#### RESEARCH ARTICLE

## Revaluation of Non-Current Assets Under IAS-16: Possibility of Any Managerial Inducement: Evidence From a South Asian Economy

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The revaluation of non-current assets under IAS-16 has now turned into a usual practice in Pakistan. The obvious reason is to give additional significant information to various stakeholders around an organization's balance sheet. Besides, the management inducement behind this revaluation of assets may differ. The aim of this research is to study the essential management incentives that arise due to the upward revaluation of non-current assets of firms listed on the Pakistan Stock Exchange for the period 2008–2017. Logistic regression and Mann Whitney U-test were used to analyze the data. It was hypothesized that firms take revaluation decisions to reduce the contracting cost, political cost, and the information asymmetry cost. It is concluded that there is a significant relationship between political cost (firm size) and some portion of information asymmetry cost (intensity non-current assets and stock dividend) with the dependent variable. Other variables like information asymmetry cost and growth were found to be insignificant and did not show any significant relationship with the revaluation of non-current assets. Contracting cost was not found to be significantly linked with upward revaluation. It is finally concluded that firms with a larger size, more intensity ratio, and less declaration of the stock dividend will have more chances to do a continual revaluation of non-current assets under IAS-16. This paper especially looks at whether revaluation of non-current assets is connected with the size of a firm and whether firms revalue their assets with an end goal to strengthen their financial position and prospects. Practically, in the light of this study, accounting regulatory bodies must define some preconditions for revaluation policy to stop the usage of creative and abusive reporting. Policymakers should encourage researchers to investigate the impact of revaluation policy on the financial performance of the companies.

Keywords: Information asymmetry, Leverage, Non-Current Assets, Political costs, Revaluation

JEL Classification: M20, M40, M41

According to IAS-16 of the International Financial Reporting Standards (IFRS), revaluation of non-current assets is the reassessment of benefit value to its fair value on the revaluation date. Brown, Izan, and Loh (1992) described asset revaluation as the procedure of reassessing the value of an asset and adjust the carrying amount of assets to its current value. Revaluation of fixed resource can be upward or downward. IAS-16 further explains that revaluations must be done periodically to verify that the carrying amount of an asset is not materially different from respective fair value towards the end of an accounting year. The increment in the value of an asset due to revaluation must be taken to other comprehensive income. If it constitutes an inversion of a revaluation decrease. then it should be recognized in the income statement.

Management generally revalues its non-current assets, keeping in mind various objectives that differ from organization to organization (Missonier-Piera, 2007). There seems a direct relationship between assets revaluation and yearly returns (Aboody, Barth, & Kasznik, 1999). Organizations with a high level of debt tend to revalue non-current assets to overcome debt limitations or lessen debt expenses (Courtenay & Cahan, 2004). Lin and Peasnell (2000b) mentioned that the revaluation of non-current assets might be very expensive. They reported that organizations that revalue their non-current assets typically have a substantial number of assets and have the capacity to cover their financial needs. It is contended that past revaluation of non-current assets may play a vital role when assessing the adequacy and the advantages of a revaluation.

In recent times, revaluation of non-current assets is one of the most debatable issues. There are many factors that can affect revaluation of non-current assets among contracting cost, political factors, and other information asymmetries such as financial leverage, cash flow from operations (contracting cost), firm size (political factor), growth options, stock dividend, and fixed asset intensity (information asymmetry). The underlying rationale behind the revaluation of noncurrent assets by firms is to assure the existence of fair value of non-current assets in the balance sheet. We found many factors in previous studies regarding revaluation of non-current assets by firms (Watts & Zimmerman, 1990) to have higher loans, competitive edge, lower operating cash flows, liquidity, and higher growth opportunities (Lin & Peasnell (2000b). Firms

tend to do revaluation of non-current assets for many other reasons, for example, to get a clear and true picture of return on capital employed, to get market value of the firms' employed assets, to have high opportunities for funds to replace future fixed assets, and to get higher bargaining power for the fair value of assets at the time of merger or acquisition.

Numerous studies have been carried out to investigate any managerial inducement in different regions around the globe. Predominately, previous studies have focused on the Americas, Europe Union (EU), Chinese economic area (CEA), Pacific basin, among others. Further, existing research on revaluation focused on developed markets, with little or no attention to developing markets; there is a dearth of evidence on revaluation of non-current assets in the South Asian region. No study was ever conducted in Pakistan, a South Asian economy, to discuss (1) the incentives that may arise for a Pakistani firm due to revaluation of non-current assets, (2) whether revaluation of noncurrent assets is connected with the size of Pakistani firms, (3) if Pakistani firms revalue their assets with an end goal to strengthen their financial position and prospects, and (4) to recognize the connection between non-current assets intensity and earnings management of Pakistani firms and the choice to perform fixed resource revaluations.

