

How Does the Selection of Hedging Instruments Affect Company Financial Measures? Evidence from UK Listed Firms

George Emmanuel Iatridis (Corresponding author)

University of Thessaly, Department of Economics, 43 Korai street, Volos 38 333, Greece

Tel: 30-242-107-4918 E-mail: giatridis@econ.uth.gr

Polychronis Euangelopoulos

Economist

E-mail: chronisss@yahoo.gr

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Abstract

The study investigates the financial attributes of firms that utilise different hedging instruments. The findings show that firms that use interest rate swaps and futures and forwards tend to display higher size, growth, profitability, dividend payout and leverage measures as opposed to firms that do not use hedging. By distinguishing between two major types of hedging instruments, the findings assist users in understanding the economic consequences that stem from the selection of different hedging tools and in making unbiased predictions about firms' future financial prospects and position.

Keywords: Accounting policy choice, Corporate hedging, Interest rate swaps, Futures, Forwards

JEL Classification: M41

1. Introduction

The literature provides evidence that firms with large size and high growth and leverage measures are likely to use hedging in order to protect their financial position and performance (Adam, 2002; Guay and Kothari, 2003). Hedging may be used in order to reduce the possibility for debt covenant violation and financial distress as well as to mitigate earnings and cash flow volatility and subsequently to stabilise the tax obligation (Joseph, 2000). Hedging also reduces firms' financing costs and alleviates the possibility of bankruptcy (Cooper and Mello, 1999). The reduction of earnings volatility that may be achieved via hedging would be likely to reduce agency costs and reinforce firms' dividend policy (Nance et al, 1993; Bodnar et al, 1998). The use of hedging may also improve the quality of reported earnings and influence firm value (Krawiec, 1998; Bartram et al, 2009). Further, hedging can reduce a firm's riskiness and beta coefficient (Allayannis and Weston, 2001).

Firms may be inclined to hedge if external capital is costly (Froot et al, 1993). Managers may adopt certain hedging strategies that serve their interests even if they are detrimental for shareholders or for the firm's long-term prosperity (Stulz, 1990; Guay, 1999). It is implied that managers may seek to influence the reported earnings in order to meet financial analysts' forecasts and investors' expectations (Chung et al, 2002; Brown and Caylor, 2005). They may also desire to maximise their compensation and influence investors' perceptions and avoid attracting market authorities' attention and scrutiny (Fields et al, 2001; Doukas et al, 2005).

The study seeks to describe the financial attributes of hedgers that use different hedging instruments. In particular, it focuses on the use of futures, forwards and interest rate swaps and examines how their use affects the financial performance and position of hedgers. To further confirm the empirical findings, the study also draws comparisons with firms that do not use hedging. The findings provide evidence that the implementation of futures, forwards and interest rate swaps tends to significantly improve hedgers' growth, liquidity, profitability and dividend payout. It is implied that the degree of influence over hedgers' financial numbers would vary based on the type of hedging instrument used.

The remaining sections of the study are as follows. Section 2 describes the research hypothesis. Section 3 presents the datasets of the study. Section 4 discusses the empirical findings, and Section 5 presents the conclusions of the study.

2. Research Hypothesis

2.1 Use of Hedging Instruments

The study examines the differences in the financial attributes of firms that implement corporate hedging using different hedging instruments. It is noted that 46% and 39% of the sample firms use interest rate swaps, and futures and forwards respectively. A survey carried out by the Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in 2001, confirms our findings and indicates the relative significance of forwards and swaps of foreign exchange and interest rate. Hence, the study focuses on firms that use interest rate swaps and futures and forwards. It has been found that only 11% and 4% of the sample use options and caps and collars respectively (see Figure 1).

Insert Figure 1 Here

The dependent dummy variables that are used in the logistic regressions are respectively as follows: 1 for hedgers using interest rate swaps and 0 for non-hedgers; and 1 for hedgers using futures and forwards and 0 for non-hedgers. The hypothesis that is tested is the following:

H_1 Firms that use certain hedging instruments to cover their open market positions are likely to exhibit different financial attributes compared to firms that use no hedging instruments.

