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Article · January 2010

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Risk signal, financial derivatives transactions and the Indonesian GAAP*

Hilda Rossieta  
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Abstract: Motivated by the accounting events of firm’s default related to derivatives and other financial instruments transactions, this study is aimed to investigate the capability of accounting information to signal the risks associated with the use of financial derivatives for hedging. Hypothesis are developed based on the theory and empirical evidences of manager’s motive to use derivatives for hedging (Berkman & Bradbury, 1968; Dune, et al., 2003) as well as signaling theory of accounting information (Ball & Brown, 1968; Beaver & Dukes, 1972; Jensen & Meckling, 1976; Megginson, 1997). The hypotheses are formulated in the Ordinary Least Square model. The study uses Statistical Product and Service Solutions (SPSS) version 14 as software to conduct the statistical tests. Non-bank and non-financial institutions firms with financial derivatives transactions listed in Indonesian Stock Exchange during 2001 to 2006 are chosen as the sample. Determinations of the time frame has considered the timing of introduction of revisions of accounting standard on derivatives and other financial instruments in Indonesia PSAK 50 Financial Instruments: Presentations and Disclosures which was published in July, 1998, as well as PSAK 55 Financial Instruments: Recognition and Measurements which was published in 1998. Based on the sample selections procedure and the completeness of the data required by the model, 24 firms listed during 2001–2006 or equal to 66 firm-years observations were identified as the data to be tested. Empirical evidences suggests that Indonesian GAAP is capable of providing signal associated with: (1) Fair value exposures related to manager’s motive to reduce the cost of financial distress; (2) Cash flow exposures related to manager’s motive to practice tax arbitrage as well as to overcome underinvestment problems; (3) Interest rate risks related to manager’s motive to avoid the risk default due to limitations of debt covenants; (4) Forex risk related to manager’s motive to control forex exposures caused by foreign operations as well as foreign sales.

Key words: risk signal; financial derivatives accounting; manager’s hedging motive; Indonesian GAAP

1. Introduction

The trace of derivatives in the context of corporate finance start in form of capital instruments, in particular are shares and debt securities. From the contractual perspectives, shares and debt securities has clear distinction in terms of financial cost (i.e., dividend for shares and interest for debt). In addition, from accounting earnings perspective, they have diverse implications on tax and financial performance. However, the difference from

* Acknowledgement: This research is funded by Competitive Research Grant from DRPM – the University of Indonesia under contract No. 240AF/DRPM-UI/NI.4/2008. This Paper has been presented in the 10th Asian Academic Accounting Association Annual Conference, November 15-18, 2009, Istanbul, Turkey.

Special thanks to Septian Haryo Seto, MSc for helping the author out with the data, and also for Desi Adhariani, MSi and Dyah Setyaningrum, SE, MSM for being the cheerful research assistant.

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Risk signal, financial derivatives transactions and the Indonesian GAAP

economic terms most likely to be less clear (Davies, et al., 1994). This is due to development and growing complexity of capital instruments that characterized both equity and debt, such as redeemable preference shares (i.e., substantially it is resemble more as debt than equity), convertible bonds (i.e., closer to the nature of equity than debt, even before conversion occurred), or securities with its valued tied to debt value like Market Based Securities (MBS).

Rapid development and growing complexity create challenges for accounting profession to put balance judgment on competing considerations of substance over form when accounting for financial instruments. Previous studies (e.g., Beaver & Dukes, 1972; Ball & Brown, 1968) suggested that residual changes in stock prices were highly associated with residual changes in earnings. One interpretation is that accounting earnings are perceived to be the best approximation of economic value of the firm, in term of stock price. This means that the economic substance matter the most on the reporting earnings. However, the fact that fundamental distinction of capital instruments is rooted in legal form is more likely to cause fair judgment on economic substance more difficult for the accounting profession. The issues regarding economic substance versus legal form generate problems for accounting profession as well as accounting information to accommodate achievement of efficient contracting cost.