The main purpose of this study is to investigate whether organizational activities related to the revaluation of non-current assets are motivated by political cost, asymmetric information, and contracting cost during the period from 2008 to 2017. Moreover, this research also examined whether firms do a revaluation of non-current assets with an end goal to strengthen their financial position and prospects in Pakistan. The study further tries to recognize the connection between firm size, non-current assets intensity and earnings management, and the choice to perform fixed resource revaluations.

### Literature Review

Upward revaluation is the restatement of the carrying amount of an asset to the degree that it does not surpass its net current value or recoverable value. To put it plainly, an upward revaluation shows the incremental value of an asset's book value, whereas downward revaluation implies that the net current value of the asset has fallen below its book value. An upward revaluation of fixed-assets builds the value of non-current assets and diminishes financialleverage ratio. Revaluation of non-current assets may be utilized as a method for earnings management, particularly when the benefit that happens from a non-current assets deal is evaluated on a historical cost basis (Black, Sellers, & Manly, 1998). Aboody et al. (1999) mentioned that there exists a direct association between a company's prospective income and upward revaluation. Managerial decision making may be affected by asset value contemplations. Organizations might likewise be inclined to actualize upward revaluations in order to impact the value of their assets and financial picture. Barley, Fried, Haddad, and Livnat (2007) concluded that companies that have more noncurrent assets have greater revaluation effect. Firms have more advantages of revaluation, along with a larger proportion of non-current assets in their total assets (Brown et al., 1992). There are many studies which found a negative relationship between noncurrent assets intensity and upward revaluation (Lin & Peasnell, 2000b).

Shin and Willis (2014) examined 302 Korean firms aimed to investigate the motives behind the revaluation of non-current assets. The study tested two opposing hypotheses, (1) the Information cost hypothesis and (2) Fair value hypothesis, which may persuade managers to revalue non-current assets. The results demonstrated that the connection between revaluation declarations and wealth impacts is more grounded for firms with less information and lower firm risk. The results additionally showed positive and significant wealth impacts from firms carrying foreign currency debt, which are subject to debt covenant prerequisites. It was found that this significance is driven by organizations with lower information costs. By and large, the results of this study are steady with the fair value cost theory.

Kim, Choi, and Kwak (2014) investigated Korean firms that had been banned from assets revaluations before December 2008; after that, Korean Accounting Standards Board permitted firms to have the choice of revaluations. They empirically investigated the economic factors which influence the revaluations of property, plant, and equipment (PPE) in Korean-listed organizations. They also investigated market reactions to events identified with the declarations of the PPE revaluations. Empirical results visibly recommended that organizations utilizing the PPE revaluations are more leveraged than those using historical costs. It created the impression that it is used as a technique for signaling the firm's extra borrowing capacity and reducing the probability of damaging prohibitive covenants. Further, they found that investors in the Korean securities exchange respond significantly optimistic on the declarations when firms release the voluntary reports of PPE revaluations.

Choi, Pae, Park, and Song (2013) investigated the motives behind the revaluation of non-current assets and characteristics of the firms that revalue their assets. They found that Korean firms revalue their assets to improve the balance sheet or to lessen debt contracting cost. They further observed that most companies revalued the land only. These organizations were more inclined to perceive revaluation decrements when they were huge. Baek and Lee (2016) examined a sample of 201 South Korean firms that revalued their assets and found a negative correlation between leverage and profitability.

Iatridis and Kilirgiotis (2012) investigated the basic management incentives of the upward revaluation of non-current assets in listed organizations of New Zealand over the period from 1999 to 2003. It was hypothesized that upward revaluations were utilized to reduce organizations' contracting costs, political costs, and information asymmetry. This study found that larger firms are more prone to revalue their noncurrent assets to reduce political costs. This study also observed that most revaluation exercises of New Zealand organizations were directed consistently by independent valuators. The results did not find the anticipated associations between revaluations and contracting costs. Information asymmetry, like the non-current assets intensity, was observed to be important in the univariate test, and it was measurably insignificant in the logistic regression model. It was further found that a group of organizations decided to reveal the current values of their non-current assets in notes to the records as opposed to recognizing these in the budgetary explanations showing their aim of giving pertinent asset values without controlling records and money related proportions.

