

# INSURANCE AND THE CORPORATE COST OF CAPITAL<sup>1</sup>

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## Abstract

*The purpose of the paper is to provide some support to the thesis that insurance may reduce the cost of capital in a company by influencing both the cost of capital components and the need for rising capital. The problem is here perceived from two perspectives – the classical concept related to the weighted average cost of capital (WACC) and a novel concept related to the risk-based capital structure model with the total average cost of capital (TACC). The paper explains the idea of insurance as a retrospective (post-loss) risk financing tool and the risk transfer mechanism upon it. As the risk financing tool insurance reduces the need for the balance-sheet capital in a company and thus the financial distress costs. Also, insurance may reduce the level of operating risk and thus influences the required returns of the capital providers. These observations allow emphasising the impact of insurance on the WACC. However, according to the novel concept of the risk-based capital structure, insurance (as a risk financing tool) represents an off-balance sheet capital component. As a consequence, it extends the volume of total capital. The presented conceptual model, based on the TACC concept, indicates that large volume of insurance (the insurance sum) and its relatively low cost (the insurance premium) gives the possibility to the significant reduction of the cost of capital on average. The concluding remarks discuss some dilemmas over the utility of the TACC concept.*

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## Introduction

Insurance is primarily referred to as a tool useful in a protection against the negative financial consequences of the risk occurrence. The benefits of insurance are perceived through the indemnification for a loss whereas the costs of insurance are associated with the burden of insurance premiums. This perspective, however, is too narrow from a corporate finance point of view. Insurance adds value to the company in numerous ways and an important value driver is the direct and indirect impact on the corporate cost of capital.

The purpose of the paper is to support the thesis that insurance may reduce the cost of capital in a company by influencing both the cost of particular capital structure components and the volume of particular sources of funds. Within the latter issue, the new arguments are provided by means of the novel concept addressing the problem of risk-based capital structure in a company. The methodology of the paper is based primarily on the conceptual analysis of the current state of affairs.

The paper is structured as follows. Section one discusses the mechanism of insurance risk transfer and explains the idea of insurance as a risk finance tool from the risk management perspective. Section two concerns the impact of insurance implementation on the cost of capital

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components with regard to both the cost and the volume perspective. It provides some arguments based on the evidence provided in the literature. Section three presents the insurance as the component of the risk-based capital in a company and its consequences, touching the new idea of the average cost of capital computation – the TACC (total average cost of capital). The last section provides some evidence on the dilemmas over the TACC implementation. The paper is closed by some concluding remarks.

### **Insurance as a risk finance tool**

From a company's perspective, insurance should be defined as tool that allows financing the negative outcomes of risk. The idea of insurance is an old one and from the beginning the insurance was based on the risk transfer mechanism and the concept of pooling (Outreville, 1998, p. 15-16). The risk transfer mechanism results in the transfer of insurance from an individual (e.g. a company) into a group (of companies). As a consequence, a pool of risk is being created. The mechanism of insurance risk transfer ascertains the insured entities (companies) that in case of risk occurrence the loss will be refunded. By means of insurance, a loss of a particular entity (company) is shared by all members of the group (the pool) (Vaughan and Vaughan, 2003, p. 33). In other words, the insured entities make a formal agreement to share the loss and thus the economic burden of loss is spread through the group. The insurance premium should be perceived as a price for being a participant of the insurance pool. The volume of premiums collected creates a special fund which is managed by the insured with a purpose to support financially those members of insurance pool who suffered from a loss.

In a more formal way, the insurance definition provided from the individual perspective explains insurance as an instrument whereby a company substitutes a relatively low certain loss embodied in the insurance premium for a large uncertain loss which is embodied in the contingency insured against. From this point of view, the transfer of risk is emphasised. The insurance definition provided from the collective perspective, explains insurance as an economic device which reduces and eliminates risk through combining a large number of homogenous exposures into a group. By this, the insurer makes a loss predictable for the group (the pool) as a whole. Here, the insurance pooling of risk is emphasised (Vaughan and Vaughan, 2003, p. 34).