The expected role of accounting in the efficient agency contract seemed to be compromised when looking at inability of accounting information to immediately detect the existence of derivatives related financial scandals in the past (Winograd, et al., 1995). This relates to the potential use of financial derivatives to hedge the market risk, but at the same time, could also be used for “gambling” (i.e., engage in trading derivatives without any link to underlying assets/liabilities which expose the company to unlimited downside risk). Most importantly, unless manager provide sufficient disclosure regarding their intention, the financial market allows manager to switch between hedging and trading purpose to go unnoticed in the financial statements. Hence, the “off-balance-sheet” nature of financial derivatives instruments allow the financial risk to be concealed until the uncontrollable problem suddenly appeared.

Some major issues surrounding accounting and reporting for financial derivatives and other financial instruments, among others, are:

1) Financial derivatives could be used for trading (i.e., profit seeking activities) or for hedging (i.e., to manage the financial risk exposure). The effect of hedging versus trading derivatives transactions is contradictory. Derivatives hedging stabilize earnings, while derivatives trading increase earning volatility.

2) Financial derivatives need only small upfront investment, while the down-side risk could be unlimited. The unlimited down-side risk especially happen when there are no underlying assets associated with the financial derivatives transactions, as in the case of financial derivatives trading to gain profit. Therefore, disclosures regarding managements’ intention to use derivative (i.e., for trading or hedging) is critical to increase transparency of risk exposures associated with financial derivative transactions. However, there is timing incompatibility between management intentions for using derivatives in on one hand, and financial reporting on the other hand. Management intentions could change easily anytime dependent upon the opportunity of market movement, while, in contrast, accounting information is reported periodically. Therefore, some argued that although management has good intention to report the transactions, yet, accounting information is naturally incapable of reporting risk exposure associated with derivatives transactions.

3) Being a financial instruments, financial derivatives transaction involving fair value measurements. The accuracy of fair value measurements depends on the availability of market value, as well as frequency of trading
activities in the “arm’s length transactions” (i.e., investors’ decisions to sell, buy or hold are purely based on rational considerations, free from conflict of interest or forces of any kinds). Fair value measurements become problematic during the financial market crisis such as occurred in the 2007. In such situation, most of the parties willing to sell and only a few willing to buy. This condition leads to unprecedented decreasing market value for almost all the traded financial instruments. To contain further damage, some regulators suspended trading activities, hoping for the market to regain confidence. Practicing fair value measurements in these circumstances needs benchmark other than the market, such as the quantitative models provided by management. However, accuracy and reliability of the model is often difficult to be assessed objectively. In the case where the model is absence, financial instruments are valued by their historical cost. This is problematic in the market that is severely distressed, in which historical cost is often higher than the distressed market value. To present historical cost being bigger than market value is inconsistent with conservatism principles, where the lowest value between market and historical cost should be chosen for the purpose of accounting report.

(4) Even in the normal market circumstances, where “arm’s length transactions” could be practiced, reporting unrealized gains and losses associated with fair value measurement of financial derivatives is also problematic. Although there is a clear distinction between reporting gains/losses due to trading (i.e., charged directly to current Profit and Loss Statements) and hedging activities (i.e., deferral accounting is acceptable), yet the ways deferral accounting should be practiced are still in disputes, including: (a) What are the criteria that differentiate hedging from trading, so that one is entitled to apply hedge accounting? (b) Where should unrealized gains or loss be reported, in the balance sheet or in the comprehensive income? (c) If they are to be reported in the balance sheet, should they be reported as parts of underlying assets/liabilities, or should they be charged directly to the equity section? (d) If they are to be reported in the balance sheet, are netting-off presentation (i.e., direct off-set between unrealized gains or loss originated from the hedge contract and underlying assets/liabilities) acceptable? (e) How do de-recognized hedge positions?

Investigation of the Financial Accounting Standard in Indonesia context would be quite interesting for the some reasons. Mainly, despite growing importance of derivatives and other financial instruments in the corporate finance practice in both global as well as national level, yet, financial default related to the use of financial derivatives continue to be happened. This leads to the major doubt regarding the capability of financial accounting information to provide signal regarding risks related to the use of financial derivatives.