Barać and Šodan (2011) examined managers' consideration processes of accounting arrangement decision for non-current assets. Empirical evidence was taken through the sample of Croatian listed organizations and the outcomes demonstrated that vast, profitable organizations with low liquidity ratio, low cash flow ratio, and expanding debt were more inclined

to perform upward revaluation. Multivariate logistic regression analysis was used in this study. The aim of upward revaluation choice was to decrease debt cost by enhancing debt ratios. Political costs also had a huge impact on the upward revaluation choice. Managers utilized upward revaluation to expand the borrowing ability of organizations besides lessening profitability ratio because of the political cost.

Firms use asset revaluation to avoid default on a debt that resulted in lower management credibility and higher contracting cost in the future after the revaluation (Cotter, 1999). Easton, Eddey, and Harris (1993) concluded that companies revaluate their non-current assets to improve their level of financial leverage. After revaluation, companies can improve their leverage level and restore their borrowing power. Lin and Peasnell (2000b) argued that asset revaluation is an important factor to improve the company's borrowing power, but it is totally dependent on the lenders' decision to consider or not the revaluation values to calculate the level of financial leverage. As non-current assets are often provided as collateral, their revaluation will enhance the company's borrowing capacity (Cotter & Zimmer, 1995). Wali (2015) investigated the relationship between the mechanisms of corporate governance and the fixedasset revaluation decision in the Tunisian context. Based on a sample of 91 listed and non-listed firms, results suggested that revaluation is used as a tool to improve creditors' perception of the financial health of the firm and, thereby, improve the firm's borrowing capacity.

In the literature, many arguments have been discussed about the profit and visibility of companies along with revaluation. Lin and Peasnell (2000b) explained a positive relationship between the firm size and the probability of the firm for revaluation. All large companies do not agree to do revaluation as they are not willing to reduce their profits. After depreciation, the amount of incremental revaluation would not be recovered in the following years (Henderson & Goodwin, 1992). In another study, Whittred and Chan (1992) explained that the revaluation of non-current assets does not only reduce the company's profit, but it also increases the company's base assets. As a result, it can increase the company's visibility. Brown et al. (1992) concluded that the larger size of a company's assets can reduce the advantages of reporting lower profits. All these arguments and literature studies are not sufficient to conclude that the decision of larger companies to do a revaluation of non-current assets is encouraged by minimum political cost and smaller profits. Ion and Mariana (2017) studied revaluation of fixed assets for listed companies of Romania. The results suggested an improvement in the performance of these companies and that there is a correlation between revaluation gains and losses.

#### **Hypotheses Development**

As discussed above, the revaluation of non-current assets can be affected by many factors.

#### **Contracting Cost**

Financial leverage. Financial leverage improves due to asset revaluation and, as a result, contracting cost also goes down (Choi et al., 2013). Sometimes, a firm can face problems while possessing highly profitable projects due to borrowing limitation (Whittred & Chan, 1992; Henderson & Goodwin, 1992). Therefore, management tends to take such effective decisions which can minimize their contracting cost linked with the firm's debt (Cotter & Zimmer, 1995). However, revaluation of non-current assets increases the book value of concerned assets along with revaluation reserves, which results in improved debt to equity and debt to asset ratio. There are many studies in the literature which found a positive association between revaluation of non-current assets and financial leverage (Lin & Peasnell, 2000a). So, the study's first hypothesis is:

*H1: There is a positive relationship between the level of financial leverage and revaluation of non-current assets of the firm.* 

**Cash flows from operations.** The borrowing capacity of a firm depends not only on its current leverage condition but on its ability to repay the loan as well. Debt holders are concerned with the firm liquidity condition due to declining cash flows from operations. Many studies are conducted that have examined the association between cash flows and revaluation. Some found significant negative and other suggested a significant positive association between revaluation of assets and current cash flows from operations along with firm ability to repay the debt (Cotter & Zimmer, 1995). So, this study's second hypothesis is:

H2: There exists a relationship between cash flows from operations and revaluation of non-current assets of the firm.