Recalling the risk management idea, insurance is one of tools applied in managing risk. Traditionally, these tools are divided into the risk retention and risk transfer tools. However, the latter innovations brought the possibility to implement in a company so called alternative risk transfer (ART) or alternative risk finance (ARF) instruments which are the combination of risk transfer and risk retention<sup>3</sup>. Risk management places the insurance among so called risk finance (or risk financing) tools. This point of view is of a particular importance for the discussion on the impact of insurance on the corporate cost of capital as it perceives the insurance as another source of funding. Such context of insurance perception and analysis is a novel one and allows developing a few distinctive features of insurance.

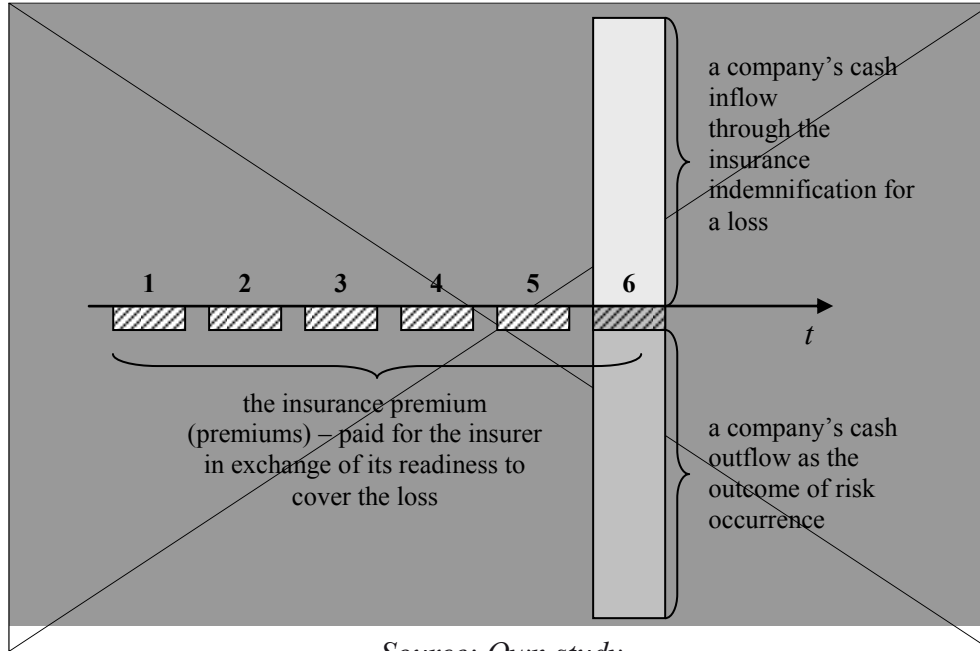
First of all, insurance is a retrospective risk financing tool as the cash (in the form of indemnification for a loss) inflows to a company after the risk occurrence. This cash infusion is directed with a purpose of covering the negative outcome of risk visible in cash flows volatility. The retrospective risk financing is here associated with post-loss funding. A characteristic of the

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<sup>3</sup> An extended analysis of the corporate use of various alternative risk transfer (alternative risk finance) instruments is discussed among others in (Hartwig and Wilkinson, 2007, p. 927-936; Wieczorek-Kosmala, 2010a, p. 453-462; Wieczorek-Kosmala, 2010b, p. 300-314).

post-loss funding agreements – including the insurance – is that the cash stream flows from primarily defined (agreed) source and on predefined rules. A model of insurance as a retrospective (post-loss) funding mechanism is presented on Figure 1.