The regression models that are employed are respectively as follows:

$$IRS_{i,t} = a_0 + a_1 Profitability_{i,t} + a_2 Growth_{i,t} + a_3 Leverage_{i,t} + a_4 Liquidity_{i,t} + a_5 Size_{i,t} + a_6 Investment_{i,t} + e_{i,t} \quad (5)$$

$$FF_{i,t} = a_0 + a_1 Profitability_{i,t} + a_2 Growth_{i,t} + a_3 Leverage_{i,t} + a_4 Liquidity_{i,t} + a_5 Size_{i,t} + a_6 Investment_{i,t} + e_{i,t} \quad (6)$$

where $IRS_{i,t}$ is a dummy variable indicating the use of interest rate swaps. $IRS_{i,t} = 1$ for hedgers using interest rate swaps and $IRS_{i,t} = 0$ for non-hedgers,

$Profitability_{i,t}$

$Growth_{i,t}$

$Leverage_{i,t}$

$Liquidity_{i,t}$

$Size_{i,t}$

$Investment_{i,t}$

$FF_{i,t}$

$e_{i,t}$

are proxies used to control for firm profitability, growth, leverage, liquidity, size and investment respectively (see Appendix 1),

$FF_{i,t}$ is a dummy variable indicating the use of futures and forwards. $FF_{i,t} = 1$ for hedgers using futures and forwards and $FF_{i,t} = 0$ for non-hedgers.

$e_{i,t}$ is the error term.

3. Datasets

Accounting and financial data were collected from DataStream. Financial statement information required for the empirical investigation was collected from the Financial Times Annual Report Service. The sample consists of 229 UK firms listed on the London Stock Exchange. All sample firms have adopted International Financial Reporting Standards (IFRSs). The study focuses on firms that utilised hedging practices, i.e. hedgers, and firms that did not, i.e. non-hedgers. 134 sample firms used corporate hedging, while 95 firms did not. The study focuses on industrial firms and has excluded banks, insurance, pension and brokerage firms. The study concentrates on the post IFRS adoption year 2006 and examines 2006 financial numbers. In order to test the research hypothesis, the study makes use of binary logistic regression analysis.

4. Research Findings

4.1 Use of Hedging Instruments

Focusing on firms that use hedging instruments to provide cover for open market positions, the study finds evidence that users of certain hedging instruments tend to exhibit better financial measures than non-users. Hence, H_1 holds. Table 1 (Panel A) shows that firms that use interest rate swaps appear to exhibit higher leverage (CGEAR), and subsequently higher interest charges (INTMV). Thus, they would need to hedge the inherent interest rate risk and cover themselves against the possibility of financial distress and debt covenant violation. Panel A also indicates that firms that use interest rate swaps tend to be larger (LNMV). This would imply that the size of the firm would cause the usage of derivatives. They also display higher measures of growth (DIVSHG), suggesting that they need to protect and enhance their development and prosperity (see Fong, 2005). Additionally, they tend to exhibit higher profitability (OPM and EPS), implying that the use of such instruments has benefited their financial performance.

Panel B shows that firms that use futures and forwards display similar financial attributes, in the sense that their financial performance tends to be favourably affected by the use of such instruments. In particular, Panel B indicates that the use of futures and forwards has a favourable impact on firms' profitability (OPM) and growth (EPSG, PEG and DIVSHG), which appear to be higher. The use of such instruments has enabled firms to distribute higher dividends (DIVSH) to shareholders, while it has also improved their liquidity (CFSH) (see Realdon, 2007). A motive behind the use of futures and forwards may be the higher short-term leverage (CLSFU) that is evident, expressing the need to protect firm financial position and credibility.

The fact that the use of different instruments leads to different financial attributes for hedgers as opposed to non-hedgers may be explained by the underlying characteristics of companies that use interest-rate swaps compared to those that use futures and forwards. For example, the use of interest-rate swaps would be likely related to significant levels of debt, which would call the company to use interest-rate swaps for a cover against an interest rate increase. This is supported by the higher leverage (CGEAR) that users of interest-rate swaps display as shown in Panel A. Bartram et al (2009) also report that firms with high interest rate exposure are likely to use interest rate derivatives. On the other hand, the users of futures and forwards exhibit a different picture. They appear to present higher growth (e.g. EPSG and PEG) and also higher liquidity (CFSH) and dividend payout (DIVSH), implying that they likely seek to expand, improve their financial position and attract investors. Future research should examine the differences between hedgers and non-hedgers using both interest rate swaps and futures and forwards.

5. Conclusions

The study investigates the financial attributes of firms that utilise different hedging instruments. The findings show that firms that use interest rate swaps and futures and forwards tend to display a significant improvement in their financial numbers as opposed to firms that do not use hedging. The effective use of hedging would tend to reduce the level of riskiness and variability and would have a favourable effect on company fundamentals. Firms that utilise interest rate swaps and futures and forwards appear to exhibit higher size, growth, profitability, dividend payout and leverage measures. The findings are useful for hedgers and financial analysts, as they provide insightful information about the effects of hedging on firms' financial performance and position. By distinguishing between two major types of hedging instruments, the findings assist users in understanding the economic consequences that stem from the selection of different hedging tools and in making unbiased predictions about firms' future financial prospects and position.

