THE MANAGEMENT OF INFLATION RATE, INTEREST RATE AND FOREIGN EXCHANGE RATE RISKS: A BUSINESS EXECUTIVE OUTLOOK

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Abstract

Inflation rate, interest rate and foreign exchange rate risks are relevant to enterprise stakeholders because they impact in varying degrees on the financial performance of enterprises. Business executives are expected to take reasonable steps for managing these risks and to rely on sound and innovative financial risk management solutions to meet the expectations of stakeholders in their enterprises. This paper aims at improving financial risk management practices by applying insurance principles to the management of inflation rate, interest rate and foreign exchange rate risks. To achieve this objective, the research paper focuses on the features of finite risk insurance and the perceived importance of these features when South African business executives consider strategies to manage the above risks. Finite risk insurance is classified as a form of alternative risk transfer (commonly referred to as "ART") that relates to the point where insurance, banking and/or the capital market converge in an attempt to efficiently provide enterprises with sufficient financial capacity for protection against a variety of risks. The features of finite risk insurance are highlighted and the views of business executives regarding the importance of these features for the management of inflation rate, interest rate and foreign exchange rate risks are disclosed and analysed. The paper closes with recommendations to providers of financial services based on the needs of South African industrial companies to manage the above risks.

Keywords: financial risk management, finite risk insurance, foreign exchange rate risks, inflation rate risks, interest rate risks

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1. Introduction and objective of the study

Inflation rate, interest rate and foreign exchange rate risks impact in varying degrees on the financial performance of enterprises and are therefore relevant to enterprise stakeholders (Brigham & Daves, 2004:929-935; Damodaran, 2001:318-331; Firer et al., 2004:209-211, 670-675). Business executives are expected to take reasonable steps for managing risks that may impact on the financial performance of enterprises and they rely on sound and innovative financial risk management solutions to meet the expectations of stakeholders in their enterprises. The objective of the paper is the improvement of financial risk management practices by applying insurance principles to the management of inflation rate, interest rate and foreign exchange rate risks. The paper focuses on the *features* of finite risk insurance and the perceived importance of these features when business executives consider strategies to manage inflation rate, interest rate and foreign exchange rate risks.

Finite risk insurance is classified as a form of alternative risk transfer (commonly referred to as "ART") which relates to the point where insurance, banking and/or the capital market converge in an attempt to efficiently provide enterprises with sufficient financial capacity for protection against a variety of risks. The paper focuses on the following tasks for meeting the stated objective:

- To identify the features of finite risk insurance by means of a literature study;
- To obtain relevant information about the management of inflation rate, interest rate and

foreign exchange rate risks from South African business executives by means of a survey making use of questionnaires;
- To make suitable recommendations based on the analysis of the information obtained.

2. Relevant literature

The features of finite risk insurance are as follows (Baur, 1999:19; European Commission, 2000:70; Gordon, 1992; Greenwald & Zolkos, 2003:38; Kelly & Zeng, 1998:2-3; Paar, 2002:11-15; Schanz, 1997:3-5; Zolkos, 2003:22; Zolkos, 2004:6):

- The transfer of risk from the enterprise to the insurer is *limited* to a finite (overall aggregate limit) amount.
- The *coverage* usually comprises underwriting risks, as well as one or more risks related to timing, credit, interest rate or exchange rate. Risks that are usually *non-insurable or hard-to-place* can therefore also be covered by finite risk insurance. Coverage of these kinds of risks is important in a holistic approach to risk management.
- The policy term is usually longer than one year as *multi-year periods* are used to obtain diversification benefits.
- As a finite risk insurance arrangement is a *unique customised solution for a particular enterprise*, the effective costs to a large extent depend on the *claim experience* of the enterprise.
- A portion of the premiums that is not utilised to settle claims is usually paid back to the insured when the contract terminates. A *profit-sharing* relationship therefore exists between the enterprise and the insurer.
- Potential *investment income earned* on the premiums by the insurer during the insurance period is taken into account when the premiums are calculated. The time value of money therefore plays an important role.
- It is used to *manage the financial results* of enterprises over more than one year.
- *Tax considerations* are relevant for finite risk solutions.