#### **Political Factor**

**Firm size.** Firm size is considered as one of the important determinants related to the revaluation of non-current assets. Previous studies focused on firm size when considering revaluation decision. To have minimum political cost, firms need to avoid reporting of high profits. Revaluation of non-current assets provides an effective way to report minimum profits (Easton et al., 1993; Jiraporn & Gleason, 2007). So, the study's third hypothesis is:

*H3:* There is a positive relationship between firm size and its revaluation of non-current assets.

#### **Information Asymmetry**

The degree of information asymmetry is expected to influence the management's decision whether to, and when to revalue the firm's assets. These factors include prior revaluation, fixed asset intensity, growth options, and stock dividend (Seng & Su, 2009).

**Fixed asset intensity.** Firms prefer to do a revaluation of non-current assets. As a major portion of total assets is comprises of non-current assets, revaluation may result in the higher market value of the firm. Studies suggested a positive association among the revaluation process and fixed asset intensity of the firm (Brown et al., 1992; Lin & Peasnell, 2000b). So, the study's fourth hypothesis is:

## *H4: There is a positive relationship between noncurrent assets intensity and revaluation of non-current assets of the firm.*

**Growth options.** Firms with higher growth potential tend to go for a revaluation of non-current assets (Brown et al., 1992). Moreover, Whittred and Chan (1992) conducted a study and found that firms with more revaluations have higher growth opportunities as compared to other firms without any revaluation process. So, the fifth hypothesis of this study is:

H5: There is a positive relationship between growth options and revaluation of non-current assets of the firm.

Stock dividend. Stock dividend is one of the positive determinants of market share. Stock dividend is defined as the issuance of shares of a firm to its shareholders as per their current proportion of shares without any extra cost. Shares can be transferred from one equity account to another equity account so there will be no effect on the firm's equity due to this process. Stock dividend leads towards share price changes. Stock dividend can be taken as a signal for high dividends along with high growth of future earnings (Emanuel, 1989). With the stock dividend by the company, one can easily expect that the company has sufficient reserves. Moreover, revaluation of noncurrent assets leads towards high revaluation reserves with the expectation that a firm can easily declare a stock dividend. It is hypothesized that in the year of a stock dividend, firms tend to do a revaluation of non-current assets (Brown et al., 1992). So, the sixth hypothesis is:

*H6: There is a positive relationship between a stock dividend and revaluation of non-current assets of the firm.* 

#### **Research Methodology**

#### Sample Selection

IAS-16 was adopted in Pakistan since its inception in 1980. Due to non-availability of data prior to 2008, the population consists of all non-financial manufacturing firms listed on Pakistan Stock Exchange for the period 2008–2017. The sample consists of 396 listed companies, out of which 250 are non-financial manufacturing companies. During 2008-2017, these manufacturing firms revalued their non-current assets in various years; therefore, sample consists of all years in which a firm revalued its non-current assets. So, for this study, the dataset consists of 1,350 observations. Data was collected from annual reports of relevant listed firms and the website of State Bank of Pakistan. The financial sector is excluded due to many reasons. Firstly, many non-current assets do not have a strong impact on the business activities of such companies. Secondly, the capital and asset related structures of such companies are different from the manufacturing industry (Whittred & Chan, 1992). Thirdly, financial firms have their own industry-specific rules for revaluation. Yearly data is used for all the variables in performing analysis to match the frequencies and investigate the impact of revaluation of assets. This method of data matching is widely used to reduce the possibility of biases from the different datasets that are different in observed frequencies (Klock, Mansi, & Maxwell, 2005; Jiraporn, Kim, Davidson, & Singh, 2006; Dittmar & Mahrt-Smith, 2007; Jiraporn & Gleason, 2007; Chava, Livdan, & Purnanandam, 2009). Additionally, not even a single mining company is listed on this stock exchange, and also no company holds biological assets. Thus, there are no chances of distorted results due to the type of company product.

#### **Research Model**

Both univariate and multivariate techniques are used to test the hypotheses of this study. Univariate method is used to test the relationship between dependent and independent variables. Mann-Whitney U test is used to test the difference between the independent variables as most of the variables are not normally distributed. For the multivariate method, logistic regression is applied, which is useful for binary variable and does not need to have assumptions of normality.