**Figure 1: Insurance as the retrospective (post-loss) finance mechanism**



In the period of  $t=1$  to  $t=5$  the company pays insurance premiums which incur cash outflows. This cash outflows should be perceived as the price for the insurer readiness to cover the loss in case of the risk occurrence. In the period of  $t=6$  the company affects the loss as a result of the negative outcome of risk. In order to simplify the graphic model, it is assumed that the damage caused by the risk is going to be covered (repaired) within the period of risk occurrence. The loss causes that the company is affected by the cash outflow (e.g. in the event of fire the company must restore the damaged assets or buy new assets). However, thanks to the insurance indemnification the cash flows into the company which finally balances the cash flows in the period  $t=6$ . The total cash outflow in the period  $t=6$  is higher than the cash inflow from the indemnification for a loss as the company incurs the cash outflow due to the premium payments (as it was in the period of  $t=1$  to  $t=5$ ).

The above presented model underlines the second distinctive feature of insurance as a risk financing tool. The payment of indemnification for a loss is conditional upon the negative outcome of the risk occurrence. The conditions are predefined in the insurance contract with regard to the type of risk and the maximum level of insurer's contribution. From this perspective, the insurance risk transfer mechanism is equivalent to the mechanism of a put option for additional capital (Culp, 2006, p. 122-123). In case of the risk occurrence the company will exercise the option which means that the capital flows to the company on a predefined conditions. If the risk will not occur within the agreed period (the period of insurance contract), the option expires. The insurance premium may be compared to the option premium and represents the cost of the insurer's readiness to provide capital in predefined circumstances.

Assuming that insurance is a specific option-like source of retrospective funding, it should be examined how it affects the company's capital structure. Here, the two distinctive views should

be underlined: the traditional concept concerning the weighted average cost of capital and a novel risk capital concept concerning the total average cost of capital.

### Insurance and the weighted average cost of capital (WACC)

The classical concept is based on the fundamental assumption that the insurance contributes to the stability of a company's capital structure<sup>4</sup>. As risk finance tool, insurance ensures a stream of cash which is conditional upon the occurrence of an event (risk) insured against. The best explanation and justification of this statement, however, comes from the analysis of the consequences of risk occurrence in the uninsured company. An uninsured company in case of risk occurrence has to arrange the sources of funding that will be directed to the assets restoration (physical or financial assets). These funds may be raised from the internal sources or externally. The internal sources of loss coverage are provided in the form of capital reserves. The company may collect the reserves deliberately for the loss coverage, which is commonly called self-insurance (Williams and Heins, 1989, p. 237-238; Rejda, 2001, p. 48). However, it is difficult for a company to predict accurately and collect timely the required level of capital reserves. Also, the internal funds may come from capital reserves other than self-insurance (e.g. the reserves created for other purposes – including the profit that might be directed to the dividends pay-out) which implies additionally the alternative costs.

If the company does not have capital reserves that might be involved in the internal financing the consequences of risk, it has to raise funds externally from either equity or debt finance. Such decisions, however, change the capital structure of a company and as a consequence the weighted average cost of capital. In the absence of capital reserves, the company's capital structure includes equity ( $E$ ) and debt finance ( $D$ ) and these elements constitute the volume of company's capital ( $C$ ). In such circumstances, the weighted average cost of capital ( $WACC$ ) is computed as follows<sup>5</sup>:

$$WACC = \frac{E}{C} \times C_E + \frac{D}{C} \times C_D \quad (1)$$

where  $C_E$  represents the cost of equity finance and  $C_D$  the after tax cost of debt finance.

As mentioned above, if the company has to raise the capital as it wishes to restore the physical or financial assets, the capital structure changes. The increase of the share of equity with the higher cost ( $C_E$ ) as compared to the after-tax cost of debt finance ( $C_D$ ) increases the WACC. The cost of equity finance ( $C_E$ ) is more expensive as the rates of return required by the owners are higher (due to the higher degree of risk) and the additional impact of the issuance costs<sup>6</sup>.