3. Research methodology

The objective of the paper is the improvement of financial risk management practices through the application of insurance principles to the management of inflation rate, interest rate and foreign exchange rate risks. Achieving this objective required designing a specific research methodology.

3.1. Sample

The survey focused on industrial companies and included enterprises listed in the "Basic Industries" and "General Industrials" sectors of the JSE Securities Exchange South Africa ("JSE"). Four of the 50 companies listed in the above sectors of the JSE on 19 March 2004 were excluded from the survey due to the following reasons:

- Three companies had head offices registered in foreign countries; and
- One company entailed the listing of preference shares, which does not fall under this research, as it focuses on ordinary shares only.

Questionnaires were posted under covering letters addressed to the managing directors of the 46 companies that were included in the survey. Ten companies returned completed questionnaires in response to the initial invitation to participate in the survey. The initial invitation was followed by a second written invitation that resulted in six more completed questionnaires being returned for inclusion in the study. Consequently, 16 companies were included in the study, which resulted in a response rate of 35 per cent. The positions of the officials who completed the questionnaires revealed that the majority of them had already achieved management status. The seniority of the people who completed the questionnaires resulted in a wealth of experience that enabled them to respond with confidence about the management of inflation rate, interest rate and foreign exchange rate risks as these impact on the financial performance of their enterprises.

3.2. Measuring instrument

The survey was conducted by means of questionnaires that were compiled with reference to a literature study concerning the features of finite risk insurance. The questionnaire made use of an ordinal scale ranging from "not important" (denoted by 1), "little important" (denoted by 2), "moderately important" (denoted by 3), "highly important" (denoted by 4) and "extremely important" (denoted by 5) to determine the perceived importance of the relevant aspects.

The numbers on the ordinal scale were used to calculate the statistics in respect of all aspects covered in the questionnaire. This practice is statistically acceptable as it was explicitly stated on the questionnaire that the ordinal scale forms a continuum (Albright et al., 2002:245).

3.3. Statistical analysis of data

The mean (as a measure of central tendency) and the range (as a measure of dispersion) were used to describe the data. The repeated measures ANOVA and Bonferroni tests were used to determine whether the observed differences between the means were significant. The five per cent level was selected as the level of significance.

4. Results of the study

The empirical results regarding the management of inflation rate, interest rate and foreign exchange rate risks are presented in what follows.

4.1. The importance of exposure to inflation rate, interest rate and foreign exchange rate risks for the financial performance of companies

The views of the respondents regarding the importance of exposure to the above risks are summarised in Table 1 and subsequently commented on. The information contained in Table 1 indicates that the respondents at the time of the survey were of the opinion that inflation rate, interest rate and foreign exchange rate risks would respectively be almost moderately important (mean of 2,94), more than moderately important (mean of 3,25) and more than highly important (mean of 4,19) for the financial performance of companies. The respondents indicated that inflation risks would be more important for the financial performance of companies after 10 years than they were at the time of the survey (almost moderately important at the time of the survey and more than moderately important 10 years later). This is confirmed by the repeated measures ANOVA test. The expectation that interest rate and foreign exchange rate risks would be more important for the financial performance of companies 10 years later than they were at the time of the survey, however, was not confirmed by the repeated measures ANOVA test. Bearing in mind the anticipated continued importance of inflation rate, interest rate and foreign exchange rate risks for the financial performance of companies, the focus in subsequent sections is on the perceived importance of features of financial solutions for the management of each of these risks.

4.2. The importance of features of Financial solutions for the management of inflation rate risks

Table 2 provides a summary of responses regarding the importance of features of financial solutions for the management of inflation rate risks.

The ranking based on means, as highlighted in Table 2, indicates that "managing the financial results of the group of companies concerned" was regarded as the most important feature of financial solutions for the management of inflation rate risks, while "profit-sharing with the providers of financial solutions" was regarded as the least important feature of financial solutions in this regard.

Bonferroni multiple testing was used to determine whether the observed differences between adjacent means were significant.

