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The Security Price Impact on Firms Utilizing Derivatives across Industries

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Also, analysis shows that industry membership may in fact have some bearing on stock price of firms that utilize derivatives. Accounting earnings of derivative-using firms in high growth industries seem to have a greater impact on security prices whereas for those derivative-using low growth firms, the security price impact of accounting earnings is not significant. It may well be that the upside of significant growth outweighs the potential downside of derivative usage in the minds of the investors when it comes to high growth industry firms.

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Also, analysis shows that industry membership may in fact have some bearing on stock price of firms that utilize derivatives. Accounting earnings of derivative-using firms in high growth industries seem to have a greater impact on security prices whereas for those derivative-using low growth firms, the security price impact of accounting earnings is not significant. It may well be that the upside of significant growth outweighs the potential downside of derivative usage in the minds of the investors when it comes to high growth industry firms.

Lastly, when comparing non-derivative using firms along industry lines there appears to be some slight differences in significance levels between high growth and low growth industry firms. The general result, however, is that investors in firms which do not participate in derivative usage significantly correlate accounting earnings with security prices. Therefore, industry membership is not as crucial in investor selection of firms when the firm does not utilize derivatives.

I. Introduction

Derivatives are viewed by many as complex and murky in nature, however, they are not new to the financial scene. The early derivatives market began in the 1860s and consisted of farmers and grain merchants coming together in Chicago to hedge price risks in such commodities as corn, wheat, soy and other grain products. This began what came to be known as "futures" contracts. The traditional futures contract is an agreement between a seller and a buyer that the seller will deliver a product to the buyer at a price agreed to when a contract is first entered and the buyer will accept and pay for the product at some agreed upon future date. In addition, the buyer has the opportunity to liquidate some or all of the product prior to delivery. Although developed initially in the agricultural sector, derivatives quickly spread into the metals, energy and financial sectors.

Because of the debilitating effect of agricultural prices during the Depression, President Roosevelt recommended to Congress the first market reform that impacted derivatives. The Commodity Exchange Act (CEA) of 1936 restricted, as far as possible, the use of futures purely for speculative purposes, thus relieving commodity producers of injury and thus producing some amount of control over the use of derivatives. In addition, the CEA called for a formal and regulated exchange through which transactions may occur. Futures contracts were required to be traded on a publicly transparent market, fully regulated, and ensuring that commitments would be backed by adequate capital.

By the 1980s, a variant of futures contracts was developed, commonly referred to as "swaps." They are defined as an agreement between two parties to exchange a series of cash flows measured by different interest rates, exchange rates, or prices with payment calculated by reference to a base amount. An example of an interest rate swap would be where one party exchanges a variable rate obligation on an existing loan for a fixed rate obligation. The expectation is that the fixed rate will be lower than the variable rate. Thus, instead of buying or selling a single future rate (as would be true under a traditional futures contract) there now exists the potential for the "swapping" of commitments. As these complex derivative types took hold during the 1980s and 1990s the Commodity Futures Trading Commission (CFTC) granted them exemption from the CEA of 1936. This caused the number of interest rate swaps, currency swaps, and other swaps to increase at a significant rate. This culminated in the Commodity Futures Modernization Act (CFMA) of 2000. Signed into law by President Clinton, the CFMA removed derivative transactions, from all the regulatory requirements established in 1936 by the CEA. Those parties engaging in derivatives were now exempt from capital adequacy requirements, reporting and disclosure, regulation of intermediaries, self-regulation`, and bars on fraud or manipulation and excessive speculation. The Securities and Exchange Commission (SEC) was also barred from derivatives oversight. Through the passage of this Act lay the seeds for the destruction that would come in less than a decade.

