



Derivative Initiative: Does the Use of Financial Derivatives Influence Firm Value in the Philippine Context?

Firms use financial derivatives as a way to hedge risky transactions to avoid financial risks. Studies have focused on firms' use of financial derivatives in developed countries. However, there is limited research done on emerging markets like the Philippines because these economies have only recently adapted advanced reporting standards that obligate the disclosure of the nature and extent of risks resulting from the use of financial instruments. We used Tobin's Q ratio to proxy for firm value and determine the presence of a hedging premium. Because derivatives are used by firms to hedge against currency risks, interest rate risks, and commodity price risks, we hypothesize that the use of financial derivatives by firms has a positive and statistically significant effect on firm value.

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Policy Recommendations

Hedging using financial derivatives is a risk-management strategy that a firm can implement to protect it from future uncertainty. A derivative is a type of financial instrument that is commonly used by firms in developed markets but is used by firms in emerging markets as well. The use of derivatives has been found to affect firm value, but the effect, whether positive or negative, is not conclusive. In the Philippines, a number of firms hedge using financial derivatives, and after examining the relationship between derivative use and extent of derivative use and firm value, we came up with the following recommendations:

Written by

Julio Alfonso D. Arrastia
Christina Angela N. Balagot
Joseph Anthony C. Go
Dominique Ann Philomena V. Lacuna
*School of Economics
De La Salle University*

- 1. Look into establishing a formal derivative exchange in the Philippines.**

Tsetsekos and Varangis (1997) argued that a formal derivative exchange facilitates the transfer of risk between economic agents by opening up opportunities for liquidity and price discovery, which improves market efficiency. Although our study does not directly and empirically test this, previous studies and data have reported a trend of countries with formal derivative exchanges having more efficient markets. Therefore,

we recommend looking into establishing a formal derivative exchange in the Philippines, which can hopefully allow derivatives to be more accessible to publicly-listed non-financial firms. This can create a more efficient system for transacting with derivatives that would allow them to incur less costs from the use of derivatives.

2. Improve reporting standards by having a stricter implementation of the Philippine Financial Reporting Standards 7 (PFRS 7).

Due to the poor reporting practices of several firms, there were instances in our study where we had to report missing data. This was the case for firms that reported the use of derivatives but did not properly disclose the notional values about their use of derivatives. Thus, the impact of the extent of derivative use for these firms was not accounted for. Therefore, we recommend a stricter implementation of PFRS 7 to ensure that publicly-listed non-financial firms in the Philippines adhere to the proper reporting standards to provide more complete data for the use of researchers that wish to undertake a similar study.

3. Conduct more studies on the effect of derivative use and extent of derivative use on firm value in an emerging market context.

One of the research gaps that our paper attempted to address was the lack of studies on the effect of derivative use and the extent of derivative use on firm value in an emerging market context. This limited research can possibly be attributed to the late implementation of more advanced reporting standards in emerging markets such as the Philippines. Therefore, we recommend that more studies be conducted in an emerging market context studying the effect of derivative use and extent of derivative use on firm value and examine whether this relationship, be it positive or negative, is statistically significant or not.

Introduction

The importance of risk management has been more evident over time given imperfect markets. Based on previous years when global economic conditions have not been favorable, the risks posed by the uncertainties of certain events and the extent of these risks have been challenging to estimate accurately. With such uncertainty in the global market, derivative instruments as a means of hedging against risk are relevant and are used by companies, especially those operating in countries with relatively mature capital markets. The Philippines, an emerging market, was reported to be one of the least efficient markets that use derivatives for risk-management (International Swaps and Derivatives Association, 2019). The use of this risk management technique is quite popular among firms in developed countries; however, the impact of using such hedging techniques among emerging markets have yet to be examined comprehensively.

Model Specification and Results

This study used the two-step Blundell-Bond system GMM estimation technique to evaluate the effect of derivative use and extent of derivative use on firm value, as proxied by the Tobin's Q ratio. This estimation technique provides consistent and unbiased results by addressing the different sources of endogeneity, such as unobserved heterogeneity and reverse causality, which some of the previous studies have failed to account for.