We used the following logistic regression model to test the assumed hypothesis:

 $\begin{array}{l} R_N_{it} = \alpha + \beta_1 CFO_{it} + \beta_2 Debt_{it} + \beta_3 LnAssets_{it} \\ + \beta_4 Growth_{it} + \beta_5 Intensity_{it} + \beta_6 StockDiv_{it} + u_{it} \end{array}$ 

Where,

- $R_N_{it}$  = Revaluation of the asset of each firm i at time t
- CFO<sub>it</sub> = Change in cash flows from the operation of each firm i at time t

 $Debt_{it} = Debt$  ratio of each firm i at time t

 $LnAssets_{it} = Size of each firm i at time t$ 

Growth<sub>it</sub> = Change in total intangible assets of each firm i at time t

Intensity<sub>it</sub> = Total Non-Current Assets to total assets of each firm i at time t

 $StockDiv_{it} = Stock dividend of each firm i at time t$ 

## **Measurement of Variables**

#### **Dependent Variable**

For this study, the dependent variable is the management decision about the revaluation of noncurrent assets of the firm in any of the observed year. The dependent variable is represented by R N, which shows that the variable has two possible values. The value will be 1 for the companies that have revalued their non-current assets and 0 (Zero) for other companies (Seng & Su, 2009).

#### Independent Variables

Independent variables are categorized into cost variables, political cost variables, and information asymmetry variable.

#### **Cost Variables**

This group consists of two variables: leverage level (DEBT) and declining cash flow from the operations (CFO) of the firm.

Leverage level (DEBT). Leverage level of the firm is represented as the ratio of the total liabilities to the total tangible assets of the firm before any adjustment of revaluation of non-current assets. This ratio can be used to determine the debt contracts and the borrowing ability of the firm (Whittred & Zimmer, 1986). Various reasons are considered for the level of leverage as this is an important factor for the firm to decide whether to revalue or not to revalue its non-current assets. For the calculation of the level of leverage, this study excluded the intangible assets (Emanuel, 1989).

**Cash flow from operations (CFO).** Various studies are conducted to use cash flows from operating activities as a proxy for the financing need of the firm. Cotter and Zimmer (1995) explained that firms prefer to do a revaluation of their non-current assets to improve their borrowing ability and to support the need to raise capital in the future. In this study, the financing need of the firm is represented as the cash flows from operating activities (CFO) of the firm.

#### **Political Cost Variable**

**Firm size (SIZE).** Firm size influences a firm's decision about the revaluation of non-current assets by considering the political cost. Probability of revaluation of non-current assets increases with the size of the firm. The political cost hypothesis predicts that larger firms tend to use more different accounting policies to report their smaller profits than smaller firms (Watts & Zimmerman, 1990). Therefore, size is the most suitable proxy to represent the political cost. Large firms, along with abnormal profits, may attract more attention from the regulators. So, these types of firms use those accounting policies that report their reduced profits. Upward revaluation decreases the firm's profits

because of the increased depreciation expense due to the revalued assets.

Revaluation of non-current assets can be influenced by many items regarding the firm size. One of them is the chances of higher incentives that the management of the larger firms will have as compared with the management incentives of smaller firms. Cost of the process of revaluation is also different for the larger firms as compared to other smaller firms. This study also conducts a critical analysis of which type of situation affects the decisions taken by the larger and smaller firms.

#### Information Symmetry Cost Variables

**Non-current assets intensity (INTENSITY)**. This variable is calculated as the ratio of total noncurrent assets divided by the total assets of the firm. Both values are calculated before the revaluation adjustment. A firm's decision to conduct revaluation its assets depends upon the firm's interest (Lin & Peasnell, 2000a). Firms with higher non-current assets as compared to total assets are more likely to conduct revaluation and generate a report about the reduction of profitability of the firm.

**Growth options (GROWTH)**. Many studies used the market to debt ratio (Whittred & Chan, 1992) and price to equity ratio as the proxy to measure the growth options variable of the firms. This study focused on the percentage change of the total assets over two years due to the lack of sufficient data availability related to other measures. Growth option variable is determined by the percentage change of the total tangible assets over the two years (Brown et al., 1992).

Stock dividend (STOCKDIV). This variable is determined by whether the company announced a stock dividend or not. Value of this variable is 1 if there is a stock dividend and zero otherwise (Emanuel, 1989; Brown et al., 1992).

#### **Empirical Results and Discussions**

# Descriptive Statistics and Analysis of Independent Variables

Table 1 explains the summary statistics of all the independent variables used in the analysis. It shows the mean, median, standard deviation, and total observations of the study (2008–2017). All variables' data has been collected through financial statements and website of Pakistan Stock Exchange.

#### **Correlation** Analysis

Table 2 shows the Spearman correlation coefficients of each variable that has been used in this study. The result shows that there are several variables that are highly correlated with each other.