The increase of debt finance has even larger consequences. From the WACC formula point of view the higher level of debt finance should decline the final WACC as the cost of debt finance

<sup>4</sup> In the literature one may find the arguments for the irrelevance of insurance (and other risk management techniques, together with derivatives in their hedging function) for optimisation of the capital structure (Culp, 2001, p. 69-70). However, the recent researches and the conceptual analysis of their results provide quite contrary evidence. In particular, the arguments for relevance of risk management to capital structure decisions were developed i. a. in the studies of Culp (2001, p. 94-111), MacMinn and Garven (2000, p. 541-564) or Doherty and Smith (2003, p. 405-408).

<sup>5</sup> This formula is based on the classical weighted average cost of capital (WACC) which is explained among others in (Megginson and Smart, 2006, p. 229; Shapiro and Balbirer, 2000, p. 315; Higgins, 2007, p. 296; Fabozzi and Peterson, 2003, p. 309; Baker and Powell, 2005, p. 344; Copeland, Weston and Shastri, 2005, p. 569-570).

<sup>6</sup> For example, compare the idea of cost of equity computation assumed in the Dividend Discount Model (DDM), also referred to as the Gordon Growth Model (Shapiro and Balbirer, 2000, p. 317-320; Megginson and Smart, 2006, p. 226; Fabozzi and Peterson, 2003, p. 318-320).

( $C_D$ ) is cheaper as compared to the cost of equity finance ( $C_E$ ). However, the company may face adverse situation. The higher level of debt finance the higher is the insolvency risk, which increases the expected rates of return by both the equity providers and the debt providers (Groppelli and Nikbakht, 2006, p. 169, 200-203; Ogier, Rugman and Spicer, 2004, p. 5-10; Baker and Powell, 2005, p. 342-343).

The prime explanation of this phenomenon is given by the trade-off theory and the problem of financial distress costs (Groppelli and Nikbakht, 2006, p. 250; Marks, Robbins, Fernandez, Funkhouser, 2005, p. 22-23). These costs (most of them immeasurable) include among others: the cost of loss of customers, suppliers, employees, loss of quick sale of assets, costs of lowered creditworthiness. The source of these costs is the inability of effective management of a financially distressed company and facing the risk of going bankrupt. Additionally, financial distress increases the costs of bankruptcy springing from the legal and administrative costs (such as legal and accounting expert opinions, consulting, appraisals, sale of assets)<sup>7</sup>. The financial distress costs are often provided as the arguments for risk management implementation, which includes also the insurance implementation if justified (MacMinn and Garven, 2000, p. 548-550; Stulz, 2008, p. 100-102).

As for the insurance, another convincing argument can be contributed to the discussion. Insurance influences the level of operating (business) risk of a company, where the operating (business) risk is associated with the risk of achieving the expected operating profit (Brigham, 1992, p. 448). It is under the assumption that the rate of return required by the capital providers ( $R_R$ ) is constituted by the risk-free rate ( $R_{RF}$ ) and the premium for operating risk ( $RP_O$ ) together with the premium for the financial risk ( $RP_F$ ) resulting from a company's capital structure (Baker and Powell, 2005, p. 298):

$$R_R = R_{RF} + RP_O + RP_F \quad (2)$$

The impact of insurance on the business risk is two-tier. First of all, the insurance indemnification for a loss helps the company to restore assets relatively quickly and thus come to the 'normal' level of operations (where 'normal' means in terms of undisturbed activity). As a consequence, the company has a chance to maintain the expected level of operations and thus achieve the expected level of operating profit. As a result, the capital providers of the insured company should not charge higher operating risk premiums which stabilises (or even decreases) the WACC.

Secondly, the insurance reduces worries and fears both of the insured company and of the entities in its business environment. Thus, the insured company gains the competitive advantage over the uninsured one. Among others, the insured company has a chance to improve economic contacts with the capital providers as a group of stakeholders. Apart from the previously discussed reduction of the operating risk premium, a company may benefit from a better access to additional funds while needed for extending the scale of operating activity. It is because certain types of insurance might be used as protective measures in crediting (e.g. credit insurance). The same pattern is followed with regard to suppliers' who may be more willing to offer trade credit (and thus reduce the need for the debt finance) if secured with the proper insurance (Wieczorek-Kosmala, 2010c, p. 162-166).