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By October, 2008, the value of the unregulated derivatives market was estimated to be in excess of $60 trillion. Included in that amount was somewhere close to $30 trillion in credit swaps. At the same time, a perfect storm was developing. The Federal government was pursuing a course of easy money for home loans through maintaining low interest rates and providing Federally-backed less-than-secure home loans. Many of these "sub-prime" loans became embedded in the $30 trillion of credit swaps. As a result, when defaults began to occur, they first created a mortgage crisis, which developed into a credit crisis, which then turned into a "once in a century" systematic financial crisis that, but for a huge U.S. taxpayer intervention, may have led in the fall of 2008 to a worldwide devastating Depression.

The use of derivatives has become widespread throughout the U.S. economy over the past 25 years. Derivative usage is found in a broad range of industries, from office equipment producers, to retail, to healthcare. Although derivative usage seems to be most common in the United States, significant usage also has been occurring in Canada, France, Great Britain and Japan (International Swaps and Derivatives Association 2009). Usage of commodity, equity, and credit derivatives is more concentrated among specific industries. Multinational companies across all industries use derivatives to manage foreign exchange and interest rate risk. Indeed, derivatives continue to be an integral part of risk management within a growing number of corporations worldwide.

It should be clear that futures contracts in the form of derivatives must possess some benefit by shifting risk, otherwise they would not be used at all. Given that derivatives have been, and will continue to be used as instruments that permit the potential minimization of future financial risks, the question must be asked, "to what extent do they affect the security price of the firms that utilize them?" Clearly, if the objective of management is to maximize the return to the stockholders, some firms may be inhibited from using derivatives if they are viewed to minimize stock prices. On the other hand, if derivative use ultimately increases the stock price, more firms would elect their use.

The purpose of this study is to assess the role that derivatives play on the security prices of firms. In particular, do firms that engage in derivative use find that their change in stock price is significantly different from firms that do not utilize derivatives? This question will be addressed by first comparing derivative-using firms with firms that do not use derivatives in order to assess any general differences between the two groups. Next, a similar analysis will be conducted by firms in specific industry groups in order to assess if derivative usage is more pronounced by industry association.

II. Literature Review

The use of derivatives is a contentious issue. Nevertheless, whether one subscribes to Warren Buffet's warning about the danger of derivatives or Allen Greenspan's assertion that derivatives reduce risk (Berry 2003), the fact is that derivatives are popular and growing in use (Bodner et al 1995, Wolfson and Crawford 2010). Therefore, given the place of derivatives in the financial market place, it seem reasonable to ask what, if any, information content they provide in relation to security prices.

Many studies have examined the risk associated with derivative usage (Cornfield 1996, Guay 1999, Kuprianov 1995, Newman 1994, Hentschel and Kothari 2001). In general, these studies note that firms use derivatives as a hedge against exposure, but find that compared to firms which do not use derivatives, there does not appear to be any measurable difference in risk. This would lead one to suspect that no market impact from the use of derivative instruments would be found. Stunda (2014) finds that there is a difference in market impact for derivative-using firms which accepted Troubled Asset Relief Program (TARP) funds versus those which did not receive TARP funds.

In addition to risk, other researchers have examined the role of derivatives in an earnings management context. Jan Barton (2001) examined this issue and presented evidence "consistent with managers using derivatives and discretionary accruals as partial substitutes for smoothing earnings." An implication of this finding is that derivatives may indeed have a market impact through their effect on corporate earnings.

There is a popular belief that derivatives do not contribute any financial or economic substance to the general economy but are mere financial gambling devices (Gilani 2008). As a result, some authors arrive at the conclusion that derivative usage should play no role in security prices (Stulz 2009).

But how exactly can things go wrong for buyers and sellers of derivative instruments and how can this in turn lead to adverse earnings results which may in turn affect stock prices? Skeel and Partnoy 2007, describe the scenario in which this can occur. The ease of credit, in conjunction with loose U.S. monetary policy can lead to the mispricing of credit. This means that loans which can be sub-prime in nature are bundled together with loans with lesser risk, the risk on the bundle is, therefore, underestimated. As a result, mispricing on the bundled rate can lead to highly leveraged bets for the holders of such bundles. Subsequent defaults can then lead to an attempt to unwind these bundles, the effects can then steamroll and permeate national and international financial markets, and ultimately, the bottom line of a firm. Holders of undervalued derivatives are forced to record current period losses as the swaps take place,

placing downward pressure on earnings and forcing greater securitization (Pertrova 2009).