#### Univariate Tests

The mean rank portion of Table 3 shows which group has more weight-age value among all independent variables. The test statistics partly shows the actual significance of the test, along with the critical z value. It is concluded that DEBT, SIZE, INTENSITY, and STOCKDIV variables have a significant relationship with the revaluation of non-current assets. We found

	Ν	Mean	Median	Std. Deviation
CFO	1350	13.545	10.353	15.212
DEBT	1350	2.41	1.000	24.520
SIZE (LnAssets)	1350	15.005	15.558	2.019
GROWTH	1350	1.156	0.000	9.429
INTENSITY	1350	0.549	0.579	0.420

 Table 1. Descriptive Statistics (2008–2017)

*CFO* = *Cash flows from operations,* 

DEBT = Total liabilities to the total tangible assets of the firm before any adjustment of revaluation of Non-Current Assets,

SIZE 1 = Natural logarithm of Total Assets,

SIZE 2 = Natural logarithm of total assets before adjustment of revaluation,

*GROWTH* = *Percentage change of the total tangible assets over the two years, and* 

*INTENSITY* = *Total Non-Current Assets divided by the total assets of the firm.* 

		CFO	DEBT	SIZE	GROWTH	INTENSITY	STOCKDIV
CFO	Correlation Coefficient	1.000					
	Sig. (2-tailed)						
DEBT	Correlation Coefficient	228**	1.000				
	Sig. (2-tailed)	.000					
LnASSETS	Correlation Coefficient	.490**	184**	1.000			
	Sig. (2-tailed)	.000	.000				
GROWTH	Correlation Coefficient	.134**	127**	.280**	1.000		
	Sig. (2-tailed)	.000	.000	.000			
INTENSITY	Correlation Coefficient	123**	.163**	276**	112**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.000		
STOCKDIV	Correlation Coefficient	.100**	092**	.126**	.105**	138**	1.000
	Sig. (2-tailed)	.000	.001	.000	.000	.000	

Table 2. Spearman Correlation Coefficients

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

 Table 3. Univariate Test: Mann-Whitney U Test for Upward Revaluation (2008-2017)

Variable	0 = Non-revaluators, 1 = Revaluators	Mean Rank	Test Statistics Significance (2-tailed)
CFO	0	696.3	Z = -0.697
	1	681.39	(0.486)
DEBT	0	665.5	Z = -2.674
	1	711.48	(0.007)
LnASSETS	0	711.51	Z = -2.979
	1	644.15	(0.004)
GROWTH	0	689.72	Z = -0.568
	1	678.1	(0.57)
INTENSITY	0	585.53	Z = -10.085
	1	797.23	(0.000)
STOCKDIV	0	709.25	Z = -3.842
	1	668.87	(0.000)

a significant difference in the mean values of these variables. All the remaining variables do not have any significant impact on the revaluation of noncurrent assets of the firm. In other words, we found significant findings that support our hypothesis regarding financial leverage, firm size, intensity, and stock dividend. This implies that financial leverage, firm size, and non-current assets intensity are positively linked with the revaluation of non-current assets. Moreover, the hypothesis regarding the stock dividend is also accepted, which narrates a significant negative relationship between a stock dividend and revaluation of non-current assets of the firm. All these findings are consistent with the previous studies of Anderson and Zimmer (1992), Brown et al. (1992), Seng and Su (2009), and Tay (2009).

#### Multivariate Tests

Table 4 presents the results for the logistic regression of the revaluation of non-current assets of the firms. Model for the logistic regression consists of all independent variables used in this study. The upper portion of Table 4 shows the contribution of all independent variables individually in the model and which of the predictor variables are statistically significant. With the help of all coefficient values, we can predict the overall change in regression function with one unit change in one variable. Therefore, regression function is  $-1.924 + .009 \times x1 + .000 \times x2 + .000 \times x2$ .086\*x3+1.351\*x4+.000\*x5-.530\*x6. Wald test is performed to test the significance of each independent variable used in this study. Results show that variables CFO, INTENSITY, STOCKDIV, and GROWTH are found to be significant at the 0.1 level.