The results are reported by using letters that are included in the above table alongside the mean responses. *Similar* letters are used in cases where the null hypothesis was not rejected, that is, when observed differences between the means were *not* significant at the five per cent level.

Features with the letter "a" alongside the mean can be classified as the most important category of features of financial solutions for the management of inflation rate risks. Features with the letter "b" alongside the mean can be classified as the second most important category, and those with a "c" alongside the mean, as the third most important category of features of financial solutions for the management of inflation rate risks. Cases may occur where a feature can be classified into two (or more) categories, depending on the significance of the observed difference between its mean and the mean of each of the other features. "Combining the inflation rate risks with other risks to obtain diversification" is such a feature as it fits into the most important category (category "a") and also into the second most important category (category "b").

This implies that the observed differences between the mean of this *particular* feature and the mean of each of the other features in the most and second most important categories were not significant at the five per cent level.

The focus in the paper is on identifying the most important features of financial solutions for the management of inflation rate, interest rate and foreign exchange rate risks and, as a result thereof, all features with the letter "a" alongside the mean are highlighted in the rest of the paper.

The Bonferroni testing indicated that the observed differences between the means were not always significant and that the following can be classified as the most important features of financial solutions for the management of inflation rate risks:

- "Managing the financial results of the group of companies concerned" (mean of 4,27)
- "Combining the inflation risks with other risks to obtain diversification" (mean of 3,60)

4.3. The importance of features of financial solutions for the management of interest rate risks

Table 3 provides a summary of responses regarding the importance of features of financial solutions for the management of interest rate risks. The ranking based on means, as disclosed in the above table, indicates that "managing the financial results of the group of companies concerned" was regarded as the most important feature of financial solutions for the management of interest rate risks, while "profit-sharing with the providers of financial solutions" was regarded as the least important feature of these solutions. The Bonferroni testing indicated that the observed differences between the means were not always significant and that the following can be classified as the most important features of financial solutions for the management of interest rate risks:

- "Managing the financial results of the group of companies concerned" (mean of 4,31)
- "Combining the interest rate risks with other risks to obtain diversification" (mean of 3,63)
- "Obtaining tax benefits" (mean of 3,63)
- "Financial solutions applicable to multi-year periods" (mean of 3,56)
- "Limiting the financial solution to a finite amount" (mean of 3,44)
- "Financial solutions that take the time
- value of money into account" (mean of 3,44)

4.4. The importance of features of financial solutions for the management of foreign exchange rate risks

The responses regarding the importance of features of financial solutions for the management of foreign exchange rate risks are summarised in Table 4.

Table 1. Responses regarding the importance of exposure to inflation rate, interest rate and foreign exchange rate risks for the financial performance of companies at the time of the survey and 10 years later

	Mean	Range	Minimum value	Maximumvalue	Count
Inflation rate risks now	2,94	2	2	4	16
Inflation rate risks after 10 years	3,50	3	2	5	16
Interest rate risks now	3,25	3	2	5	16
Interest rate risks after 10 years	3,56	3	2	5	16
Foreign exchange rate risks now	4,19	2	3	5	16
Foreign exchange rate risks after 10 years	4,31	3	2	5	16

Table 2. Ranking of the features of financial solutions for the management of inflation rate risks

Features	Ranking based on means	Mean	Range	Minimum value	Maximum value	Count
Managing the financial results of the group of companies concerned	1	4,27[a]	3	2	5	15
Combining the *inflation* rate risks with other risks to obtain diversification	2	3,60[ab]	3	2	5	15
Obtaining tax benefits	3	3,20[bc]	4	1	5	15
Limiting the financial solution to a finite amount	4	3,13[bc]	2	2	4	15
Financial solutions applicable to multi-year periods	5,5	3,07[bc]	4	1	5	15
Financial solutions that take the time value of money into account	5,5	3,07[bc]	4	1	5	15
Unique customised financial solutions for the group of companies concerned	7	2,80[c]	4	1	5	15
Profit-sharing with the providers of financial solutions	8	2,27[c]	4	1	5	15

