

## Stanovení nákladů na mezzaninový kapitál

### Estimating Cost of Mezzanine Capital

Zdeněk Konečný

#### Abstract:

**Purpose of the article:** There are more kinds of used financial sources and the chargeable of them are termed as capital. They can be divided into two basic groups according to the legal position of the provider, namely into equity and debt. Each item of capital is connected with some costs because of the existence of risk. There is generally known, that owners bear a higher rate of risk than creditors, thus the cost of equity should be higher than cost of debt. But there are also differences in risk rates within each group of capital, because there are more kinds of equity and debt. So the cost of every item of equity and debt should be estimated differently. Furthermore, there is used a mezzanine capital, which has some characteristics of both equity and debt.

**Methodology/methods:** There is implemented a secondary research based on studying existing literature dedicated to either kinds of capital, including the mezzanine capital, or cost of capital. The existing theory about estimating cost of equity and debt is consequently applied on individual types of mezzanine capital.

**Scientific aim:** This article has its aim to estimate cost of mezzanine capital, which can be used in three basic forms, namely senior subordinated debt, convertible subordinated debt or redeemable preferred stock. To fulfill this aim, there is used the theory of estimating cost of common and preferred stock and the theory of options.

**Findings:** The providers of senior subordinated debt bear a higher risk than other “classical” creditors, which is analogous to holders of common and preferred stock. So the difference between cost of these two kinds of debt (before interest tax shield) should be the same as the difference between cost of common and preferred stock. By estimating cost of convertible subordinated debt can be used the theory of options. So the convertible subordinated debt is divided into two parts, debt itself and the call option, whose cost is estimated as cost of equity. Costs of both parts are added up. Cost of redeemable preferred stock is estimated by using the theory of options, too. But in this case, the holder of preferred stock is in the short position, which means, that cost of this option is subtracted from the cost of preferred stock itself.

**Conclusions:** Cost of any types of mezzanine capital is higher than cost of debt, but lower than cost of equity, which is related to the rate of risk. Furthermore, cost of senior subordinated debt is lower than cost of convertible subordinated debt and cost of this type of mezzanine capital is lower than cost of redeemable preferred stock, because of different rates of risk, too. So using mezzanine capital can significantly affect the capital structure and the weighted average cost of capital.

**Keywords:** cost of debt, cost of equity, mezzanine capital, senior subordinated debt, convertible subordinated debt, redeemable preferred stock

**JEL Classification:** G32, G12

## Introduction

For financing all entrepreneurial activities is used some capital, which are the chargeable financial sources. There must be distinguished equity and debt because of the different legal position and different rights of its provider. The owners give their financial sources to the company for an unlimited period and they have decision-making power. On the contrary, creditors lend their capital temporarily and they expect its reimbursing plus interest payments. And in the case of failure of the company, the creditors have priority right on reimbursing their capital before owners.

Capital, as a basic factor of production, is connected with some costs, which are rewards for many kinds of risks, that providers bear, including giving up the liquidity. From the main characteristics of both kinds of capital follows, that cost of equity is higher than cost of debt. This rule is, according to Reiners (2004), broken only if the company is either quite new-founded, or is in bankruptcy.

Within equity and within debt, too, there exist more financial sources and using each kind of them is connected with different rate of risks for its provider and so there is necessary to estimate cost of each financial source separately and differently.

Furthermore, there are some financial sources, called the mezzanine capital, that have some characteristics of equity and some others, which are typical for debt.

The aim of this article is to estimate cost of mezzanine capital with considering the individual forms of it. There is suggested a method of calculation cost of mezzanine capital as a combination of used methods of calculation equity and debt with using the basic facts about estimating options.

### 1. Used kinds of equity and debt

There are many kinds of equity and debt. Only few of them are internal, because they were created inside the company. It can be the profit and its funds or depreciation within equity and reserves within debt. Using internal sources is called as self-financing. On the contrary, the high variety of equity and debt is typical for external financial sources, that are more considerable in most companies.