Considering the contrasting effects of financial derivatives use for hedging and trading on one hand, and the role of accounting information used by managers to signals firm’s performance on the other hand, this research is aimed to investigate the capability of accounting information to provide signal regarding risk associated with financial derivatives and other financial instruments in the context of Indonesian capital market. More specifically, this research would investigate whether the market could appreciate the use of financial derivatives for hedging purpose using accounting information prepared based on Indonesian GAAP.

2. Theoretical framework and hypotheses development

2.1 Manager’s motives to use financial derivatives for hedging

Berkman and Bradbury (1996) argue that, risk management can add value to a firm when capital market is imperfect. This provides incentives for managers to practice risk management by using financial derivatives, aimed at increasing firm’s performance. Accordingly, the managers’ motives to use financial derivatives are to
manage risk exposures, including interest rate risk, foreign exchange risk, credit risk, fair value risk and cash flow exposure. More specifically, the corporate (i.e., manager) motive to use derivative hedging are as follows:

(1) To reduce the expected cost of financial distress (Mayer & Smith, 1982; Smith & Stulz, 1985) in which manager presumably use financial derivatives to manage fair value exposure, cash flow exposure and interest rate risk.

(2) To practice tax arbitrage and reduce the expected tax charge (Mayers & Smith, 1982; Smith & Stultz, 1985) in which manager most likely to use financial derivatives to manage cash flow exposure.

(3) To reduce agency cost associated with underinvestment problem (Mayers & Smith, 1987; Bessembinder, 1991) due to increased volatility of future cash flows or short-term liquidity constraints (Froot, et al., 1993) in which manager presumably use financial derivatives to mitigate fair value exposure, cash flow exposure and interest rate risk.

(4) To accommodate managerial self interest (i.e., to gain high and stable bonus) and risk aversion (i.e., to avoid debt covenant violation) as argued by Smith and Stultz (1985) as well as Dunne, et al., (2003), in which manager most likely to use financial derivatives to manage fair value exposure and credit risk.

(5) To overcome the short term liquidity constraint (Berkman & Bradbury, 1996), in which manager presumably use financial derivatives to manage cash flow exposure.

(6) To manage foreign currency exposure (Berkman & Bradbury, 1996), in which manager most likely to use financial derivatives to manage foreign exchange risk.

The study of Berkman and Bradbury (1996) on all domestic and non financial services firms in New Zealand which held derivative financial instruments at the 1994 balance sheet date find that none of the sample firms used derivatives for speculative purposes. In addition, the study develops and test the hypotheses based on the theory of financial derivatives hedging explained above. Accordingly, the empirical evidence suggested that firms with financial derivatives have specific characteristics, such as: (1) Tend to be larger; (2) Have higher leverage; (3) Less liquid; (4) Have greater dividend pay out; (5) Have higher use of quasi-equity (i.e., convertible debt) in their capital structure; (6) Have bigger tax losses carried forward; (7) Have higher long term growth prospects; and (8) Have higher involvement in overseas activities.

Other study done by Dunne, et al. (2003) tested 210 listed firms in UK right after introduction of Financial Reporting Standard on Derivatives and Other Financial Instruments No. 13 (FRS 13) in 1998. Some results of Dune, et al.’s study (2003) consistent with Berkman and Bradbury’s (1996) findings on firm’s characteristics, where firms which use financial derivatives for hedging are larger and have higher involvement in overseas activities. In addition, although supported by less strong predictors, the empirical findings suggest that firms use financial derivatives to reduce risk of financial distress and overcome the underinvestment problems.

2.2 Signalling theory

Signalling theory emanate from the context of agency theory, in which firm’s ownership is separated from its management (Jensen & Meckling, 1976). Further, manager supposed to act as an agent for the benefit of owner who acts as principals, by maximizing the firm’s value. Such agency relationship incorporates several problems, among others: (1) Agency costs; (2) Information asymmetry; (3) Moral hazards; and (4) Adverse selection.

