	2.46	2.29	2.94	7.89	19.38	14.23
ENERGY DEVELOPMENT CORPORATION	26.39	698.89	14.06	21.15	13.16	15.23
FIRST GEN CORPORATION	580.00	1,837.50	440.00	450.34	489.13	610.81
GLOBE TELECOM, INC.	10.92	15.31	21.22	44.03	17.54	15.42
JOLLIBEE FOODS CORPORATION	28.49	28.81	28.49	38.90	42.36	47.40
JG SUMMIT HOLDINGS, INC.	8.10	7.88	19.95	25.20	25.38	29.20
LT GROUP, INC.	4.29	3.76	9.29	18.16	29.61	24.23
METROPOLITAN BANK & TRUST COMPANY	13.48	13.54	14.42	9.78	12.06	13.74
MEGAWORLD CORPORATION	12.40	5.33	9.86	10.52	6.99	13.24
MANILA ELECTRIC COMPANY	26.54	21.02	17.16	16.44	15.98	18.89
METRO PACIFIC INVESTMENTS CORPORATION	27.39	18.77	18.54	15.54	15.08	15.07
PETRON CORPORATION	24.44	16.15	130.75	49.86	-70.67	46.60
PUREGOLD PRICE CLUB, INC.	25.50	18.43	29.73	26.50	23.65	19.17
ROBINSONS LAND CORPORATION	13.47	9.74	19.95	18.31	22.84	19.78
SEMIRARA MINING AND POWER CORPORATION	1.27	1.09	3.27	3.41	5.53	4.30
SECURITY BANK CORPORATION	5.01	6.09	10.43	13.91	12.79	11.12
SM INVESTMENTS CORPORATION	13.80	14.09	18.51	13.60	15.24	23.93
SAN MIGUEL CORPORATION	26.50	23.08	12.09	4.59	19.42	18.72
SM PRIME HOLDINGS, INC.	19.49	27.09	28.25	25.05	25.82	22.10
PLDT Inc.	12.00	15.57	15.14	16.29	18.45	20.23
UNIVERSAL ROBINA CORPORATION	9.32	21.24	22.66	24.59	36.98	32.75

Source: Author computations based on the Audited Annual Financial Statements

Appendix C. Company Book Value Per Share

Company	Book Value Per Share					
	2010	2011	2012	2013	2014	2015
AYALA CORPORATION	185.74	183.98	199.43	396.25	299.73	336.85
ABOITIZ EQUITY VENTURES, INC.	11.65	13.96	16.57	17.55	19.52	21.29
ALLIANCE GLOBAL GROUP, INC.	5.99	7.27	8.32	10.65	12.47	13.35
AYALA LAND, INC.	4.37	4.82	5.99	5.38	7.60	9.10
ABOITIZ POWER CORP.	7.79	9.32	11.04	12.50	13.26	13.26
BDO UNIBANK, INC.	31.84	35.03	41.49	44.28	48.36	53.17
BANK OF THE PHILIPPINE ISLANDS	24.19	25.07	27.19	28.82	36.89	38.22
DMCI HOLDINGS, INC.	10.15	12.76	15.55	3.86	4.23	4.71
ENERGY DEVELOPMENT CORPORATION	1.64	1.46	1.74	1.83	2.25	2.43
FIRST GEN CORPORATION	0.30	0.36	0.42	0.40	0.45	0.45
GLOBE TELECOM, INC.	334.15	361.91	383.17	334.22	411.03	447.43
JOLLIBEE FOODS CORPORATION	17.05	19.66	20.73	22.20	26.37	29.69
JG SUMMIT HOLDINGS, INC.	17.44	20.96	22.80	27.39	29.58	31.18
LT GROUP, INC.	3.13	4.11	10.43	10.86	11.48	11.91
METROPOLITAN BANK & TRUST COMPANY	42.53	49.00	52.75	46.83	52.40	58.97
MEGAWORLD CORPORATION	2.33	2.89	3.13	3.50	4.07	4.22
MANILA ELECTRIC COMPANY	52.32	55.15	60.25	66.69	70.23	71.23
METRO PACIFIC INVESTMENTS CORPORATION	2.69	3.28	3.24	3.64	3.98	4.33
PETRON CORPORATION	5.66	6.34	6.32	10.02	10.38	8.81
PUREGOLD PRICE CLUB, INC.	2.60	4.63	9.91	11.06	12.38	13.89
ROBINSONS LAND CORPORATION	10.08	9.48	11.32	12.01	12.81	13.84
SEMIRARA MINING AND POWER CORPORATION	34.64	35.75	38.52	18.83	21.25	19.37
SECURITY BANK CORPORATION	58.76	59.83	99.04	81.13	77.77	88.60
SM INVESTMENTS CORPORATION	231.29	257.56	301.90	275.58	293.24	318.77
SAN MIGUEL CORPORATION	92.72	66.49	71.88	66.18	67.65	66.32
SM PRIME HOLDINGS, INC.	1.75	3.82	4.92	4.42	6.00	6.41
PLDT Inc.	522.56	717.51	673.67	634.78	621.89	525.83
UNIVERSAL ROBINA CORPORATION	19.78	19.73	21.24	23.28	25.65	29.92