## Insurance and the total average cost of capital (TACC)

The traditional concept of cost of capital measurement embodied in the WACC formula is based on the balance sheet cost of capital components. However, the implementation of in-

<sup>7</sup> The extended analysis and detailed examples of costs of financial distress and bankruptcy costs, including their impact on value creation process according to the trade-off theory, are provided in (Berk and DeMarzo, 2007, p. 494-500; Ross, Westerfield and Jaffe, 2005, p. 433-550; Copeland et al., 2005, p. 593-594).

insurance (and other tools of risk finance) brings to the capital structure additional, off-balance sheet sources of capital. This concept is under-pinning the perception of risk capital in the non-financial companies. Risk capital is here associated with the capital gathered by the company for the purposes of risk coverage. Thus, the total capital of a company might be divided into the operating capital required for operating activity and the risk capital required for the risk financing purposes (Duliniec, 2011, p. 152). The risk capital might be gathered within both the balance sheet capital and the off-balance sheet capital. The company which is managing risk implements to the broadly understood capital structure the off-balance sheet capital which is raised conditionally upon the risk occurrence. It is in the form of application of different risk management tools, including the insurance.

The concept of the risk capital and its structure was introduced by Shimpi (2001) and then extended by Culp (2002). Both discuss the consequences of risk financing tools implementation with regard to the conditional capital infusion. Shimpi argues that the balance sheet capital of a company reflects the risk retention capital. The off-balance sheet capital is risen if the company implements other risk financing tools while managing the risk. These instruments traditionally include risk retention instruments in the form of economic reserves, as well as non-traditional solutions (the above mentioned ARTs or ARFs), and risk transfer mechanism such as derivatives (in the hedging function) and insurance. Shimpi called his model “*the insurative model*”, however he didn’t narrow his statements to the insurance solely (Shimpi, 2001, p. 11-15).

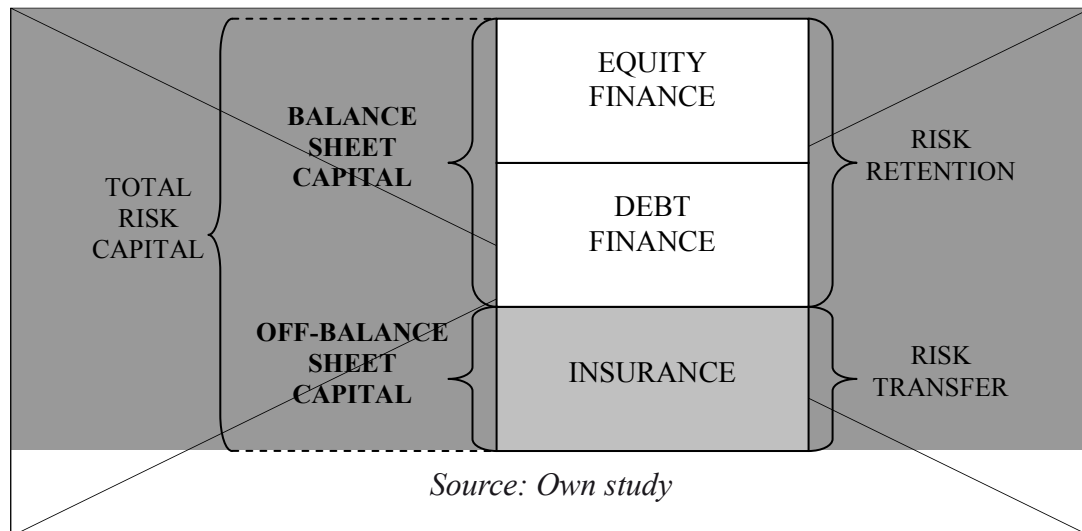
Culp (2002) revised and extended this concept and called it “*the risk-based capital structure*”. In Culp’s concept the risk retention instruments should be associated with the synthetic debt as the implementation of such instruments does not influence the situation of the owners. In case of adverse risk development (e.g. catastrophic risk), that will cause the exhaustion of a particular risk retention funding, the owners finally will bear the risk outcomes. The risk transfer instruments, however, should be associated with synthetic equity, as the negative outcomes of risk are transferred to the third party who entered the risk transfer contract (Culp, 2002, p. 232-239). In addition, Shimpi (2001) developed a formula of the TACC (total average cost of capital) which is based on the idea of WACC computation extended with regard to the off-balance sheet capital components (Shimpi, 2001, p. 14). Taking into consideration all arguments developed by both Culp and Shimpi, it should be assumed that the capital structure of a company ( $TC$ ) includes equity ( $E$ ), debt ( $D$ ) and the off-balance sheet capital components: the synthetic equity ( $SE$ ) and the synthetic debt ( $SD$ ). Then, with the analogy to the  $WACC$  computation, the  $TACC$  is computed as follows:

$$TACC = \frac{E}{TC} \times C_E + \frac{D}{TC} \times C_D + \frac{SE}{TC} \times C_{SE} + \frac{SD}{TC} \times C_{SD} \quad (3)$$

where  $C_E$ ,  $C_D$ ,  $C_{SE}$  and  $C_{SD}$  represent the cost of particular capital structure components respectively and in case of  $C_D$  and  $C_{SD}$  it is the after-tax cost whenever applicable.

Concerning the Shimpi’s and Culp’s concept of risk capital and risk capital structure, the insurance should be perceived as the off-balance sheet, conditional capital structure component. Assuming that a company implements solely the insurance as the risk financing instrument, the model of a capital structure in such company might be characterised as presented in Figure 2.

**Figure 2: A model of the capital structure of a company implementing insurance**



As a consequence, the total average cost of capital (TACC) should be computed as follows:

$$TACC = \frac{E}{TC} \times C_E + \frac{D}{TC} \times C_D + \frac{I}{TC} \times C_I \quad (4)$$

where  $I$  is the volume of the off-balance sheet funding springing from insurance contract and  $C_I$  is the after-tax cost of insurance (other assumptions from formula 3. held constant). These elements require a closer attention with regard to their computation. The value of insurance off-balance sheet funding ( $I$ ) should be associated with the insurance sum. The insurance sum is always provided in the insurance contract and depending on the type of insurance it is based on the value of physical assets of a company or its expectations of the potential loss that may arise from a particular risk (e.g. in liability insurance). However, Shimpi (2001, p. 15) argues that for the purposes of TACC computation the current value of insurance sum should be applied. This would be of importance in case of multi-year coverage. However, in the property and casualty insurance one-year cover is more common.

The cost of insurance capital ( $C_I$ ) should be obviously associated with the insurance premium payment. Here, following the need of expressing the cost of capital as the rate of return, the  $C_I$  should be computed as the value of insurance premium paid ( $P$ ) divided by the insurance sum ( $I$ ).

### **The dilemmas over the application of insurance in the cost of capital computation**

The application of TACC concept may raise some disputable problems. It is connected with the specifics of insurance sum and insurance premium and the consequences of their changes on the average cost of capital within risk-capital model. First of all, the capital structure is enriched with an additional element that may have a value comparable with other important capital components and at the same time has much lower cost of capital. The insurers compute the premiums using the insurance premium rates expressed per mille due to their small height. The insurance premium rates depend on the type of insurance which is influenced mainly by the type of the risk insured and the number of the insured entities entering the insurance pool; thus it can be relatively low. As a consequence, it may decrease the average cost of capital significantly. The above conclusions may be supported by the development of a simple analytical model. The prime assumption is that the assets ( $A$ ) of a company are homogenous and are insured