Agent and principals as individuals have their own self-interest, which might be conflicting with others. Contracts between agent and principals are set to protect and bond interests of all the parties involved in the agency relationship. However, no one could make the perfect contract that could fully protect self-interest of the contracting parties involved. This leads to the practice of manager’s moral hazard, in which managers try to
maximize their self-interest (i.e., utility value) at the cost of firm’s value (i.e., adverse selection). Manager’s moral hazard to a great extent is due to the condition of information asymmetry favourable for manager who involve in daily operations of the firm. On the other hand, although principals own the firms, yet their access to information is limited to the information provided by monitoring systems only. Although principals have set bonding contract and monitoring system to protect their self-interests, still, the probability of managers’ adverse selection at the costs of principals’ interests could never been fully eliminated (i.e., residual loss). For that reasons, agency costs are assumed to be consisted of three kinds of costs: (1) Bonding cost; (2) Monitoring costs; and (3) Residual loss.

Due to the assumed condition of information asymmetry, potential investor of public companies use information provided by the monitoring system to asses firm’s value. Accounting information provided in the financial statements is considered as one of the most prominent and reliable monitoring system. In the light of these circumstances, managers try to provide signal of firm’s performance via financial statements, both directly (i.e., via narrative disclosures) and indirectly (i.e., via accounting numbers), so that firm’s value would be more consistent with its performance.

Scott (2006) provides some empirical evidence from public companies in US suggesting that to maintain high equity positions, some managers purposely hold bad news and tend to disclose good news. In addition, high level of leverage often interpreted as signal for good performance, as only companies with good performance are capable of taking such a high leverage risk. Therefore, high-leverage firms are valued higher by investor compared to low-leverage firms (Megginson, 1997).

2.3 Hypothesis development

Based on the theory of corporate motive of financial derivatives use as well as signaling theory of accounting information, this study argue that when firms used financial derivatives in their business operations, the firms’ performance is associated with factors that motivate managers to use financial derivatives. If financial derivatives are used for hedging purpose, then, firm’s value is expected to be more stable. This leads to the following propositions:

Firm’s performance is positively associated with manager’s motive to use financial derivatives to mitigate fair value risk, cash flow risk, interest rate risk, credit risk and foreign exchange risk.

Firm’s performance is defined as volatility of firm’s value, assuming that general aim of derivatives use for hedging purpose is to mitigate risks, which resulting in increased stability of firm’s value. More specifically, managers’ motive to use financial derivatives is hypothesized as follows.

2.3.1 Managers’ motive to reduce the cost of financial distress

Financially distressed firms have higher variance of firm’s value hence tend to have higher cost of capital (Mayer & Smith, 1982; Smith & Stulz, 1985). To reduce the probability of financial distress (i.e., mitigating the fair value exposure, cash flow exposure and interest rate risk) firms use derivatives hedging aimed at lessening the variance of firm’s value and reducing the cost of capital. Based on that argument, the hypothesis suggested is as follows:

H1: Volatility of firm’s value is positively associated with cost of capital.

2.3.2 Manager’s motive to reduce income tax

Under progressive tax rate, firms with high income volatility are having average tax higher than firms with stable income. For example, in the two consecutive years, due to different tax bracket, firms with loss of Rp. 1 billion, in the first year and has a profit of Rp. 1 billion, in the second year would pay higher average tax compared to firms which has a profit of Rp. 0.5 billion each year. Although cumulative income for these two
different firms are equal (i.e., Rp. 1 billion in total), yet, the firm that having profit of Rp. 1 billion would pay higher tax due to the higher rate applied for higher level of income. Accordingly, firms are using financial derivatives hedging to smooth earnings and reduce average tax charge (i.e., mitigating cash flow risk exposure). Hence, progressive income tax provides incentives for manager to practice tax arbitrage by using financial derivatives for hedging. Therefore, the hypothesis is as follows:

**H2:** Volatility of firm’s value is negatively associated with tax arbitrage.

### 2.3.3 Managers’ motive to overcome underinvestment problems

As agent to shareholders, managers might forgo positive Net Present Value project if the gains accrue primarily to debt-holders (i.e., underinvestment problems). This circumstance provide incentives for managers to use derivatives to hedge cash flow exposures, so that the underinvestment problems could be overcome, but at the same time, could also increase the residual claim for shareholders in the future. Accordingly, the hypothesis is as follows:

**H3:** Volatility of firm’s value is positively associated with the volatility of future cash flow.

### 2.3.4 Manager’s motive to mitigate default-risk as well as to accommodate manager’s self-interest

If hedging could increase firm’s value by reducing its variability, and managers’ wealth is dependent on firm’s value, then, managers have incentives to use financial derivatives hedging for default-risk aversion as well as to accommodate their economic self-interest. One of risk associated with firm’s default is restriction in debt covenants. Accordingly, when firms violate the restriction, then most probably that firm’s value would be deteriorated. In addition, as bonus level is often tied to earnings level, manager use financial derivatives to maintain high level of earning. Therefore, the hypotheses are as follows:

**H41:** Volatility of firm’s value is positively associated with level of leverage.

**H42:** Volatility of firm’s value is positively associated with earnings level.

### 2.3.5 Manager’s motive to overcome short-term liquidity constraint

Manager could resolve conflict of interest between shareholders and debt-holders by implementing low dividend pay-out policy, so that plenty of funds available to pay the fixed claimholders, and the same time, maintaining sufficient liquidity as a means of financial buffers. Accordingly, firms have incentive to use financial derivatives to hedge cash flow risk exposure, maintain stable cash flow and overcome short term liquidity constraint. Based on this argument, the hypothesis is as follows:

**H5:** Volatility of firm’s value is positively associated with short-term liquidity constraint.

### 2.3.6 Manager’s motive to hedge foreign exchange exposure

Compared to others, firms with overseas operations have higher proportion of foreign exchange (Forex) assets and liabilities relative to its equity, and also, they tend to have higher Forex sales proportion. Therefore, they presumably have higher exposures to foreign exchange risk. Accordingly, these kinds of firms tend to use financial derivatives to hedge foreign exchange exposure. Therefore, hypothesis is as follows:

**H61:** Volatility of firm’s value is negatively associated with the net open position between foreign assets and foreign liabilities.

**H62:** Volatility of firm’s value is positively associated with proportion of foreign sales.

### 3. Research methods and methodology

### 3.1 Hypotheses testing
The hypotheses would be tested using the Ordinary Least Square (OLS) regression method based on the following model:

\[ Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4a(X_{4a}) + b_4b(X_{4b}) + b_5X_5 + b_6aX_{6a} + b_6bX_{6b} + \varepsilon \]

Most of the variables used in the model are adopted from Berkman and Bradbury’s study (1996), as defined as follows:

- **Y**: Firms performance (VOL), defined as annualized 30 day volatility of stock return (%);
- **X_1**: Cost of capital (STRESS), defined as interest expense to total debt ratio (%);
- **X_2**: Tax arbitrage (TARBIR), defined as ratio of earnings growth/tax growth (%);
- **X_3**: Volatility of future cash flow (UNINV) defined as ratio of working capital of year n to year n-1 (%);
- **X_{4a}**: Restriction of debt covenant (DER) defined as debt to equity ratio (%);
- **X_{4b}**: Manager’s self-interest (MSINT) defined as Ln Earnings Before Interest and Tax/ EBIT;
- **X_5**: Short term liquidity constraint (DIVPR) defined as dividend pay out ratio (%);
- **X_{6a}**: Net open position between foreign assets and foreign liabilities (NFNOPEN) defined as ratio of net open position in foreign currency to total equity (%);
- **X_{6b}**: Proportion of forex sales (FNSALES) defined as ratio of forex sales to total sales (%);
- **\varepsilon**: Error term.

Statistical software SPSS version 14 is used to test the model. General hypothesis of the data is defined as \( H_0: b \neq 0 \) and \( HA = 0 \).

The use of OLS method in hypotheses testing requires several assumptions to satisfy. First, OLS assumes the data to be normally distributed. Second, there is no association among independent variables (i.e., no multicollinearity). Finally, the effect of variability of individual company has been addressed (i.e., random effect and fixed effect).