Source: Author computations based on the Audited Annual Financial Statements

Appendix D. Company Dividend Per Share

Company	Dividend Per Share					
	2010	2011	2012	2013	2014	2015
AYALA CORPORATION	1.60	3.67	2.00	4.80	4.80	5.76
ABOITIZ EQUITY VENTURES, INC.	0.52	1.38	1.58	2.00	1.80	1.11
ALLIANCE GLOBAL GROUP, INC.	0.06	0.36	0.36	0.38	0.38	0.31
AYALA LAND, INC.	0.09	0.15	0.21	0.29	0.41	0.42
ABOITIZ POWER CORP.	0.30	1.32	1.54	1.66	1.66	1.66
BDO UNIBANK, INC.	0.80	1.00	-	2.10	2.10	2.10
BANK OF THE PHILIPPINE ISLANDS	1.80	1.80	2.30	1.80	1.80	1.80
DMCI HOLDINGS, INC.	0.50	1.00	1.20	3.40	2.40	2.40
ENERGY DEVELOPMENT CORPORATION	0.12	0.16	0.14	0.16	0.20	0.21
FIRST GEN CORPORATION	-	-	-	0.50	0.35	0.35
GLOBE TELECOM, INC.	80.00	62.00	65.00	67.00	75.00	83.00
JOLLIBEE FOODS CORPORATION	2.25	1.07	2.20	3.36	1.64	1.77
JG SUMMIT HOLDINGS, INC.	0.05	0.08	0.16	0.18	0.20	0.22
LT GROUP, INC.	-	0.32	-	0.15	0.16	0.15
METROPOLITAN BANK & TRUST COMPANY	0.60	1.00	1.00	1.00	1.00	1.00
MEGAWORLD CORPORATION	0.02	0.02	0.03	0.04	0.04	0.06
MANILA ELECTRIC COMPANY	6.95	7.80	8.10	10.20	12.36	15.25
METRO PACIFIC INVESTMENTS CORPORATION	0.01	0.03	0.03	0.04	0.09	0.07
PETRON CORPORATION	0.10	0.10	0.10	0.05	0.05	0.05
PUREGOLD PRICE CLUB, INC.	-	-	0.60	0.30	0.30	0.30
ROBINSONS LAND CORPORATION	0.48	0.36	0.36	0.36	0.36	0.36
SEMIRARA MINING AND POWER CORPORATION	6.00	10.00	12.00	12.00	12.00	4.00
SECURITY BANK CORPORATION	2.00	2.00	2.00	2.00	2.00	2.00
SM INVESTMENTS CORPORATION	7.88	9.04	10.40	11.80	10.34	10.61
SAN MIGUEL CORPORATION	6.75	1.05	1.75	1.40	1.40	1.40
SM PRIME HOLDINGS, INC.	0.27	0.27	0.29	0.27	0.19	0.21
PLDT Inc.	154.00	156.00	123.00	123.00	121.00	126.00
UNIVERSAL ROBINA CORPORATION	0.94	1.90	1.90	2.40	3.00	3.00

