# RISK MANAGEMENT AND DISCLOSURE AND THEIR IMPACT ON FIRM VALUE: THE CASE OF EGYPT

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## *ABSTRACT*

*This study investigates the impact of risk management and disclosure on firm value. The study aims at investigating three relationships; the first is the relationship between risk management and firm value. The second is the relationship between corporate voluntary disclosure and systematic (market/beta) risk. The third is the relationship between voluntary disclosure and firm value. The study population consists of non-financial companies listed on the Egyptian Stock Exchange (EGX) at the year-end of 2012.*

*For testing the first relationship; the logistic model developed by Wang, Li, and, Z. (2010) is used, and Tobin's Q ratio is used for calculating firm value. The logistic model developed by Hassan, Gianluigi, and Power (2011) is followed in measuring the second relationship. The Capital Asset Pricing Model (CAPM) Model is used for calculating Beta for systematic market risk, and the voluntary disclosure is measured using the disclosure index technique including 26 financial and non-financial items. The third relationship is tested by modifying Rahmat and Hoffman (2011) model. The results indicate that a positive relationship exists between risk management and firm value, a negative relationship exists between voluntary disclosure and the market risk exposure, and a positive relationship exists between voluntary disclosure and firm value.*

*Keywords: Risk management, voluntary disclosure, systematic (market/beta) risk, the CAPM Model, Tobin's Q ratio*

## INTRODUCTION

Over the last decades the business environment has become more global with a growing diversity of international business operations. An increase in risks naturally comes along, especially with risks related to financial issues such as fluctuating currencies, commodity prices and interest rates. Consequently, the need for entities to manage and limit those risks is vital for their medium- and long-term survival (Hausin, Hemmingsson, & Johansson, 2008).

By the rise of different accounting scandals such as Enron and WorldCom, the public asked why the boards of these companies did not do a better job of managing risks. Risk management has become the mechanism to manage risks so that the negative consequences are kept within acceptance tolerance (Booker, 2005).

Risk management is becoming an increasingly important activity within firms and organizations. Risk management, like other management activities, must be practical, cost effective, and help the organization survive and prosper. The growth in risk management is directly linked to the increasing number of risks an organization faces due to more complexity

and interactions in the world, greater scrutiny, and the media (Shortreed, Hicks, & Craig, 2003). The appropriate risk response will be different from organization to organization depending on how management views the risk in terms of magnitude (Booker, 2005).

Most decisions involve a trade-off between some kind of risk and its associated benefit (reward). Shareholder value is created when the benefit exceeds the cost of risk; cost of capital is a generalized rate that reflects the riskiness of a given class of investment (Booker, 2005).

It became obvious that disclosures were not keeping up with the rapid development within the area of risk management. Therefore a need arose to revise and improve the disclosure regulation regarding risks in financial institutions. For many entities, it is a current practice to present information to external parties isolated from the available internal corporate management data, resulting in a lack of transparency and penalizing the financial statement (information asymmetry). The answer to this issue was the introduction of the IFRS 7 Financial Instruments. Disclosure, an accounting standard with the main goal to improve the quality of disclosed information regarding financial instruments, compulsory for all annual reports from 1st January 2007 onwards (Hausin, Hemmingsson, & Johansson, 2008).

According to Beretta and Bolozzan (2004), the richness of disclosure communication and the quality of information could also affect the way the investors perceive the information. Most of the transparency research focused on disclosure in terms of the quantity of the disclosure information while neglecting the quality aspect. This study takes into account the quantity of information provided due to the difficulty of measuring the quality of information disclosed, despite the conclusion which states that a firm with more number of pages in their annual report does not necessarily present clear and valuable information.

In this study, the relationship between the risk management disclosure and its impact on enterprise value is tested. A positive relationship between the firm's risk management disclosure and the firm value is expected consistent with previous disclosure research which states that the more transparent the disclosure, the lower information asymmetry there is and the higher the premium allocated to the firm.

The purpose of this study is to test three relationships; the first is to investigate the relationship between risk management and firm value. The second is to investigate the relationship between corporate voluntary disclosure and systematic (market/beta) risk for non-financial companies listed on the EGX. The Egyptian market is one of the oldest stock exchanges in the world, and was the first to be established in the Middle East. The third relationship is to investigate the relationship between voluntary disclosure and the firm value.