### 3.2 Sample selection and data description

Non-probability sampling method (i.e., purposive sampling method) is applied to choose non-bank and non-financial institutions companies listed in Jakarta Stock Exchange predicted to be significantly involved in financial derivatives transactions. The observation covers 5 years period when the PSAK 50 (i.e., accounting standard *Financial Instruments: Presentations and Disclosures* published on July 15, 1998) and PSAK 55 (i.e., accounting standard *Financial Instruments: Recognition and Measurements* published on September 21, 1998) have been effective, which is from 2001 to 2006.

Examination of notes to financial statements on particular account predicted to be associated with risk exposures (i.e., financial assets, financial liabilities and sales) was conducted to identify firms predicted to be significantly involved in financial derivatives transactions. Further, the study assumes that risk exposures are sustained as the risks are associated with firms’ business process. Hence, when the examination showed that firms disclose the use of financial derivatives on year 2006, it was assumed that the firms had been using the financial derivatives since year 2001. Based on the sample selection procedure, 73 companies listed during 2001 to 2006 were identified, resulting 438 firms-years pooled data available for observations before data cleaning. The research used Bloomberg database as data source. Descriptive statistic for the variables identified by the SPSS software is shown in Table 1.

Table 1 shows that dependent variable VOL30 is highly dispersed, range from the minimum 4.96 to the maximum 219.74. Notably, the variance is quite high, which is 1,182.11, far above standard deviations of 34.38 and mean of 57.14. Most of the independent variables are highly skewed, except for MSINT and FNSALES,
which are -1.38 and 0.6 consecutively. Correlations among variables in the model are presented in Table 2.

### Table 1  Statistic descriptive : Dependent and independent variable of the identified sample

<table>
<thead>
<tr>
<th>Depn. var.</th>
<th>Independent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOL30</td>
<td>STRESS</td>
</tr>
<tr>
<td>N - Valid</td>
<td>369</td>
</tr>
<tr>
<td>N - Missing</td>
<td>69</td>
</tr>
<tr>
<td>Mean</td>
<td>57.14</td>
</tr>
<tr>
<td>Median</td>
<td>45.74</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>34.38</td>
</tr>
<tr>
<td>Variance</td>
<td>1,182.11</td>
</tr>
<tr>
<td>Skewness</td>
<td>1.92</td>
</tr>
<tr>
<td>Minimum</td>
<td>4.96</td>
</tr>
<tr>
<td>Maximum</td>
<td>219.74</td>
</tr>
</tbody>
</table>

### Table 2  Correlations among variables in the model (Pearson correlations, 1 Tailed-test)

<table>
<thead>
<tr>
<th>STRESS1</th>
<th>FNSALES</th>
<th>NFOPEN</th>
<th>VOL30</th>
<th>TABIT</th>
<th>UNINV</th>
<th>MSINT1</th>
<th>DIVPR</th>
<th>DER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-0.078</td>
<td>-0.056</td>
<td>0.057</td>
<td>-0.015</td>
<td>0.01</td>
<td>0.076</td>
<td>0.109(*)</td>
<td>0.038</td>
</tr>
<tr>
<td>STRESS1</td>
<td>0.209</td>
<td>0.251</td>
<td>0.15</td>
<td>0.394</td>
<td>0.427</td>
<td>0.088</td>
<td>0.018</td>
<td>0.234</td>
</tr>
<tr>
<td>N</td>
<td>110</td>
<td>144</td>
<td>331</td>
<td>304</td>
<td>320</td>
<td>320</td>
<td>367</td>
<td>366</td>
</tr>
<tr>
<td>1</td>
<td>0.269(**)</td>
<td>0.234(**)</td>
<td>0.12</td>
<td>-0.005</td>
<td>-0.025</td>
<td>-0.207(*)</td>
<td>0.056</td>
<td></td>
</tr>
<tr>
<td>FNSALES</td>
<td>0.004</td>
<td>0.008</td>
<td>0.112</td>
<td>0.48</td>
<td>0.406</td>
<td>0.015</td>
<td>0.281</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td>106</td>
<td>105</td>
<td>110</td>
<td>93</td>
<td>110</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0.036</td>
<td>-0.039</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td>-0.009</td>
<td>0.178(*)</td>
<td></td>
</tr>
<tr>
<td>NFOPEN</td>
<td>0.336</td>
<td>0.328</td>
<td>0.485</td>
<td>0.488</td>
<td>0.459</td>
<td>0.018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>139</td>
<td>131</td>
<td>137</td>
<td>132</td>
<td>142</td>
<td>140</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| VOL30   | 1       | 0.152(**)| -0.008| -0.129(*)| -0.114(*)| -0.014|
|         | N       | 300     | 302   | 302    | 355    | 354    |
|         | 1       | -0.043  | -0.011| -0.007 | 0.026  |
| TABIT   | 0.216  | 0.424  | 0.448 | 0.317 |
| N       | 333    | 285    | 338   | 330   |
| 1       | -0.004 | -0.002 | -0.01 |
| UNINV   | 0.474  | 0.485  | 0.424 |
| N       | 293    | 344    | 336   |
| 1       | -0.093(*)| 0.005 |
| MSINT1  | 0.041  | 0.465  |
| N       | 346    | 348    |
| 1       | -0.035 |
| DIVPR   | 0.239  |
| N       | 404    |
| DER     | 415    |