Source: Audited Annual Financial Statements

Appendix E. Company Current Ratio

Company	Current Ratio					
	2010	2011	2012	2013	2014	2015
AYALA CORPORATION	1.89	1.76	1.46	1.46	1.50	1.28
ABOITIZ EQUITY VENTURES, INC.	2.36	2.96	2.57	2.64	2.76	2.84
ALLIANCE GLOBAL GROUP, INC.	3.46	3.55	3.37	3.91	2.39	2.52
AYALA LAND, INC.	1.67	1.64	1.41	1.45	1.23	1.14
ABOITIZ POWER CORP.	2.58	3.46	2.65	2.87	3.36	3.12
BDO UNIBANK, INC.	1.20	1.19	1.26	1.18	1.18	1.18
BANK OF THE PHILIPPINE ISLANDS	0.46	0.43	0.49	1.09	0.54	0.42
DMCI HOLDINGS, INC.	1.79	2.04	1.80	2.46	2.12	1.85
ENERGY DEVELOPMENT CORPORATION	1.98	2.22	1.92	2.73	1.37	1.65
FIRST GEN CORPORATION	0.99	2.20	1.88	2.46	1.67	1.86
GLOBE TELECOM, INC.	0.61	0.60	0.74	0.65	0.77	0.72
JOLLIBEE FOODS CORPORATION	0.99	1.10	0.94	1.18	1.26	1.29
JG SUMMIT HOLDINGS, INC.	1.61	1.53	1.10	0.74	1.10	1.04
LT GROUP, INC.	1.38	0.54	0.73	0.63	0.73	0.75
METROPOLITAN BANK & TRUST COMPANY	0.88	1.03	1.02	1.08	1.06	1.03
MEGAWORLD CORPORATION	2.69	3.35	3.17	3.80	3.14	3.60
MANILA ELECTRIC COMPANY	1.33	1.54	1.55	1.14	1.35	1.02
METRO PACIFIC INVESTMENTS CORPORATION	0.76	1.22	0.64	1.10	1.22	1.07
PETRON CORPORATION	1.64	1.46	1.04	1.04	1.08	0.91
PUREGOLD PRICE CLUB, INC.	0.72	1.12	1.61	1.36	1.48	1.58
ROBINSONS LAND CORPORATION	3.35	2.36	2.62	0.95	1.41	1.98
SEMIRARA MINING AND POWER CORPORATION	1.48	1.25	0.96	1.48	1.05	0.97
SECURITY BANK CORPORATION	2.02	1.57	2.06	1.77	1.22	1.07
SM INVESTMENTS CORPORATION	1.67	1.27	1.39	1.20	1.90	1.37
SAN MIGUEL CORPORATION	1.57	1.62	1.39	1.43	1.50	1.32
SM PRIME HOLDINGS, INC.	2.20	1.49	1.43	1.51	2.05	1.41
PLDT Inc.	0.75	0.61	0.69	0.52	0.53	0.27
UNIVERSAL ROBINA CORPORATION	3.12	1.71	1.98	4.52	1.90	2.30