Table 3. Ranking of the features of financial solutions for the management of interest rate risks

Features	Ranking based on means	Mean	Range	Minimum value	Maximum value	Count
Managing the financial results of the group of companies concerned	1	4,31[a]	3	2	5	16
Combining the *interest* rate risks with other risks to obtain diversification	2,5	3,63[ab]	3	2	5	16
Obtaining tax benefits	2,5	3,63[ab]	3	2	5	16
Financial solutions applicable to multi-year periods	4	3,56[ab]	3	2	5	16
Limiting the financial solution to a finite amount	5,5	3,44[ab]	2	2	4	16
Financial solutions that take the time value of money into account	5,5	3,44[ab]	3	2	5	16
Unique customised financial solutions for the group of companies concerned	7	3,19[b]	4	1	5	16
Profit-sharing with the providers of financial solutions	8	2,75[b]	4	1	5	16

Table 4. Ranking of the features of financial solutions for the management of foreign exchange rate risks

Features	Ranking based on means	Mean	Range	Minimum value	Maximum value	Count
Managing the financial results of the group of companies concerned	1	4,44[a]	2	3	5	16
Limiting the financial solution to a finite amount	2	4,20[ab]	2	3	5	15
Combining the foreign exchange rate risks with other risks to obtain diversification	3	3,81[abc]	3	2	5	16
Unique customised financial solutions for the group of companies concerned	4	3,69[bcd]	4	1	5	16
Financial solutions applicable to multi-year periods	5	3,25[cd]	4	1	5	16
Financial solutions that take the time value of money into account	6	3,20[bcd]	3	2	5	15
Obtaining tax benefits	7	2,88[d]	4	1	5	16
Profit-sharing with the providers of financial solutions	8	2,81[cd]	4	1	5	16

The ranking based on means, as summarised in Table 4, indicates that "managing the financial results of the group of companies concerned" was regarded as the most important feature of financial solutions for the management of foreign exchange rate risks, while "profit-sharing with the providers of financial solutions" was regarded as the least important feature of these solutions. The Bonferroni testing indicated that the observed differences between the means were not always significant and that the following can be classified as the most important features of financial solutions for the management of foreign exchange rate risks:

"Managing the financial results of the group of companies concerned" (mean of 4,44);

"Limiting the financial solution to a finite amount" (mean of 4,20);

"Combining the foreign exchange rate risks with other risks to obtain diversification" (mean of 3,81).

4.5. Comparison of the ranking of features of financial solutions for the management of inflation rate, interest rate and foreign exchange rate risks

The preceding sections of the research paper disclose information regarding the ranking of features of financial solutions for the management of inflation rate, interest rate and foreign exchange rate risks. The focus in this particular section is on a comparison of the ranking of features of financial solutions for the management of the above risks.

In addition to the information disclosed in the preceding sections, Table 5 below contains the results of the Bonferroni tests that were used to determine whether the observed differences between the *three* means for *each feature* of the financial solutions to manage inflation rate, interest rate and foreign exchange rate risks were significant. *Similar* letters are used in cases where the null hypothesis was not rejected, that is, when observed differences between the means were *not* significant at the five per cent level.

The information contained in Table 5 discloses that "managing the financial results of the group of companies concerned" was regarded as more than highly important and as the most important feature of financial solutions in *all three* cases.

The observed differences between the means were not significant.

"Combining the particular risk with other risks to obtain diversification" was regarded as a near to highly important feature of financial solutions in *all three* cases. The Bonferroni test indicated that the observed differences between the means were not significant. The Bonferroni test further indicated that "obtaining tax benefits" was regarded as a more important feature of financial solutions for the management of inflation rate *and* interest rate risks than for the management of foreign exchange rate risks. The Bonferroni test indicated that "limiting the financial solution to a finite amount" was regarded as a more important feature of financial solutions for the management of foreign exchange rate risks than for the management of inflation rate and interest rate risks.