Given the use, nature, and circumstances that have swirled around derivative financial instruments, and based on the research undertaken to date, it becomes even more important to determine the link that derivatives have to stock prices. As the Financial Accounting Standards Board (FASB) continues to struggle to identify what exactly their role should be in the derivatives debate, it is important to understand the relationship that derivatives have to stockholder wealth, and stockholder wealth is ultimately dictated by the price of the stock.

III. Hypothesis Development

As previously noted, very few studies of derivatives directly link derivative usage to information content of earnings and security returns [Barton 2001, Stunda 2014]. However, if a correlation is established, evidence may suggest that firms could directly or indirectly affect the price of their stock in the capital markets through use (or non-use) of derivatives. Controlling for extraneous factors (i.e., change in corporate form, change in management, and change in ownership) there should not be significant difference in information content of earnings across study periods. Thus, the first hypothesis tests for the existence of market reaction for the sample firms using derivatives versus sample firms not using derivatives during a test period. Stated in the null form, the hypothesis tested is:

H1: Earnings information content effect on security prices for firms utilizing derivatives is not significantly different from firms not utilizing derivatives.

Stunda 2014 finds that there is a difference in market impact for derivative-using firms which accepted Troubled Asset Relief Program (TARP) funds versus those which did not receive TARP funds. This provides some market-based evidence that firms utilizing derivatives may have different characteristics. If so, a question that arises is are any differences associated with a particular industry or set of industries? In order to test this, the following hypothesis is stated in the null form:

H2: There is no significant difference in information content on security prices when firms utilizing derivatives are assessed by industry.

Lastly, in attempt to place findings from hypothesis 2 into perspective, an analysis is made of firms not utilizing derivatives. A premise set forth by Ball and Brown (1968) and others, is that earnings, more specifically, "unexpected earnings" was causing the stock price to move. Therefore, this extant theory is used to replicate the model first used by Ball and Brown in 1968 in order to establish that there is a correlation between earnings and security prices. This leads to the following hypothesis, stated in the null form:

H3: There is no significant difference in information content on security prices when firms not utilizing derivatives are assessed by industry.

IV. Data and Methodology

The sample consists of quarterly earnings and security prices during the years 2011-2015. Earnings data is obtained from Compustat and security price information is derived from the Center for Research on Security Prices (CRSP). The economic recession was said to officially end sometime in late 2009 to early 2010. In order to not confound results, the test period begins in the following year (i.e., 2011) and extends to the most recent year for which data is available (i.e., 2015). Also, the Electronic Data Gathering and Retrieval System (EDGAR), and the Wall Street Journal (WSJ) are used to analyze financial notes and other associated firm information in order to control for such things as change of corporate form, change in ownership, or change in management. If any of these could be documented during the test period, the firm is subsequently eliminated from the study.

A total of eight industries are analyzed in the study. In their analysis of earnings forecast accuracy, Sinha, Brown, and Das (2015) find that certain industries have experienced above average growth in the last ten years, while other industries have experienced below average growth during this same period. This study incorporates industry analysis from that study to highlight similar above growth industries, namely; Technology, Healthcare, Oil/Gas, and Banking/Finance. In addition, the same below average growth industries are also analyzed, they are; Utilities, Real Estate, Transportation, and Industrials. The total samples of firms by industry, are listed in Table 1. Firms included in the study sample contained all available information throughout the five year test period. In addition, the two sample groups were matched as closely as possible in terms of size (expressed by total assets).

Table 1: Study Sample

Industry	Derivative Firms	Non-Derivative Firms
Utilities	38	27
Real Estate	26	24
Transportation	29	29
Industrials	42	31
Technology	37	28

Healthcare	42	21
Oil/Gas	30	19
Banking/Finance	29	17
Total	273	196

In assessing hypothesis 1 an analysis of variance (ANOVA) is conducted on the total composite average percentage security price change of the two groups (i.e., derivative firms and non-derivative firms) in order to assess any differences between them.