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Table 1. Logistic Regression Analysis

Use of Hedging Instruments			
Panel A Use of Interest Rate Swaps		Panel B Use of Futures and Forwards	
Hedgers vs. Non-hedgers		Hedgers vs. Non-hedgers	
Variables	Coefficients	Variables	Coefficients
LNMV	0.6738 ** (0.9225)	EPSG	5.8699 ** (3.3637)
DIVSHG	23.2049 ** (11.9192)	PEG	3.2062 ** (1.6691)
OPM	2.5733 * (1.6676)	DIVSH	8.3634 * (7.1547)
EPS	14.3240 * (11.5182)	DIVSHG	5.9919 * (3.5453)
INTCOV	0.1500 * (0.004)	OPM	25.9622 * (15.7423)
GEAR	0.2241 * (1.1239)	CFSH	4.0097 ** (1.7383)
Constant	0.0209 (1.9812)	CLSFU	0.3223 * (0.2835)
		Constant	0.753 (0.7767)
Model χ^2	0.29 ***		1.721 **
% correctly classified	52.3 ***		51.8 ***
Sample size	N ₀ =61, N ₁ =95		N ₀ =53, N ₁ =95

** and * indicate statistical significance at the 5% and 10% level (two-tailed) respectively. All the explanatory variables were entered/removed from the logistic regression using a step-wise procedure with a p-value of 0.05 to enter and a p-value of 0.10 to remove. The Wald statistic was used to test the null hypothesis that each coefficient is zero. 61 sample firms have used interest rate swaps and 53 firms have used futures and forwards. The rest 20 sample firms (not examined here) have used options and caps and collars.

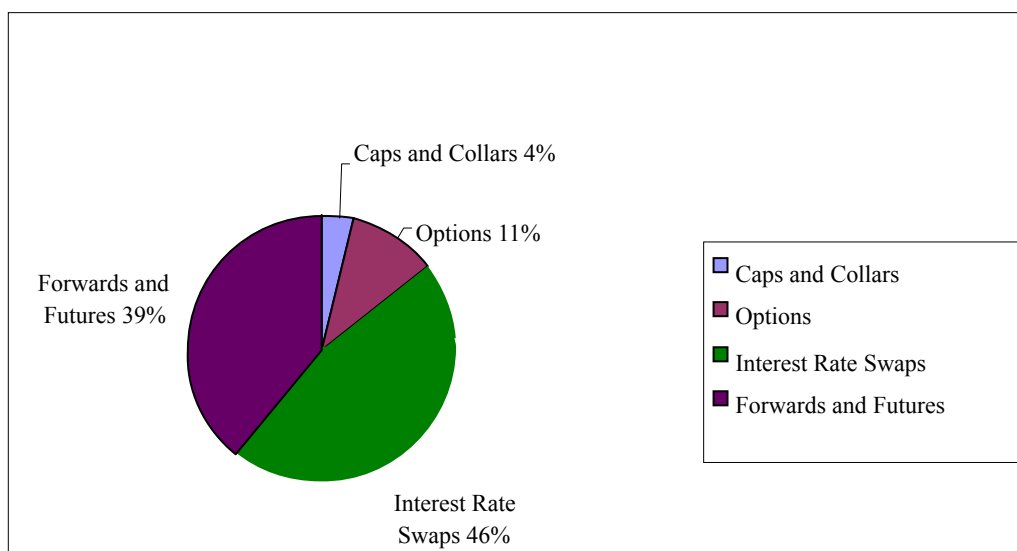


Figure 1. Hedging Instrument Usage for 2006

Appendix 1. Explanatory Variables

<i>Size</i>	
LNMV	Natural logarithm of market value
<i>Dividend</i>	
DIVSH	Dividend divided by number of ordinary shares in issue
<i>Growth</i>	
EPSG	Earnings per share growth
PEG	Price to earnings growth
DIVSHG	Dividend per share growth
<i>Profitability</i>	
OPM	Operating profit divided by sales
EPS	Earnings available to shareholders divided by number of ordinary shares in issue
<i>Liquidity</i>	
CFSH	Cash flow from operating activities divided by number of ordinary shares in issue
<i>Leverage</i>	
CLSFU	Current liabilities divided by shareholders' funds
INTCOV	Profit before interest and taxation divided by interest expense
GEAR	Total borrowings divided by total borrowings plus total equity