4.6. The current practices of managing inflation rate, interest rate and foreign exchange rate risks

The preceding sections provide information about the perceived importance for the financial performance of companies at the time of the survey

and 10 years later of *exposure* to inflation rate, interest rate and foreign exchange rate risks, as well as information regarding the importance of *features* of financial solutions for the management of these risks.

The respondents were subsequently requested to indicate the *current practices* of managing inflation rate, interest rate and foreign exchange rate risks. The responses to this question are summarised in Table 6.

The information in Table 6 indicates that inflation rate, interest rate and foreign exchange rate risks were mainly managed by utilising the capital market (including banks).

Cases also occurred where these risks were managed by utilising the insurance market and captive insurers.

Some respondents disclosed operational interventions to manage inflation rate, interest rate and foreign exchange rate risks.

Table 5. Comparison of the ranking of features of financial solutions for the management of inflation rate, interest rate and foreign exchange rate risks

Features	Inflation rate risks: Ranking based on means	Interest rate risks: Ranking based on means	Foreign exchange rate risks: Ranking based on means
Managing the financial results of the group of companies concerned	4,27[a](1)	4,31[a](1)	4,44[a](1)
Combining the particular risk with other risks to obtain diversification	3,60[a](2)	3,63[a](2,5)	3,81[a](3)
Obtaining tax benefits	3,20[ab](3)	3,63[a](2,5)	2,88[b](7)
Limiting the financial solution to a finite amount	3,13[b](4)	3,44[b](5,5)	4,20[a](2)
Financial solutions applicable to multi-year periods	3,07[a](5,5)	3,56[a](4)	3,25[a](5)
Financial solutions that take the time value of money into account	3,07[a](5,5)	3,44[a](5,5)	3,20[a](6)
Unique customised financial solutions for the group of companies concerned	2,80[a](7)	3,19[a](7)	3,69[a](4)
Profit-sharing with the providers of financial solutions	2,27[a](8)	2,75[a](8)	2,81[a](8)

Notes:

- The figures in the above table represent the mean responses and the figures between brackets indicate the ranking of the features based on the mean responses.
- The Bonferroni multiple testing was used to determine whether the observed differences between the three means on *each line* in the above table were significant. *Similar* letters are used in cases where the observed differences between the means were *not* significant at the five per cent level.

Table 6. Summary of responses regarding the current practice of managing inflation rate, interest rate and foreign exchange rate risks

Management by	Number of responses concerning inflation rate risks	Number of responses concerning interest rate risks	Number of responses concerning foreign exchange rate risks
Utilising the capital market (including banks)	11	14	12
Utilising the insurance market	3	2	2
Utilising own captive insurer	5	3	5
Establishing partnerships with supplier	1		
Resourcing inputs	1		
Transferring risks to clients in contracts	1	1	
Matching inputs and outputs			1

Note: Some respondents indicated more than one current practice.

5. Conclusions

The conclusions of the research are summarised in what follows.

Inflation rate risks were perceived as almost moderately important, *interest* rate risks as more than moderately important and *foreign exchange* rate risks were considered as more than highly important for the financial performance of companies at the time of the survey.

Inflation rate, *interest* rate and *foreign exchange* rate risks were expected to be more important for the financial performance of companies 10 years later than they were at the time of the survey. The expected increase in the importance of inflation rate risks for the financial performance of companies (from almost moderately important at the time of the survey to more than moderately important 10 years later) was statistically significant, while the expected increase in importance of interest rate and foreign exchange rate risks were not statistically significant.

"Managing the financial results of the group of companies concerned" and "combining the inflation rate risks with the other risks to obtain diversification" can be classified as the most important features of financial solutions for the management of *inflation* rate risks based on the results of the Bonferroni test.

"Managing the financial results of the group of companies concerned", "combining the interest rate risks with other risks to obtain diversification", "obtaining tax benefits", "financial solutions applicable to multi-year periods", "limiting the financial solution to a finite amount" and "financial solutions that take the time value of money into account" can be classified as the most important features of financial solutions for the management of *interest* rate risks based on the results of the Bonferroni test.