Source: Author computations based on the Audited Annual Financial Statements

Appendix F. Company Return on Equity

Company	Return on Equity					
	2010	2011	2012	2013	2014	2015
AYALA CORPORATION	0.10	0.09	0.09	0.10	0.11	0.11
ABOITIZ EQUITY VENTURES, INC.	0.36	0.28	0.27	0.21	0.17	0.16
ALLIANCE GLOBAL GROUP, INC.	0.10	0.12	0.14	0.12	0.10	0.09
AYALA LAND, INC.	0.10	0.11	0.12	0.13	0.15	0.14
ABOITIZ POWER CORP.	0.43	0.31	0.30	0.21	0.19	0.19
BDO UNIBANK, INC.	0.10	0.12	0.09	0.14	0.13	0.13
BANK OF THE PHILIPPINE ISLANDS	0.16	0.15	0.18	0.18	0.14	0.12
DMCI HOLDINGS, INC.	0.30	0.15	0.28	0.41	0.20	0.22
ENERGY DEVELOPMENT CORPORATION	0.14	0.20	0.34	0.16	0.30	0.17
FIRST GEN CORPORATION	0.12	0.07	0.18	0.09	0.17	0.13
GLOBE TELECOM, INC.	0.21	0.21	0.14	0.11	0.28	0.29
JOLLIBEE FOODS CORPORATION	0.19	0.17	0.18	0.21	0.22	0.17
JG SUMMIT HOLDINGS, INC.	0.14	0.16	0.10	0.08	0.10	0.12
LT GROUP, INC.	0.23	0.16	0.05	0.10	0.04	0.05
METROPOLITAN BANK & TRUST COMPANY	0.10	0.11	0.14	0.18	0.14	0.11
MEGAWORLD CORPORATION	0.09	0.13	0.05	0.11	0.21	0.09
MANILA ELECTRIC COMPANY	0.17	0.21	0.28	0.26	0.23	0.24
METRO PACIFIC INVESTMENTS CORPORATION	0.09	0.10	0.10	0.11	0.10	0.11
PETRON CORPORATION	0.251	0.150	0.026	0.054	0.027	0.064
PUREGOLD PRICE CLUB, INC.	0.25	0.27	0.15	0.14	0.14	0.14
ROBINSONS LAND CORPORATION	0.13	0.12	0.10	0.09	0.09	0.10
SEMIRARA MINING AND POWER CORPORATION	0.36	0.44	0.40	0.41	0.32	0.34
SECURITY BANK CORPORATION	0.35	0.25	0.22	0.13	0.16	0.15
SM INVESTMENTS CORPORATION	0.14	0.14	0.14	0.13	0.12	0.11
SAN MIGUEL CORPORATION	0.09	0.08	0.11	0.16	0.06	0.05
SM PRIME HOLDINGS, INC.	0.15	0.11	0.12	0.10	0.10	0.10
PLDT Inc.	0.41	0.25	0.24	0.25	0.25	0.18
UNIVERSAL ROBINA CORPORATION	0.10	0.12	0.19	0.21	0.22	0.21

Source: Author computations based on the Audited Annual Financial Statements

Appendix G. Philippine Macro-Economic Variables at Different Year-End Periods

Macro-Economic Variables	2010	2011	2012	2013	2014	2015
Interest Rate (In Percentage)	7.215	6.296	5.491	5.718	5.69	5.38
Gold Price (per gram in Philippine Peso)	1,993.49	2,210.89	2,211.05	1,721.09	1,703.83	1,597.99
Inflation (In percentage)	3.8	4.6	3.2	3	4.1	1.4
Forex Rate (One US Dollar to Peso)	45.1097	43.3131	42.2288	42.4462	44.3932	45.5028
Credit Rating	NIG	NIG	IG	IG	IG	IG

Legend: NIG – Non-Investment Grade; IG – Investment Grade
Source: Banko Sentral ng Pilipinas

Appendix H. Results of Regression Analysis

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	850.71	2429.051		0.35	0.727
Price Earnings Ratio	-0.079	0.37	-0.013	-0.214	0.831
Book Value Per Share	2.221	0.503	0.588	4.419	0.000
Dividends Per Share	-1.401	2.642	-0.073	-0.53	0.597
Current Ratio	-116.56	41.503	-0.189	-2.808	0.006
Return on Eqity	1072.473	425.093	0.179	2.523	0.013
Gold Price	-0.013	0.246	-0.006	-0.053	0.958
Forex Rate	-30.284	43.912	-0.073	-0.69	0.491
Credit Rating	125.803	192.818	0.116	0.652	0.515
Inflation	-7.211	45.854	-0.014	-0.157	0.875
Interest Rate	87.123	121.536	0.101	0.717	0.475