With regard to hypothesis 2, the analysis follows the procedure first established by Ball and Brown (1968). The premise of the Ball and Brown study was to see whether the magnitude of unexpected earnings (as opposed to merely the sign of unexpected earnings) was related to the magnitude of the stock price response. Beaver, Clarke and Wright (1979) addressed the issue and discovered, in fact, that the magnitude of unexpected earnings was related to the magnitude of the stock price response. Again, they focused on market-adjusted stock returns to facilitate across-firm comparisons and to control for market-wide movements in stock prices. Ball and Brown (1968) and Beaver, Clarke and Wright (1979) show that despite the deficiencies of historical cost accounting, accounting earnings are potentially useful to investors. They also ushered in the so-called information perspective on the decision usefulness of accounting. The information perspective implies that investors' response to accounting information can provide a guide as to what type of information is or is not valued by investors.

The next logical question to ask was whether the market responded more strongly to unexpected earnings in some firms, and less strongly in other firms. This question is quite pertinent to accountants because we potentially would be better able to design financial statements if we knew the factors that predict when and why investors respond more strongly (less strongly) to financial statement information. Consistent with the literature, the term "Earnings Response Coefficient," or "ERC" is used to describe the strength of the market response to unexpected earnings. To understand this line of research, one needs to have an intuitive understanding of how investors might respond to accounting information in light of single person decision theory, portfolio theory, and efficient market theory. Here is the basic idea: Let's say that last period's earnings were $1 and, accordingly, that is the level of earnings an investor expects this year. When this year earnings are announced, the level of earnings are, say, $1.25, implying a $0.25 earnings surprise. If the investor believes this $0.25 level of unexpected earnings is a one-time shot that will not recur into the future, the investor will increase his assessment of stock value by $0.25. However, if the investor believes this $0.25 unexpected increase in earnings is a permanent boost to earnings that will recur in future years, then the investor's increase in stock price is $0.25 + the present value of receiving $0.25 into perpetuity. Given this framework for thinking about how investors should respond to unexpected earnings, it can be predicted that investors will respond more strongly to unexpected earnings when those earnings are expected to persist into the future. It can also be predicted that investors' response to unexpected earnings will be smaller the higher the discount rate they use in discounting those unexpected earnings that are expected to be received into perpetuity.

Subsequent numerous studies have tested these predictions, and here is what they found:

1) ERC are increasing in the persistence of earnings. This has implications for accountants because it suggests the importance of clearly identifying on the income statement those transactions that are nonrecurring transactions (Baginski and Hassell, 1990).
2) ERC are decreasing in the riskiness of the firm and the leverage of the firm because both imply that investors demand higher expected returns and thus will use a higher discount rate in discounting the unexpected earnings expected to persist into the future. Thus, accountants should minimize the opportunities for off-balance sheet financing (or make sure the off-balance sheet financing is transparent) (Ajinkya, Atiase, and Gift, 1991).
3) ERC are increasing in the growth opportunities of the firm because unexpected earnings reported by growth firms are expected to persist into the future. Thus, the forward-looking MD&A disclosures are particularly important because they provide information about growth opportunities (Collins and Kothari, 1994).
4) ERC are increasing in the quality of accounting accruals. Thus, detailed information about the components of accounting accruals might be useful to investors (Lev, 1989).