The lower part of Table 4 presents the test statistics values, chi-square value, correct classification percentage, Nagelkerke R square values, and Cox and Snell R square values. Chi-square value is significant, which presents the sign for the goodness of fit and states that coefficient and intercept values are not zero. Classification result depicts almost 65% correct classification, which means that the model used for the analysis in our study is appropriate. R square value shows how much variation has been explained by the model. Here, the value of Cox and Snell R square and Nagelkerke R square explain the variation in our logistic regression model, which ranges from 8.3% to 11.1%. Regarding the method of variation, Nagelkerke R square is a modified form of the other Cox and Snell R square variation method. As Cox and Snell R square cannot achieve the value of 1, therefore we will prefer to use the value of Nagelkerke R square. The value of Nagelkerke R square explains that the model used for this study has been explained with 11.1% variation, which shows the appropriateness of this model for our study.

From the empirical findings of multivariate analysis, we found significant findings that support our hypothesis regarding cash flows from operations, firm size, stock dividend, and non-current assets intensity which depicts a significant positive relationship between cash flows from operations and non-current assets intensity with the revaluation of non-current assets of the firm. Moreover, our hypothesis regarding stock dividend and CFO are also accepted, which implies significant negative association among CFO and stock dividend with respect to the revaluation of non-current assets of the firm. These findings are consistent with the previous studies of Cotter (1999), Tay (2009), and Seng and Su (2009).

Variable	Coefficient	Standard error	Wald-statistic	Significance level (2-tailed)	
DEBT	0.009	0.1	0.009	0.926	
CFO	0	0	7.813	0.005	
SIZE 1	0.092	0.038	6.72	0.018	
INTENSITY	1.351	0.154	77.119	0	
GROWTH	0	0.001	0.036	0.85	
STOCKDIV	-0.53	0.211	6.328	0.012	
Constant	-1.924	0.531	13.15	0	
		TEST STATIS	TICS		
-2 Log-likelihood				1737.111	
Chi-square			23.836	(p-value = 0.000)	
Significance level				0	
% correctly classified				64.8	
Nagelkerke R Square				0.111	
Cox & Snell R Square			.083		

 Table 4. Multivariate Test: Logistic Regression - Upward Revaluation

#### Contracting Cost (H1, H2)

**Debt**. A positive relationship is hypothesized between the DEBT and the companies' decision to do a revaluation of their non-current assets. This assumption is supported by our finding of the univariate test but not with the findings of the multivariate test. Thus, it is concluded that companies with larger financial leverage are not more likely to revalue their non-current assets. There is no significant relationship between the level of financial leverage and the management decision to revalue the company's non-current assets (Henderson & Goodwin, 1992).

**Cash flows from operations**. It is hypothesized that when companies have high financing demand and have low or negative cash flows from operations, they are more inclined towards upward revaluation. We found that this relationship is statistically significant from our logistic regression but not significantly supported by our findings in the univariate test. There is a possibility that decreased or negative cash flows from operating activities may be adjusted by other investing or financing activities. Companies may consider the cash flows as a whole and not on an individual basis (Seng & Su, 2009).

#### Political Costs (H3)

The findings of both univariate and multivariate tests support the hypothesis H3, which reported that there is more possibility for larger firms to do a revaluation of their non-current assets (Shaw, 1995; Whittred & Chan, 1992).

#### Information Asymmetry Cost (H4, H5, H6)

**Non-current assets intensity**. Non-current assets intensity represents the portion of a firm's non-current assets in its total assets. A firm can only revalue its non-current assets. It is hypothesized that a firm with a larger proportion of non-current assets is more likely to revalue its assets. Findings of both univariate and multivariate tests supported that larger proportion of firms with higher non-current assets intensity can do more upward revaluation during the investigated years (Peasnell, 1998; Seng & Su, 2009).

**Growth options**. It is hypothesized that firms having larger growth options tend to revalue their non-current assets. We did not find any statistically significant findings for this assumption. The result from both analyses concluded that there is no positively significant relationship between the growth options and management decision for upward revaluation (Collins, Blackwell, & Sinkey, 1994).

**Stock dividend**. A negative relationship is predicted between the declaration of a stock dividend and the decision about the revaluation of non-current assets of the firm. This negative relationship is significantly supported by our findings (Aljinović Barać & Šodan, 2011).

#### **Limitations and Future Research**

Like other studies, this study also has some limitations. We used firm size, leverage, CFO, noncurrent assets intensity, firm size, stock dividend, and growth options as variables under contracting, political, and information asymmetry cost factors to test their impact on the revaluation of non-current assets. Many other factors can affect the upward revaluation in a better way. Inclusion of more independent and control variables are recommended to be added to get more significant findings.