Appendix I. Pearson Correlation Matrix of Variables

		Share Price	Interest Rate	Gold Price	Inflation	Forex Rate	Credit Rating	Price Earnings Ratio	Book Value Per Share	Dividends Per Share	Current Ratio	Return on Equity
Share Price	Pearson Correlation	1	-.035	-.035	-.015	.001	.039	-.063	.899**	.971**	-.335**	.247**
	Sig. (2-tailed)		.653	.652	.851	.985	.612	.421	.000	.000	.000	.001
	N	168	168	168	168	168	168	167	168	162	168	168
Interest Rate	Pearson Correlation	-.035	1	.294**	.429**	.395**	-.864*	.000	-.039	.015	.057	.136
	Sig. (2-tailed)	.653		.000	.000	.000	.000	.999	.620	.846	.461	.079
	N	168	168	168	168	168	168	167	168	162	168	168
Gold Price	Pearson Correlation	-.035	.294**	1	.588**	-.488*	-.562**	.003	-.024	.008	.037	.098
	Sig. (2-tailed)	.652	.000		.000	.000	.000	.973	.754	.915	.634	.205
	N	168	168	168	168	168	168	167	168	162	168	168
Inflation	Pearson Correlation	-.015	.429**	.588**	1	-.282**	-.588**	-.012	-.021	.004	.052	.099
	Sig. (2-tailed)	.851	.000	.000		.000	.000	.879	.788	.956	.506	.201
	N	168	168	168	168	168	168	167	168	162	168	168
Forex Rate	Pearson Correlation	.001	.395**	-.488**	-.282**	1	-.213**	.009	-.005	.007	-.046	-.013
	Sig. (2-tailed)	.985	.000	.000	.000		.006	.903	.952	.926	.558	.867
	N	168	168	168	168	168	168	167	168	162	168	168
Credit Rating	Pearson Correlation	.039	-.864**	-.562**	-.588**	-.213**	1	-.007	.035	-.014	-.057	-.119
	Sig. (2-tailed)	.612	.000	.000	.000	.006		.927	.649	.857	.460	.125
	N	168	168	168	168	168	168	167	168	162	168	168
Price Earnings Ratio	Pearson Correlation	-.063	.000	.003	-.012	.009	-.007	1	-.110	-.053	.033	-.068
	Sig. (2-tailed)	.421	.999	.973	.879	.903	.927		.155	.500	.670	.382
	N	167	167	167	167	167	167	167	167	162	167	167
Book Value Per Share	Pearson Correlation	.899**	-.039	-.024	-.021	-.005	.035	-.110	1	.882**	-.345**	.147
	Sig. (2-tailed)	.000	.620	.754	.788	.952	.649	.155		.000	.000	.057
	N	168	168	168	168	168	168	167	168	162	168	168
Dividends Per Share	Pearson Correlation	.971**	.015	.008	.004	.007	-.014	-.053	.882**	1	-.338**	.287**
	Sig. (2-tailed)	.000	.846	.915	.956	.926	.857	.500	.000		.000	.000
	N	162	162	162	162	162	162	162	162	162	162	162
Current Ratio	Pearson Correlation	-.335**	.057	.037	.052	-.046	-.057	.033	-.345**	-.338**	1	.037
	Sig. (2-tailed)	.000	.461	.634	.506	.558	.460	.670	.000	.000		.638
	N	168	168	168	168	168	168	167	168	162	168	168
Return on Equity	Pearson Correlation	.247**	.136	.098	.099	-.013	-.119	-.068	.147	.287**	.037	1
	Sig. (2-tailed)	.001	.079	.205	.201	.867	.125	.382	.057	.000	.638	
	N	168	168	168	168	168	168	167	168	162	168	168