Notes: * One tailed-test - significant at 5% level; ** One tailed test - significant at 1% level.
The results of Pearson correlations statistical test (see Table 2) above shows some significant correlations between dependent variable VOL30 with independent variables as follows: (1) positively correlated with tax arbitrage (TABIT) at 1% level, consistent with H2; (2) negatively correlated with earnings level (MSINT) at 5% level, consistent with H42; (3) positively correlated with short term liquidity constraint (DIVPR) at 5% level, consistent with H5; and (4) positively correlated with the proportion of foreign sales (FNSALES) at 1% level, consistent with H62.

SPSS check the completeness of the variables included in the model, resulting 24 firms left or equal to 66 firm-years data to be tested in the model. Descriptive statistic for the data included in the model after cleaning the outlier data (i.e., 3 standard deviation) is presented in the Table 3 below.

Table 3  Statistic descriptive: Dependent and independent variable of the data tested (N=66)

<table>
<thead>
<tr>
<th>Depn. var.</th>
<th>Independent variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOL30</td>
<td>STRESS</td>
</tr>
<tr>
<td>Mean</td>
<td>52.70</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>28.62</td>
</tr>
</tbody>
</table>

Notably, Table 3 shows some differences of the central tendency statistics (i.e., the value of means and standard deviations) of the data included in the model compared to the original data previously presented in Table 1, most particularly for the data with high skewness level. Presumably, this relates to the data distribution included in the model, which is better normally distributed compared to the original data.

4. Empirical results, analysis and interpretation

The results of OLS regression is presented in the Table 4.

Table 4  The results of OLS regression (Dependent var.: VOL30)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Standardized coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td>2.433</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>STRESS</td>
<td>0.492</td>
<td>5.085</td>
<td>0.00**</td>
<td>0.959</td>
</tr>
<tr>
<td>TABIT</td>
<td>-0.407</td>
<td>-2.874</td>
<td>0.01**</td>
<td>0.447</td>
</tr>
<tr>
<td>UNINV</td>
<td>-0.112</td>
<td>-1.161</td>
<td>0.25</td>
<td>0.971</td>
</tr>
<tr>
<td>DER</td>
<td>0.661</td>
<td>3.512</td>
<td>0.00**</td>
<td>0.253</td>
</tr>
<tr>
<td>MSINT</td>
<td>-0.04</td>
<td>-0.412</td>
<td>0.68</td>
<td>0.953</td>
</tr>
<tr>
<td>DIVPR</td>
<td>-0.116</td>
<td>-1.071</td>
<td>0.29</td>
<td>0.759</td>
</tr>
<tr>
<td>NFNOPEN</td>
<td>-0.375</td>
<td>-2.111</td>
<td>0.04*</td>
<td>0.285</td>
</tr>
<tr>
<td>FNSALES</td>
<td>0.343</td>
<td>3.425</td>
<td>0.00**</td>
<td>0.897</td>
</tr>
</tbody>
</table>

Notes: * Significant at 5% level, ** Significant at 1% level.