The higher level of voluntary disclosure reduces the information gap (asymmetry) between companies and investors (Hausin, Hemmingsson, & Johansson, 2008). It is often argued that companies that provide voluntary disclosures to investors and analysts will find it advantageous (Lang and Lundholm, 1996). If a firm does not provide such information, the investors could become suspicious about the quality of their investment and discount its quality to the point where managers always are better off with a full disclosure practice.

## LITERATURE REVIEW

Risk is an inescapable element of any business venture. In addition to financial risk, a company is also susceptible to business risk or changes in the overall economic climate that can adversely affect the price of its securities. Hence, it is in the stakeholders' best interest that risk be disclosed in a timely manner (Amran, Rosli, Bin, & Hassan, 2009).

Enterprise Risk Management (ERM) is a systematic approach to manage risk internally and externally and address all of a company's key risks at an enterprise level. Risk management framework is a description of an organizational specific set of functional activities and associated definitions that define the risk management system in an organization and the relationship to the risk management organizational system. Risk management framework defines the processes and the order and timing of processes that will be used to manage risks (Shortreed, Hicks, & Craig, 2003).

However, many studies agree that the enterprises could increase the enterprise value through ERM (Chen and Wu, 2000; Wei, 2003; Yang, 2005; Fu, 2006), Chen and Wang (2006) held the opposite viewpoint. Therefore, the question of whether ERM can enhance the enterprise value is still in dispute at present and it is necessary to conduct further research (Wang, Li, & Z., 2010).

DeMarzo and Duffie (1991) pointed out that information between the management and shareholders is asymmetrical; this can also cause the loss of enterprise value. The benefits of risk disclosure are therefore due to a reduction in information asymmetry.

In Egypt, the annual report is the main vehicle for financial disclosure by listed companies. All companies listed on the EGX must comply with the disclosure rules required by the Capital Market Law (CML) 95 of 1992. They are required to provide copies of their annual financial statements to both the CMA and the EGX.

Although in theory all listed companies are required to disclose information according to Egyptian Accounting Standards/IAS. Prior studies on the financial reporting practices of Egyptian listed companies have shown that non-compliance with disclosure requirements is the norm (Abd-Elsalam & Weetman, 2003; Dahawy, Merino, & Conover, 2002; Dahawy & Conover, 2007; Hassan, Giorgioni, & Romilly, 2006; ROSC, 2002).

These studies provide some plausible explanations for this non-compliance such as the lack of familiarity with IAS, the deep-rooted tendency for secrecy within Egyptian culture, the lack of an effective enforcement policy for non-compliant companies, the absence of practical guidelines on the applicable standards and the dearth of knowledge about disclosure requirements among preparers. Hence, the amount of information, irrespective of its type, released by Egyptian listed companies is expected to differ among firms (Hassan, Gianluigi, & Power, 2011).

The theoretical underpinning of a relationship between disclosure level and risk is derived from corporate finance theory. For example, Core (2001, pp. 442-3) states that "corporate finance theory predicts that shareholders endogenously optimize disclosure policy, corporate governance, and management incentives in order to maximize firm value (Hassan, Gianluigi, & Power, 2011).

Corporate finance theory therefore suggests that more disclosure can reduce a company's cost of capital. An investor's decision to buy, sell or hold a company's share depends on his or her expectations regarding its future cash flow or return distributions.

However, the level of information available to one particular investor could be different from that available to another investor. This problem is usually referred to as information asymmetry, which arises between outside investors and managers (Hassan, Gianluigi, & Power, 2011). Estimation risk refers to the presence of uncertainty when estimating the required information for valuing a security (Shanken & Lewellen, 2000).

## HYPOTHESES DEVELOPMENT

The following is an investigation of the literature and each of the three relationships explored in this study:

### *First: The Relationship between Risk Management and Firm Values*

Previous empirical research investigated the motives behind risk management and provided evidence that risk management does add value to the firm. However, the effect of disclosure on firm value has often been researched separately and the effect of risk management disclosure on firm value is still largely untested.

Miller and Modigiani (1961) argued that risk management is irrelevant under their assumptions of the capital market. According to the Miller and Modigliani (M&M) theorem, the value of the firm is not affected by any risk management decisions undertaken by the firm (Miller and Modigliani, 1961). Therefore according to these assumptions, financial and risk management policies will not affect the value of the firm (Culp, 2002) and financial decisions of the management will not create value for the firm if it does not affect either the firm's ability to operate or its future investment decisions (Hillier, , Grinblatt, & Titman, 2008).