Our proxy for firm value was the Tobin's Q ratio, which is widely used in the literature and empirical studies and is widely accepted as a reliable proxy for firm value. We used the natural logarithm transformation of Tobin's Q. We calculated Tobin's Q as:

$$Tobin's\ Q = \frac{[MV\ of\ Common\ Equity + BV\ of\ Preferred\ Stock + BV\ of\ Total\ Debt]}{BV\ of\ Total\ Assets} \quad (1)$$

Similar to Ayturk et al. (2016), we employed two measures of financial derivative use in this study: (a) *DerivativeUse*, which equals 1 if the firm uses any kind of financial derivatives, and 0 otherwise; and (b) *Extent*, is used to capture the extent of hedging pursued by a firm; the notional value is a ratio between total notional value and book value of total assets, and is reported in a firm's annual report. The alternative measure *Extent* is employed because the dummy variable *DerivativeUse* cannot capture the extent or degree to which a firm hedges its risks. The kinds of derivatives considered in this study are currency derivatives, interest rate derivatives, and commodity derivatives because these are most commonly used by firms included in the sample. Additionally, we used control variables such as Firm Size, Profitability, Access to financial markets, Leverage, Investment growth, Industrial diversification, and Global diversification to control for factors that may confound the relationship of derivative use and extent of derivative use on firm value (Allayannis & Weston, 2001; Jin & Jorion, 2006; Panaretou, 2013; Ayturk et al., 2016).

Following Ayturk et al. (2016), we used regression analysis to examine the effect of the use of derivatives on firm value, and the effect of the extent of derivative use on firm value. We estimated Equations 2 and 3 to test these relationships:

$$Tobin_{it} = \alpha + \beta \cdot DerivativeUse_{it} + \sum \beta_1 Control_{it}^k + \sum \beta_2 Sector_{it}^j + \sum \beta_3 Year_{it} + u_{it} \quad (2)$$

$$Tobin_{it} = \alpha + \beta \cdot Extent_{it} + \sum \beta_1 Control_{it}^k + \sum \beta_2 Sector_{it}^j + \sum \beta_3 Year_{it} + u_{it} \quad (3)$$

The diagnostic tests employed in this study were the Arellano-Bond AR(1) test and the Arellano-Bond AR (2) test, both of which test for the presence of autocorrelation in the models used. We also employed the Hansen test to check for overidentifying restrictions and to test whether our models were correctly specified. These testing procedures are in line with the use of the Blundell-Bond system GMM estimator that addresses possible endogeneity issues (Roodman, 2009).

From the results of using Ln Tobin's Q and the sector-adjusted Tobin's Q with *DerivativeUse* as the independent variable, all except one coefficient of *DerivativeUse* were positive and statistically insignificant, suggesting that there is weak evidence of a hedging premium in firms who hedge as compared to firms that do not hedge considering publicly-listed non-financial firms in the Philippines. From the results of using Ln Tobin's Q and sector-adjusted Tobin's Q with *Extent* as the independent variable, all coefficients of *Extent* were positive and statistically insignificant at all significance levels, suggesting that there is weak evidence of an extent of hedging premium because there is not enough statistical evidence to support this extent of hedging premium for publicly-listed non-financial firms in the Philippines.

Both results are consistent in showing that there is weak evidence that derivative use and extent of derivative use have a positive effect on firm value; there is weak evidence of a hedging premium and the extent of hedging premium for publicly-listed non-financial firms in the Philippines. This statistical insignificance for the *DerivativeUse* and *Extent* independent variables can possibly be attributed to the small number of derivative users in the Philippines, the fact that the use of derivatives is only a small portion of a firm's overall risk-management strategy, as well as the incomplete and improper disclosure of derivative information in the annual reports of some firms.

Conclusion

Overall, we find a positive but statistically insignificant relationship between derivative use and firm value and between the extent of derivative use and firm value, which corroborates the results of previous studies that have taken endogeneity into account. Given that the number of hedgers in our sample (9.88%) is relatively small compared to the studies of Khediri (2010) where 58.5% of French firms in the study used derivatives, Panaretou

(2013) where 86.88% of UK firms in the study used derivatives, and Ayturk et al. (2016) where 36.41% of Turkish firms in the study used derivatives, this small sample size may explain the insignificant results. Although our results are insignificant, we believe our research is still an important stepping stone for more conclusive evidence of whether derivatives are beneficial or harmful to firm value in the context of an emerging market.

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CONTACT INFORMATION

DLSU - Angelo King Institute for Economic and Business Studies (DLSU-AKI)
Room 223, St. La Salle Hall
2401 Taft Avenue
1004 Manila

Angelo King International Center
Corner of Arellano Avenue and Estrada Street
1004 Manila

+63-2-8524-4611 loc. 287,
+63-2-8524-5333, +63-2-85245347 (Fax)
<https://www.dlsu-aki.com>