The variables included in the model are defined as follows: (1) VOL30: firms performance, defined as % annualized volatility of stock return; (2) STRESS: expected cost of financial distress, defined as % cost of debt; (3) TABIT: tax arbitrage, defined as % of growth in net income to growth in income tax; (4) UNINV: volatility of future cash flow, defined as % of working capital of year n to year n-1; (5) DER: restriction of debt covenant, defined as % of debt to equity; (6) manager self interest, defined as Ln earnings before interest and tax; (7) DIVPR: short term liquidity constraint, defined as dividend pay out ratio (%); (8) NFNOPEN: proportion of forex assets and liabilities, defined as % of net open position in foreign currency to total equity; (9) proportion of forex sales, defined as % of forex sales to total sales.

The model is statistically significant at less than 1% level, with R-square is 48.83% and adjusted R-square is 41.65%

The results of Durbin-Watson test is 1.98 at less than 1% level, suggesting that no autocorrelation of the residuals. Hence, no
indication of underestimation on the level of statistical significance.

The result of collinearity test suggests that no multicollinearity problems found in the model, in which Tolerance value is close to 1 and VIP value is less than 10.

Empirical results presented in Table 4 suggest that for firms using financial derivatives instruments in Indonesian context, their volatility of market return is: (1) positively influenced by the cost of capital as stated in H1; (2) negatively influenced by tax arbitrage as stated in H2; (3) positively influenced by restriction of debt covenant as stated in H4; (4) negatively influenced by the net open position of Forex; (5) positively influenced by the proportion of foreign sales, as stated in H6. Hence, test results of the data suggest that H3, H4 and H5 are rejected. Apparently, volatility of future cash-flow, earnings level and short-term liquidity constraint do not influence volatility of firm value.

As hypothesized, the empirical findings indicate that in Indonesia, firms (i.e., managers) use financial derivatives for the following purposes: (1) to reduce the probability of financial distress aimed at lessening variance of firm’s value and reducing the cost of capital; (2) to smooth earnings and reduce average tax charge; (3) to reduce default-risk related to restriction of debt covenants; (4) to reduce Forex risks exposure associated with foreign operations and foreign sales. This means that under the current GAAP, accounting information has a capability to signal risk associated with: (1) fair value exposure related to the cost of capital; (2) cash flow exposure related to tax arbitrage as well as underinvestment problems; (3) interest rate risk related to limitations of debt covenants; (4) Forex risk related to foreign operations and foreign sales.

5. Research limitations and suggestions for future research

The purposive sampling method in this study excludes firms without financial derivatives from the investigations. This relates to the assumptions of managers’ motive which use financial derivatives to hedge certain types of risks. However, hedging could also be done naturally without using financial derivatives. Therefore, future research should investigate whether Indonesian GAAP could also capable of signal the risk for the firms that use natural hedging to mitigate the risks. This would involve inclusion of all non bank and non financial institutions listed firms as the sample. If financial derivatives are preferred to natural hedging, then, it is expected that certain accounting measures used in this model for firms with financial derivatives would be significantly different to firms without financial derivatives.

In addition, future research should also investigate the capability of accounting standard that specifically addressed financial derivatives and other financial instruments (i.e., PSAK 50 “Financial Instruments: Presentation and Disclosures” and PSAK 55 “Financial Instruments: Recognition and Measurements”) to signal the associated risks. This is important, considering the big effort conducted to improve accounting standard on derivatives and other financial instruments in the national as well as international level, besides the continuing failure of accounting information to signal firm’s default associated with derivatives and other financial instruments. Currently, PSAK 50 and PSAK 55 have undergone some major revisions aimed to be more aligned with IAS 32 and IAS 39 of International Financial Reporting Standards. The revised versions were planned to be effective by the beginning of year 2009. However, due to recent global financial crisis, in which most of the capital markets were highly distressed, then, implementation of the revised version of PSAK 50 and PSAK 55 were delayed until the early 2010.

References:


(Edited by Mary and Ken)