Moving forward, many other researchers have hypothesized the invalidity of the M&M theorem and state that risk management does add value to the firm; for example, Myers (1977) and Froot, Scharfstein, and Stein, 1993.

Allayannis and Weston (2001) were the first to provide some evidence of the impact of risk management on firm value. In their study, they focused on the use of currency derivatives mainly used to hedge foreign exchange risk as they argued that currency derivatives are the most commonly used derivatives for firms and also, foreign exchange risks are usually a common risk factor across firms. Carter, Rogers, and Simkins, (2005) found in their study of the US airline industry that, when the firms hedge their jet fuel, there is a corresponding premium observed for the firm value. Nain (2005) on the other hand, observed that the premium theory is only valid when the firm decision to hedge is compared with the general trend in the industry.

From the above mentioned studies, the first hypothesis is proposed:

*$H_1$: There is a positive relationship between risk management and firm value*

### *Second: The Relationship between Risk Management and Risk Disclosure*

While a large number of research studies cover risk management, its underlying factors and the impact on firm value, the research on transparency has only been covered on a theoretical basis. Forssbaeck and Oxelheim (2006) argued that the concept of transparency is a relatively new phenomenon, recently receiving scientific interest.

Based upon the concept of information asymmetry, it was largely assumed that the more the firm discloses information to the public, the more symmetrical information exists between the firm and the stakeholders. For example, Leuz and Wysocki (2008) provided some insights that the more the firm discloses its information, the lower the estimation risk and the less the investors have to guess about the firm. Most of the research on transparency provided explanations as to how transparency can be value creating for the firm but less evidence is found on the exact premium provided by additional transparency.

Oxelheim (2008) argued that the more information an investor receives, the higher the possibility that he might be drowned in the information he obtained and therefore resulting in the investor being confused. As such, he argued that there should be an optimal point where the information disclosed is sufficient and beyond this point, additional information only seeks to confuse the receiver of that information. This optimal point also includes the point where additional information beyond this point might reveal competition sensitive information free for the firm's competitors. Therefore, firms' management has to balance the different perspective and considerations to ensure that neither too little nor too much information is disclosed to the public.

Hassan, Gianluigi, and Power (2011) examined the relationship between corporate voluntary disclosure and systematic (market/beta) risk in a sample of Egyptian listed companies. They indicated that more voluntary information about listed companies seems preferable to less in order to reduce the perceived riskiness of a company. This should act as incentive for listed companies to enhance public disclosure.

The higher level of voluntary disclosure reduces the information gap (asymmetry) between companies and investors (Hausin, Hemmingsson, & Johansson, 2008).Voluntary disclosure can be defined as information which is provided over and above existing regulation (Adrem, 1999) .It is often argued that companies that provide voluntary disclosures to investors and analysts will find it advantageous (Lang and Lundholm, 1996).If a firm does not provide such information, the investors could become suspicious about the quality of their investment. The second hypothesis is proposed as follows:

*$H_2$: There is a positive relationship between risk management and increased risk disclosure*

***Third: The Relationship between Risk Disclosure and Firm Value***

To date, Muller and Verschoor (2008) and Rahmat and Hoffman (2011) are the only two studies which tested if risk management disclosure creates value in the firm. While, Muller and Verschoor (2008) aimed to test the hypothesis if there exist a positive relationship between the foreign currency derivatives disclosure (proxy using ***FRS13***) and the firm's currency exposure, Rahmat and Hoffman (2011) aimed to bridge the theoretical gap between risk management and transparency research by testing if risk management disclosure has an effect on the hedging premium. They found that additional disclosure did not create a higher premium on firm value than IFRS. Accordingly, the third hypothesis is:

*$H_3$: There is a positive relationship between increased disclosure and firm value*

## METHODOLOGY

***Data Collection***

Consistent with Botosan (1997) and Rahmat and Hoffman (2011), data concerning disclosure is derived from the firms' annual reports as the annual report is deemed the most important disclosure tool used by companies to inform investors in detail.