against one specific type of risk. Then, the  $C_I = p$  under the assumption that  $P = p \times I$  (where  $P$  equals the premium paid). The insured sum ( $I$ ) depends on the portion (hereafter denoted as  $\alpha$ ) of assets insured against ( $I = \alpha \times A$ ). If  $\alpha_{(1)} > \alpha_{(0)}$ , which means that the greater portion of assets is being insured, then  $I_{(1)} > I_{(0)}$  and  $TC_{(1)} > TC_{(0)}$ . Accordingly, assuming that other components of the total risk capital ( $TC$ ) are held constant, the costs of  $TC$  components are held constant and the insurance premium rate ( $p$ ) is held constant, the  $TACC_{(1)} < TACC_{(0)}$ .

Assuming that  $p_{(1)} < p_{(0)}$ , which means that the company managed to reduce the premium payments (e.g. by changing the insurance provider or reducing the current risk profile within the aspects taken into consideration by the insurance provider), the  $C_{I(1)} < C_{I(0)}$ . Accordingly, under the assumption that other components of the total risk capital ( $TC$ ) are held constant, the costs of  $TC$  components are held constant and the  $\alpha$  is held constant, the  $TACC_{(1)} < TACC_{(0)}$ . This simple model indicates that under the assumptions of the risk capital structure model in its current (above presented) state, any increase of insurance cover and any decrease in insurance rate will produce lower cost of capital.

In order to present how far the above described mechanism may affect the TACC, a simplified hypothetical numerical example is provided below. Lets assume that the company X requires 1 000 000 capital for funding the assets of which half are fixed assets and the other half are the current assets. The capital structure with regard to the volume of equity and debt for that company is provided in Table 1.

**Table 1: The balance sheet of a hypothetical exemplary company**

<i>Assets</i>	<i>Volume</i>	<i>Capital</i>	<i>Volume</i>
fixed assets	500 000	equity	500 000
current assets	500 000	debt	500 000
<b>Assets in total</b>	<b>1 000 000</b>	<b>Capital in total</b>	<b>1 000 000</b>

*Source: Own study*

The following assumptions are that the equity costs 12% pro year ( $C_E = 12\%$ ) and the debt costs 10% pro year ( $C_D = 10\%$ ), which gives the after-tax cost of debt of 8,1% with the assumption of 19% of the tax rate. In order to examine the possible scale of the impact of insurance implementation on the average cost of capital, it is assumed that the hypothetical exemplary company buys coverage for its fixed assets ( $FA$ ) with the insurance rate equal to 1% ( $p = 1\%$ )<sup>8</sup> and the insurance sum ( $I$ ) equal to  $I = \alpha \times FA$ , where  $\alpha$  represents the portion of balance sheet value of the insured fixed assets. With regard to these variables, the average cost of capital is computed and analysed for the following situations:

situation (1): the  $WACC_{(1)}$  of a company under the assumption that the company does not implement insurance,

situation (2): the  $TACC_{(2)}$  of a company under the assumption that half of a company's fixed assets are covered under the insurance contract, other things held constant ( $\alpha = 0,5$ ),

situation (3): the  $TACC_{(3)}$  of a company under the assumption that all its fixed assets are covered under the insurance contract, other things held constant ( $\alpha = 1$ ),

<sup>8</sup> As mentioned previously, the insurance rates are usually expressed per mille. However, for simplicity of the example provided the assumed rate is higher (which will not influence negatively the final conclusions).

situation (4): the  $TACC_{(4)}$  of a company under the assumptions from situation (3) and additional reduction of insurance rate ( $p$ ) to 0,08%, other things held constant. The WACC or TACC for each situation is provided in Table 2.