Therefore, the above extant theory and rationale was used to replicate the model first used by Ball and Brown in 1968 in order to establish that there is a correlation between earnings and security prices. The Dow Jones News Retrieval Service (DJNRS) was used to identify the date that each firm released quarterly financial data for the study periods. This date of data release is known as the event date. The following model is established for determining information content:

$$CARit = a + b1UEit + b2MBit + b3Bit + b4MVit + eit \quad (1)$$

Where: CARit = Cumulative abnormal return firm i, time t
A = Intercept term
UEit = Unexpected earnings by specific industry for derivative firms
Mbit = Market to book value of equity as proxy for growth and persistence
Bit = Market model slope coefficient as proxy for systematic risk
MVit = market value of equity as proxy for firm size
eit = error term for firm i, time t

The above regression is run multiple times for each industry and year in the sample. The coefficient "a" measures the intercept. The coefficient b1 is the traditional earnings response coefficient (ERC), found to have correlation with security prices in traditional market based studies (see Ball and Brown 1968). Unexpected earnings (UEi) is measured as the difference between the management earnings forecast (MFi) and security market participants' expectations for earnings proxied by consensus analyst following as per Investment Brokers Estimate Service (IBES) (EXi). The unexpected earnings are scaled by the firm's stock price (Pi) 180 days prior to the forecast:

$$UEi = [(MFi) - (EXi)]/Pi \qquad (2)$$

Unexpected earnings are measured for each of the sample firms during the test period. The coefficients b2, b3, and b4, are contributions to the ERC for all firms in the sample. To investigate the effects of the information content of earnings on security returns, there must be some control for variables shown by prior studies to be determinants of ERC. For this reason, the variables represented by coefficients b2 through b4 are included in the study.

For each firm sample, an abnormal return (ARit) is generated around the event dates of -1, 0, +1 (day 0 representing the day that the firm's financials were available per DJNRS). The market model is utilized along with the CRSP equally-weighted market index and regression parameters are established between -290 and -91. Abnormal returns are then summed to calculate a cross-sectional cumulative abnormal return (CARit).

In testing hypothesis 3, for firms not using derivatives, a regression analysis, similar to that used in testing hypothesis 2, is utilized. That model is presented below:

$$CARit = a + b1UEit + b2MBit + b3Bit + b4MVit + eit \qquad (3)$$

Where: CARit = Cumulative abnormal return firm i, time t
a = Intercept term
UEit = Unexpected earnings by specific industry for non-derivative firms
MBit = Market to book value of equity as proxy for growth and persistence
Bit = Market model slope coefficient as proxy for systematic risk
MVit = market value of equity as proxy for firm size
eit = error term for firm i, time t

Again, the above regression is run multiple times for each industry and year in the sample. All parameters used in hypothesis 2 are again used in testing this hypothesis.

V. Results

Table 2: Test of Hypothesis 1

One Way ANOVA-Derivative Versus Non-Derivative Firms Sample (2011-2015) Summary					
Groups	Count	Sum	Average	Variance	
Derivative Firms	273	1094.7	3.215	6.287461	
Non-Derivative Firms	196	707.2	7.385	3.476922	
Source of Variation	SS	*df*	MS	F-ratio	P-value
Between Groups	2518.106	1	401.618	23.191	.0000
Within Groups	982.775	468	3.002		
Total	3500.881	469			
Levene Statistic	*df*1	*df*2	Two-tail Significance		
7.1950	1	468	.001		
t-stat	df	p-value			
Welch's t-test	1.696	1	<.020		

As indicated in Table 2, the two groups are analyzed using the one-way ANOVA. The one-way ANOVA test indicates an F-ratio of 23.191 with an associated p-value of .0000. When the Levene test was performed to assess for homogeneity of variance, a Levene statistic of 7.1950 was obtained with a significance level of .001. This test indicates significant differences in the variances of the groups.

Because the variances of the groups are not equal, there exists violation of the assumption of homogeneity across the samples. In order to account for this, The Welch's test was performed. This test assesses significance between groups when variances do not equal. Based on the Welch's test, and as indicated in Table 2, a t-statistic of 1.696 was computed with a p-value of less than .020. This indicates that the mean of the sample groups are significantly different, and thus the null hypothesis of similarity between the groups is rejected.