The population investigated in this study consists of firms listed on the EGX at year-end 2012. The sample was limited to 6 non-financial firms as financial firms play a different role within the market considering their business model based on financial products and their use of

financial instruments are often for different reasons in comparison to corporations. For calculating the $R_i$, the stock prices data used are for four-years-period of time, 2/1/2006 to 9/11/2009.

***First: The Relationship between Risk Management and Firm Values***

This relationship is tested through two steps:

*(i) Calculating the firm value by Tobin's Q ratio as follows:*

$$\frac{\text{Total book value of Assets – book value of Equity + market value of Equity}}{\text{Total book value of assets}} \quad (1)$$

Where, The market value of Equity = the market price for share* the shares outstanding

*(ii) Regression model (1):*

Through modifying the regression model used in Wang, Li, and Z, (2010) study as follows:

$$Log\ Tobin's\ Q = \alpha_o + B_1\ DERIV + B_2\ ASSET + B_3\ ALR + B_4\ CR + B_5\ ROA \quad (2)$$

1. Variables include Firm Value (Log Tobin's Q**) -** as a dependent variable, DERIV - is treated as a dummy variable, and it is an indicator for risk management.

2. Control variables include total assets (ASSET), Asset-Liabilities ratio (ALR), Current ratio (CR) and Profitability (ROA).

**Table 1**
**Definition and Measures of Variables**

| **Variable** | | **Definition** |
|---|---|---|
| Firm Value | Log Tobin's Q | Log Tobin's Q |
| Use of derivatives | DERIVATIVES | Dummy variable; 1 means "use"; 0 means "no use" |
| Current ratio | CR | Current assets/current liabilities |
| Assets-liabilities ratio | ALR | Total liability/total assets |
| Profitability | ROA | Net profit/total assets |
| Total assets | Assets | Log (total assets) |

***Second: The Relationship between Risk Management and Risk Disclosure***

After calculating "Beta" from the first relationship CAPM model, this relationship is tested. The relationship is comprised of the following steps:

*(i) Method of Defining Transparent Disclosure:*

Transparent disclosure is tested through analyzing the annual reports, in addition interim financial statements, General Assemblies (GAs), and websites.

The voluntary disclosure is measured using the disclosure index technique including 26 financial and non-financial items. The study is limited to the quantity of voluntary disclosure and is not extended to the quality of disclosure.

**Table 2**
**List of Items in the Voluntary Disclosure Index (Hassan, Gianluigi, and Power, 2011: p 40)**

| Items of information | |
|---|---|
| 1. Address, telephone, fax | 2. Deferred taxes |
| 3. The currency used for the preparation of financial statements | 4. Cash flow related to interests, dividends, and extraordinary items disclosed separately |
| 5. List of board members | 6. Foreign currency transaction gains or losses |
| 7. Number of employees | 8. Treatment of investments |
| 9. Business segment | 10. Revenue recognition basis |
| 11. Foreign exchange gains or losses | 12. Earnings per share |
| 13. Effect of transactions with related parties: holding, subsidiary, and associated companies | 14. Disclosing the necessary reconciliation of net income when the indirect method is used |
| 15. Items and values of intangible assets | 16. Composition of shareholdings |
| 17. Restrictions on ownership of assets | 18. Significant shareholders |
| 19. Dividends per share | 20. Earnings per share numerator |
| 21. Foreign currency transaction method | 22. Earnings per share denominator |
| 23. Cash outflow for taxes | 24. Exports |
| 25. Financial statements cost basis | 26. Financial ratios disclosed |

(ii) *Calculating Beta:*

Risk detection (beta) for systematic market risk using the CAPM model. The EGX 30 was used in measuring the change in market index.

$$R_i = \alpha_i + B_i\, Rm_{i,t} + e \qquad (3)$$

Where, $R_i$ = the change in the company's stock price

$\alpha_i$ *and* $B_i$ are market parameters; $\alpha_i$ is constant, and $b_i$ is beta : market systematic risk.

$Rm_{i,t}$ is the change in market index

It was shown by Hassan, Gianluigi, and Power (2011) that equation (3) is the best measure for market index in the Egyptian market. As their study shows that a particularly strong negative relationship between voluntary disclosure and the EGX30 index, Investors in the 30 most actively traded shares in the EGX seem most responsive to voluntary disclosures by their investee firms' relationships.