**Table 2: The average cost of capital of hypothetical exemplary company in the revised situations**

Source of capital	Volume	Share in the capital structure	Pre-tax cost of capital	After-tax cost of capital	Cost of a capital structure component and the WACC/TACC
<b>SITUATION (1)</b>					
Equity (E)	500 000	50,00%	12,00%	–	6,0000%
Debt (D)	500 000	50,00%	10,00%	8,10%	4,0500%
<b>In total:</b>	<b>1 000 000</b>	<b>100,00%</b>	–	–	<b>WACC<sub>(1)</sub> = 10,0500%</b>
<b>SITUATION (2)</b>					
Equity (E)	500 000	40,00%	12,00%	–	4,8000%
Debt (D)	500 000	40,00%	10,00%	8,10%	3,2400%
Insurance (I)	250 000	20,00%	1,00%	0,81%	0,1620%
<b>In total:</b>	<b>1 250 000</b>	<b>100,00%</b>	–	–	<b>TACC<sub>(2)</sub> = 8,2020%</b>
<b>SITUATION (3)</b>					
Equity (E)	500 000	33,33%	12,00%	–	4,0000%
Debt (D)	500 000	33,33%	10,00%	8,10%	2,7000%
Insurance (I)	500 000	33,33%	1,00%	0,81%	0,2700%
<b>In total:</b>	<b>1 500 000</b>	<b>100,00%</b>	–	–	<b>TACC<sub>(3)</sub> = 6,9700%</b>
<b>SITUATION (4)</b>					
Equity (E)	500 000	33,33%	12,00%	–	4,0000%
Debt (D)	500 000	33,33%	10,00%	8,10%	2,7000%
Insurance (I)	500 000	33,33%	0,08%	0,06%	0,0216%
<b>In total:</b>	<b>1 500 000</b>	<b>100,00%</b>	–	–	<b>TACC<sub>(4)</sub> = 6,7216%</b>

Source: Own study

In the situation (1) where no insurance is implemented, the average cost of capital equals 10,05%. The admission of total risk-based capital concept and the implementation of insurance as assumed in situation (2) reduces the average cost of capital to 8,202% (so  $TACC_{(2)} < WACC_{(1)}$ ). The assumption that all fixed assets are insured as in situation (3) reduces the average cost of capital even more to 6,97% ( $TACC_{(3)} < TACC_{(2)}$ ). If the company would gain additionally the reduction of insurance premium as assumed in situation (4), then the average cost of capital would decrease to 6,7216% ( $TACC_{(4)} < TACC_{(3)}$ ). The reduction of a premium is obtainable if a company contributes significantly to the insurance pool (especially in the tailor-made insurance programs). This simplified example convinces clearly that the insurance implementation may visibly reduce the cost of capital on average if the concept of risk-based capital structure and the TACC are followed. Moreover, the higher the insurance sum and the lower the insurance rate, this impact will be stronger.

## Conclusions

The presented concept of interactions between the insurance implementation and the corporate cost of capital highlighted two separate approaches. The first one, as a classical concept, explains the possible impact of the insurance on the weighted average cost of capital (WACC), computed with regard to the balance sheet capital structure. It explains why and how the insurance may affect the changes in the capital structure and/or the cost of particular cost of capital components with regard to debt and equity finance. The second concept, which is a novel idea in this field, argues that the implementation of insurance (and other risk financing tools) changes the perception of cost of capital components, and thus the decisions about the capital structure. This concept, however, introduces a novel formula of cost of capital computation – the TACC (total average cost of capital). The presented model followed by simple numerical example convinces that a company following this concept may significantly reduce its cost of capital by implementing insurance. However, in financial decision making this concept should not be used extensively and companies should rather follow the idea of WACC. Perhaps in the future the studies will develop the areas of practical implementation of the TACC concept. Currently, the utility of TACC should be perceived mainly through the educational dimension. It forms the first attempt to clarify the connections between the implementation of risk management tools (in this insurance) and the capital structure decisions of a company. As a consequence, the TACC concept convinces that the corporate need for capital springs not only from the operating activity but also from the need to protect against the negative risk outcomes. Thus, the prime concern of a company should be directed to the risk management issues (including the decisions about the implementation of various risk finance instruments). Afterwards, the company should decide about the application of particular sources of risk capital.

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