In addition, close analysis of Table 2 indicates that the average composite percentage change in stock price for the derivative firms sample was +3.215, the respective change for the non-derivative firms sample was +7.385. This indicates that firms that do not utilize derivatives have a resultant average security price change that is almost double that of their derivative using counterparts. Also, the variance in the stock movements for non-derivative firms is approximately half of that for the derivative firms studied, indicating the potential for less risk in the non-derivative firms.

Table 3: b1 Variable Assessment- Derivative Firms Sample by Industry ERC2011-2015

Model: $CARit = a + b1UEit + b2MBit + b3Bit + b4MVit + eit$

Industry	2011		2012		2013		2014		2015	
	ERC	p value	ERC	p value	ERC	p value	ERC	p value	ERC	p value
Utilities	.019	0.48	.020	0.29	.021	0.57	.027	0.22	.030	0.30
Real Estate	.022	0.72	.019	0.44	.016	0.65	.017	0.59	.015	0.61
Transportation	.025	0.51	.030	0.47	.024	0.33	.022	0.19	.023	0.60
Industrials	.015	0.31	.011	0.40	.017	0.52	.012	2.27[c]	.014	2.37[c]
Technology	.091	1.90[b]	.090	1.95[b]	.094	1.88[b]	.099	1.91[b]	.097	1.88[b]
Healthcare	.051	2.42[c]	.053	2.39[c]	.053	2.23[c]	.060	2.19[c]	.057	1.92[b]
Oil/Gas	.060	2.33[c]	.064	1.91[b]	.058	1.88[b]	.064	2.24[c]	.074	2.28[c]
Banking/.Finance	.032	1.88[b]	.038	2.21[c]	.042	2.36[c]	.053	1.91[a]	.052	2.22[c]

[a] Significant at the .01 level
[b] Significant at the .05 level
[c] Significant at the .10 level
Total 273 firms in the sample

Table 3 indicates results of the regression analysis with respect to variable b1, which assesses the ERC of 273 derivative using firms contained in the sample by industry. Following the lead of Sinha, Brown, and Das (2015), Table 8 may be summarized as an analysis of above average growth industries (Technology, Healthcare, Oil/GA, Banking/Finance) and below average growth industries (Utilities, Real Estate, Transportation, Industrials).

For the above average growth industries, the CAR reflects positive information content on the ERC in each year of the study, and the response is significant at conventional levels in each year. For the below average growth industries, the CAR reflects positive information content on the ERC in each year of the study, but the response is not significant at conventional levels. The lone exception is for the "Industrials" industry which indicates a significant correlation between accounting earnings and stock price at the .10 level in years 2014 and 2015. All other variables in the regression are not significant at conventional levels.

Results indicate that industry membership may in fact have some bearing on stock price of firms that utilize derivatives. Accounting earnings of derivative-using firms in high growth industries seem to have a greater impact on security prices whereas for those derivative-using low growth firms, the security price impact of accounting earnings is not significant. It may well be that the upside of significant growth outweighs the potential downside of derivative usage in the minds of the investors when it comes to high growth industry firms.

In addition, whenever regression variables are employed, there is a probability of the presence of multicollinearity within the set of independent variables which may be problematic from an interpretive perspective. To assess the presence of multicollinearity, the Variance Inflation Factor (VIF) was utilized. Values of VIF exceeding 10 are often regarded as indicating multicollinearity. In the test of hypothesis 1, a VIF of 2.5 was observed, thus indicating a non-presence of significant multicollinearity

The results contained in Table 3 lead to a rejection of the second hypothesis which states that there is no significant difference in information content on security prices when firms utilizing derivatives are assessed by industry.