(iii) *Regression model (2)*:

Through modifying the logistic model developed by Hassan, Gianluigi, and Power (2011)

$$Beta_{i,t} = \alpha_o + B_1\ DIVIDPAY + B_2\ GEAR + B_3\ SIZE + B_4\ BTMR + B_5\ VOLUNT\_DISCLOSURE. \quad (4)$$

1. Variables include: $Beta_{i,t}$ -calculated from the CAPM model in the first relationship- as a dependent variable, and the disclosure variable as an independent variable. The voluntary disclosure (VOLUNT_DISCLOSURE) is treated as a percentage from disclosed items out of the 26 items presented in Table 1.

2. Control variables include: the payout (DIVIDPAY), gearing (GEAR), size (SIZE), and the book value of equity divided by market value of equity (BTMR).

**Table 3**
**Definition and Measures of Variables**

| **Variable** | | **Definition** |
|---|---|---|
| Beta | Beta | Calculated from the CAPM model |
| Dividend Payout | DIVIDPAY | Dummy Variable; 1 means "Pay"; 0 means "no pay" |
| Gearing | GEAR | The average of Total debt divided by the total of equity at year-end |
| Firm size | SIZE | Log (total assets) |
| BVMV | BVMV | The book value of equity at the financial year-end divided by market value of equity at the financial year-end |
| Voluntary Disclosure | VOLUNT_DIS | The level of voluntary disclosure measured via the disclosure index technique |

***Third: The Relationship between Risk Disclosure and Firm Value***

*1) Method to Measure the Impact of Disclosure on Firm Value:*

In order to measure the impact of disclosure on firm value, Rahmat and Hoffman (2011) model for a good disclosure firm was used.

*2) Regression Model (3):*

$$Log\ Tobin's\ Q = \alpha_1 + B_1\ SIZE + B_2\ LEV + B_3\ DISEG + B_4\ PROF + B_5\ ASSETGR + B_6\ CG + B_7\ DIGEO + B_8\ ACCESS + B_9\ IND + B_{10} VOLUNT\_DISCLOSURE \quad (5)$$

The regression model used in this study is largely based on the model developed by Allayannis and Weston (2001).

1. Variables include: firm value as a dependent variable obtained from equation (2), and the disclosure variable as an independent variable.
2. Control variables include: size (SIZE), leverage (LEV), investment growth (ASSETGR), profitability (PROF), access to financial markets (ACCESS), industrial diversification (DISEG), industrial effects (IND), corporate governance (CG), and geographical diversification (DIGEO).

**Table 4**
**Definition and Measures of Variables**

| Variable | | Definition |
|---|---|---|
| Firm Value | Log Tobin's Q | Log Tobin's Q |
| Firm size | SIZE | Log (total assets) |
| Leverage | LEV | The average of Total debt divided by the total of equity at year-end |
| Profitability | ROA | Net profit/total assets |
| Asset growth | ASSETGR | The fixed assets at the financial year-end divided by total sales at the financial year-end |
| Voluntary Disclosure | VOLUNT_DIS | The level of voluntary disclosure measured via the disclosure index technique |

## RESULTS

### *First: The Relationship between Risk Management and Firm Values*

The model indicated the following relationships between firm value and the following variables:

**Table 5**
**Results from Testing the First Relationship Using Model (1)**

| Variable | Expected sign | Sign from the model | p-value | coefficients |
|---|---|---|---|---|
| Use of derivatives | +ve | +ve | 0.463 | +3.9 |
| Current ratio | +ve | -ve | 0.130 | -0.59 |
| Assets-liabilities ratio | +ve | +ve | 0.034 | +4.81 |
| Profitability | +ve | -ve | 0.130 | -20.6 |
| Total assets | +ve | +ve | 0.034 | +2.66 |

Based on the regression model mentioned previously, the influence on the value of firms in non-financial industry is tested. As indicated in table 5, Model(1) with Tobin's Q as the dependent variable, and the "use of derivative" as indicator for risk management as an independent variable; there is a positive relationship between the use of derivatives (risk management) and firm value, so the first hypothesis is verified:

*$H_1$: There is a positive relationship between risk management and firm value*

There are other relationships indicated between the firm value and the firm characteristics. The model did not verify the expected results regarding the current ratio and profitability which may be due to the sample limitation.