Detailed impacts of revaluation policy choice on a company's financial performance should be explored by future researches. Future researches should also specifically focus on the use of fair value accounting for assets with underdeveloped or inactive markets to determine the so-called shadow standards areas. Moreover, we measured the firm size by taking the natural logarithm of assets of the firm, but in the literature, we found controversy in measuring the firm size. Brown et al. (1992) used the natural logarithm of total assets as a proxy to measure the firm size. On the other hand, profitability related measures like natural logarithm of sales (Lin & Peasnell, 2000a) and operating revenues (Cotter, 1999) are also used as a proxy for the firm size. Due to this controversy, it will be suggested for future research to use both natural logarithms of total assets before revaluation and operating revenue as a proxy for the firm size. Additionally, the following issues can be examined by future researchers:

- Market reaction, as well as the behavior of investors and other stakeholders, to asset revaluation.
- Effect of revaluations on the loan approval decisions by the financial decisions.
- Post revaluation analysis of actual performance and growth of firms.

- The impact of the firm's behavior toward earnings management as well as a market reaction toward revaluation of non-current assets.
- Use of industry variables along with other control variables.

## **Concluding Remarks and Managerial Implications**

This study examined the choices of revaluation of non-current assets made by Pakistani manufacturing firms during the period 2008-2017. Results of all empirical models (logistic regression and Mann Whitney U-test) concluded a significant relationship of the decision of a company to make a revaluation of its non-current assets with its political cost (firm size) and some portion of information asymmetry cost in the form of intensity and stock dividend. Other variables like information asymmetry cost and growth were insignificant and did not show any significant relationship with the revaluation of non-current assets. Contracting cost was not found to be significantly linked with upward revaluation. It is finally concluded that firms with a larger size, more intensity ratio, and less declaration of stock dividend will have more chances to do a continual revaluation of non-current assets under IAS-16.

Defining fair value accounting of long-term nonfinancial assets and preconditions for revaluation policy choice more precisely are the primary aims of standard setters and accounting regulatory bodies to avoid abuse and creative accounting reporting practices. In view of the foregoing, it is concluded that firms that revalue their non-current assets willingly and firms that revalue their non-current assets as per the requirement of IAS-16 should be distinguished. In short, there should be clear classification between firms with revaluation as a manager's choice and firms with revaluation as a regularity obligation.

In the context of managerial practice, the assumption of managerial inducement is a valid argument, as the essential management incentives arise due to the upward revaluation of non-current assets of firms listed on Pakistan Stock Exchange for the period 2008–2017. Furthermore, this paper also covers the interest of policymakers. Our findings and results highlighted the facts that there are two main reasons to explain the motivation of management for asset revaluation of listed firms in Pakistan. The first reason is the decision of management to revalue upwardly to avoid a technical default by causing the firm to incur the debt by exploiting the debt costs or renegotiation costs. This finding is in accordance with the debt hypothesis which explains that a firm having a high debt-to-equity ratio will have more incentive to select accounting procedures to lower its chances of violating debt covenants. The second reason for asset revaluation is that the management wants to revalue upwardly to indicate their chances of growth and the firm's betterment to decrease information asymmetry.

In a nutshell, the management decision is opportunistic in choosing to use the revaluation model as a device to improve the perceptive borrowing capacity of a company which reduces debt cost. Firms should communicate to the investors about the signals of financial prospect when revaluating their noncurrent assets. Firms are more likely to revalue their non-current assets when there are chances of maximum positive financial consequences. Future research should aim the discovery of the possible resourcefulness in the firms' behavior, as well as the reaction of the stock market to fixed asset revaluations.

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DEPENDENT VARIABLE					
Dependent Variable	Represented by	Measures as			
Revaluation Decision	R_N	1 (R) if the firm did a revaluation of assets and 0 (N) otherwise.			
INDEPENDENT VARIABLE					
Independent Variable	Represented by	Measures as			
Leverage level	DEBT	Ratio of total liabilities to total tangible assets			
Declining cash flow from operations	CFO	Change of cash flows from operating activities			
Firm size	LnAssets	Logarithm of Total Assets			
Non-Current Assets intensity	INTENSITY	Total Non-Current Assets/Total assets			
Growth options	GROWTH	Percentage change in total tangible assets			
Stock dividend	STOCKDIV	1 if there was a stock dividend and 0 otherwise			

## **Appendix: Variables Definition**