"Managing the financial results of the group of companies concerned", "limiting the financial solution to a finite amount" and "combining the foreign exchange rate risks with other risks to obtain diversification" can be classified as the most important features of financial solutions for the management of *foreign exchange* rate risks based on the results of the Bonferroni test.

"Managing the financial results of the group of companies concerned" was regarded the most important feature of financial solutions in *all three* cases.

"Combining the particular risk with other risks to obtain diversification" was regarded as a close to highly important feature of financial solutions in *all three* cases.

"Limiting the financial solution to a finite amount" was regarded as a more important feature of financial solutions for the management of foreign exchange rate risks than for the management of inflation rate and interest rate risks.

Inflation rate, interest rate and foreign exchange rate risks were mainly, but not exclusively, managed by utilising the capital market (including banks).

6. Recommendations

The conclusions indicate that providers of financial services to industrial companies should:

- Plan for the increasing need among companies to manage inflation rate, interest rate and foreign exchange rate risks.
- Apply the preferences of companies when considering the features of financial solutions to manage inflation rate, interest rate and foreign exchange rate risks.
- Focus on the following features of financial solutions for the management of *inflation* rate risks:
    - Managing the financial results of the company by smoothening it over time,
    - Combining the inflation rate risks with other risks to obtain diversification.
- Focus on the following features of financial solutions for the management of *foreign exchange* rate risks:
    - The *same features* as for the management of *inflation* rate risks, *as well as*
    - Limiting the financial solution to a finite amount.
- Focus on the following features of financial solutions for the management of *interest* rate risks:
    - The *same features as* for the management of *foreign exchange* rate risks, *as well as*
    - Obtaining tax benefits,
    - Financial solutions applicable to multi-year periods,
    - Financial solutions that take the time value of money into account.

References

1. ALBRIGHT, S.C., WINSTON, W.L. & ZAPPE, C.J. (2002) *Managerial Statistics.* Duxbury: United States of America.
2. BAUR, E. (Ed.) (1999) *Alternative Risk Transfer (ART) for Corporations: A Passing Fashion or Risk Management for the 21st Century?* Sigma No. 2/1999. Swiss Reinsurance Company: Zurich.
3. BRIGHAM, E.F. & DAVES, P.R. (2004) *Intermediate Financial Management* (8th ed.) Thomson, South-Western: Ohio.
4. DAMODARAN, A. (2001) *Corporate Finance: Theory and Practice* (2nd ed.), John Wiley and Sons: New York.
5. EUROPEAN COMMISSION (2000) *ART Market Study: Final Report.* Study Contract ETD/99/B5-3000/C/51. Internal Market Directorate General of the Commission of the European Communities: Brussels.
6. FIRER, C., ROSS, S.A., WESTERFIELD, R.W. & JORDAN, B.D. (2004) *Fundamentals of Corporate Finance* (3rd South African ed.), McGraw-Hill: London.
7. GORDON, A. (1992) *Risk Financing*. Witherby & Co: London.
8. GREENWALD, J. & ZOLKOS, R. (2003, 10 November) "Some Seek Alternatives to Traditional Insurance", *Business Insurance*, 37(45): 38.
9. KELLY, P.J. & ZENG, L. (1998, 19-22 July) "Finite Programs: Their Impact on the Insurance Marketplace", *The 1998 Conference of the Asia-Pacific Risk and Insurance Association*: Singapore.
10. PAAR, R. (2002, September/October) "Protect Your Deals with M&A Insurance", *Corporate Board*, 23(136): 11-15.
11. SCHANZ, K.-U. (Ed.) (1997) *Alternative Risk Transfer via Finite Risk Reinsurance: An Effective Contribution to the Stability of the Insurance Industry*. Sigma No. 5/1997. Swiss Reinsurance Company: Zurich.
12. ZOLKOS, R. (2003, 1 December) "High Costs, Fronting Woes Prompt Captive Owners to Explore Their Options", *Business Insurance*, 37(48): 22.
13. ZOLKOS, R. (2004, 23 August) "Finite Risk Programs Can Address Problem Areas", *Business Insurance*, 38(34): 6.