In the other hand, the model did verify the relationship between asset-liabilities ratio and firm value, as it indicated that there is a positive relationship between increasing the ROA and the firm value. The model did as well verify the relationship between total assets and the firm value indicating that there is a positive relationship between them.

***Second: The Relationship between Risk Management and Risk Disclosure***

**Table 6**
**Results from Testing the Second Relationship Using Model (2)**

| Variable | Expected sign | Sign from the model | p-value | coefficients |
|---|---|---|---|---|
| Dividend pay | -ve | +ve | 0.456 | +0.107 |
| Gearing/Leverage | +ve | -ve | 0.039 | -0.527 |
| Firm size | +ve | +ve | 0.456 | +505 |
| BVMV | +ve | -ve | 0.053 | -0.37 |
| Voluntary Disclosure | -ve | -ve | 0.456 | -0.525 |

Based on the regression model mentioned previously, the relationship between risk and risk disclosure is tested. As indicated in table 6, Model(2) with Beta as the dependent variable, and the "Voluntary disclosure" as indicator for voluntary disclosure calculated using the voluntary disclosure index as an independent variable; there is a negative relationship between the market risk and its disclosure, so the second hypothesis is verified:

*$H_2$: There is a positive relationship between risk management and increased risk disclosure*

This means that by increasing the risk disclosure through voluntary disclosure, the firm market risk exposure is minimized.

There are other relationships analyzed between the market risk and the firm characteristics. The model did not verify the expected results regarding the book value/market value of Equity and the market risk which may be due to the sample limitation.

In the other hand, the model did verify the relationship between leverage and dividend pay from one side, and market risk exposure, as it indicated that there is a negative relationship between increasing the dividend pay and the firm risk exposure. The model did verify the relationship between firm size and the risk from the other side, indicating that there is a positive relationship between them.

***Third: The Relationship between Risk Disclosure and Firm Value***

**Table 7**
**Results from Testing the Third Relationship Using Model (3)**

| Variable | Expected sign | Sign from the model | p-value | coefficients |
|---|---|---|---|---|
| Firm size | -ve | +ve | 0.45 | 8.37 |
| Leverage | +ve | -ve | 0.069 | -8.2 |
| Profitability | +ve | +ve | 0.130 | +15.2 |
| Asset growth | +ve | +ve | 0.128 | +0.315 |
| Voluntary Disclosure | +ve | +ve | 0.291 | +3.58 |

Based on the regression model mentioned previously, the relationship between firm value and risk disclosure is tested. As indicated in table 7, Model(3) with Tobin's Q as the dependent variable, and the "Voluntary disclosure" as indicator for voluntary disclosure calculated using the voluntary disclosure index as an independent variable; there is a positive relationship between the risk disclosure and firm value, so the third hypothesis is verified:

*$H_3$: There is a positive relationship between increased disclosure and firm value*

This means that by increasing the risk disclosure through voluntary disclosure, the information asymmetry is reduced, and then the firm value is increased.

There are other relationships indicated between the market risk and the firm characteristics. The model did not verify the expected results regarding the leverage and firm size from one side, and the firm value from another side which may be due to the sample limitation.

The model did verify the relationship between profitability and asset growth from one side and the firm value from the other side, indicating that there is a positive relationship between them.

## LIMITATIONS OF THIS RESEARCH

The generalization of this research's results is limited to the following:

1. This study is limited to non-financial companies listed on the EGX.
2. This research is limited to the 6 sample companies selected within the period from 2006 through 2009. This sample limitation would affect the results of the proposed models and the statistical results related to it.

## CONCLUSION

Over the last decades, the business environment has become more global with a growing diversity of international business operations. An increase in risks naturally comes with risks related to financial issues. Consequently, the need for entities to manage those risks is vital for their survival.

Many studies in the literature agree that enterprises could increase their value through ERM. On the other hand, it was found that the information asymmetry between management and shareholders causes the loss of enterprise value, which can be reduced by increasing risk disclosure.

In this study, the relationship between risk management and disclosure and their effect on enterprise value was tested. The results verified the research hypotheses regarding the three relationships tested. These results indicate that increasing risk disclosure i.e. voluntary disclosure would reduce the risk exposure a matter that would increase the firm value. It is found also that firm value would increase as well by managing market risk i.e. ERM.

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