Table 4: b_2 Variable Assessment- Non-Derivative Firms Sample by Industry ERC2011-2015

Model: $CARit = a + b1UEit + b2MBit + b3Bit + b4MVit + eit$

Industry	2011		2012		2013		2014		2015	
	ERC	p value	ERC	p value	ERC	p value	ERC	p value	ERC	p value
Utilities	.030	2.31[c]	.033	2.41[c]	.039	2.22[c]	.031	2.27[c]	.038	2.32[c]
Real Estate	.025	2.44[c]	.029	2.46[c]	.022	2.33[c]	.030	2.34[c]	.025	2.48[c]
Transportation	.037	2.33[c]	.039	2.51[c]	.028	2.23[c]	.040	2.40[c]	.039	2.29[c]
Industrials	.022	2.44[c]	.027	2.37[c]	.033	2.49[c]	.037	2.29[c]	.035	2.38[c]
Technology	.109	1.68[a]	.104	1.63[a]	.113	1.65[a]	.112	1.69[a]	.109	1.77[a]
Healthcare	.082	1.64[a]	.079	1.59[a]	.091	1.66[a]	.087	1.70[a]	.091	1.72[a]
Oil/Gas	.079	1.63[a]	.070	1.90[b]	.082	1.63[a]	.077	1.88[b]	.080	1.93[b]
Banking/.Finance	.048	1.86[b]	.052	1.68[a]	.059	1.62[a]	.050	1.81[b]	.057	1.60[a]

[a] Significant at the .01 level
[b] Significant at the .05 level
[c] Significant at the .10 level
Total 196 firms in the sample

Table 4 provides results of the regression analysis with respect to variable b1, which assesses the ERC of 196 non-derivative using firms contained in the sample by their respective industry. Results indicate that for each year, the CAR reflects positive information content on the ERC and the response is significant at conventional levels. All other variables in the regression are not significant at conventional levels.

There appears to be some slight differences in significance levels between high growth and low growth industry firms. The general result, however, is that investors in firms which do not participate in derivative usage significantly correlate accounting earnings with security prices. Therefore, industry membership is not as crucial in investor selection of firms when the firm does not utilize derivatives.

To assess the presence of multicollinearity, the Variance Inflation Factor (VIF) was utilized. Values of VIF exceeding 10 are often regarded as indicating multicollinearity. In the test of hypothesis 3, a VIF of 2.2 was observed, thus indicating a non-presence of significant multicollinearity.

The results contained in Table 4 do not lead to a rejection of the third hypothesis which states that there is no significant difference in information content on security prices when firms not utilizing derivatives are assessed by industry.

VI. Conclusions

The purpose of this study was to shed light on the link between the information content of accounting earnings on security returns in the presence of derivatives within firms. To accomplish this, a study sample was chosen from years 2011-2015 which included firms within eight separate industries. The sample was partitioned by firms which engage in derivatives and firms which do not. In order to avoid confounding of the sample, firm size was matched as closely as possible in both samples, In addition, externalities such as changes in management, corporate form or management change were factored into the study and any firm(s) found to contain these changes were eliminated from the study sample.

Results indicate that firms that do not utilize derivatives have a resultant average security price change that is almost double that of their derivative using counterparts. Also, the variance in the stock movements for non-derivative firms is approximately half of that for the derivative firms studied, indicating the potential for less risk in the non-derivative firms.

Also, analysis shows that industry membership may in fact have some bearing on stock price of firms that utilize derivatives. Accounting earnings of derivative-using firms in high growth industries seem to have a greater impact on security prices whereas for those derivative-using low growth firms, the security price impact of accounting earnings is not significant. It may well be that the upside of significant growth outweighs the potential downside of derivative usage in the minds of the investors when it comes to high growth industry firms.

Lastly, when comparing non-derivative using firms along industry lines there appears to be some slight differences in significance levels between high growth and low growth industry firms. The general result, however, is that investors in firms which do not participate in derivative usage significantly correlate accounting earnings with security prices. Therefore, industry membership is not as crucial in investor selection of firms when the firm does not utilize derivatives.

With the increasing usage of derivatives across industries, it becomes important for investors to understand any implications associated with the use of derivatives. This includes not only the implication on the bottom line of the firm, but the subsequent impact of

those earnings on the security price of the firm. Given the dearth of extant studies on derivatives, this paper attempts to address this issue. In addition to the investor-related issue of the study, there are also implications for managers of firms within certain industries when derivatives are used.

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