Every enterprise must accumulate some equity capital. Furthermore, companies limited by guarantee and joint-stock companies must have a registered capital according to the commercial law. Almost all equity providers have the standard rights. There is

one exception in joint-stock companies, who can issue not only the common stock with the standards rights of the holders, but also the preferred stock, whose holders have a priority right on dividend payment and on a liquidation residue, but usually they can't vote on the general meeting. The preferred stockholders can get their decision-making power only in the case, if the joint-stock company doesn't pay dividends. And this temporarily right can, according to Rejnuš (2010), last either till the decision about paying out dividends, or till their real payment.

Within equity there is a specific type of financing called venture capital. The venture investors are becoming minority owners, they are holders of preferred or convertible stock for a period of 5–7 years and they invest their money into innovative, rapidly growing and high-technology companies, according to Naqī and Hettihewa (2007). Besides the financial sources, the venture investors give also their know-how into the company. But they expected a high return as a compensation for a risk, whose rate differs itself according to the phase of the corporate life cycle. The kinds of venture capital are ordered from the most to the less risky *e.g.* in Nývltová and Režňáková (2007) as follows:

1. Seed capital.
2. Start-up capital.
3. Development capital:
  - a) Early stage expansion capital.
  - b) Expansion capital.
4. Turnaround capital/Rescue capital.
5. Debt replacement capital.
6. Transaction capital.

Wonglimpiyarat (2009) emphasizes, that in early phases is used the venture capital provided by private individuals (business angels) and seed funds, whilst during later phases companies are getting the venture capital mostly from commercial banks and capital markets.

In comparison with other stockholders, who can exit only by selling their stock on financial markets, the venture investor can exit by one of these five ways, as mentioned by Cumming and MacIntosh (2003):

1. IPO exit.
2. Acquisition exit.
3. Secondary sale.
4. Buyback exit.
5. Write-off.

Besides the equity, companies use also some debt for financing entrepreneurial activities. But some kinds of debt, like trade payables, payroll or tax liabilities, don't belong to capital, because they aren't

connected with interest payments. On the contrary, there is an interest-bearing debt, which is divided into two basic groups, namely into bank loans and corporate bonds.

## 2. Characteristics of mezzanine capital

The mezzanine capital is, according to Korver and Ongena (2008), a combination of characteristics of senior debt and common equity. Bean (2008) mentions, that mezzanine financing is analogous to a theater, where the orchestra represents senior debt, the balcony represents equity, and the mezzanine section (or mezzanine financing) is sandwiched between these two. A similar definition is used also by Vasilescu (2010), who says, that mezzanine capital is a hybrid form of financing, which forms a bridge between senior debt and pure equity. But Silbernagel and Vaitkunas (2012) emphasize, that there are three levels of mezzanine capital, which are filling the gap between debt and equity, as shown on Figure 1.

But there is evident, that the access to mezzanine capital differs according to the specifics of the company. Vasilescu (2010) divides mezzanine capital into private placement instruments and capital market instruments as follows:

1. Private placement instruments:
  - a) Subordinated loans (junior debt) – they are unsecured and have a lower ranking in the case of bankruptcy than the senior debt.
  - b) Participating loans – their remuneration depends on business results.
  - c) Silent participation – one or more persons take an equity share, but without assuming any liability to creditors.

2. Capital market instruments:
  - a) Profit participation rights – these investments entitle the holder to rights over the company’s assets but no to the right to be consulted on business decisions.
  - b) Convertible bonds – the holders have the right to get a share of the company instead of accepting reimbursing the bond.
  - c) Convertible bond with warrants – the subscription rights (the warrants) can be traded separately from the bond.

Sinnenberg (2005) distinguishes two different groups of mezzanine providers:

1. Sponsored mezzanine – the company is being acquired by a private equity group, that utilizes mezzanine financing to round out the capital structure.
2. Sponsorless mezzanine – the mezzanine provider invests directly into a situation, where the owners are not professional investors, typically a privately held or family held business.

The mezzanine capital is, according to Weissenberg, Cohen and Culliney (2003) provided *e.g.* by commercial banks, investment banks, real estate opportunity funds or small speciality lenders.

## 3. Suitability of using mezzanine capital

Mezzanine financing was firstly used during 1980s in USA and in the mid-to-late 1990s the mezzanine market began to develop, as mentioned by Leonard (2005).

According to Torpey and Viscione (2001), there are six situations, when the mezzanine capital as a source of financing is the most suitable one:

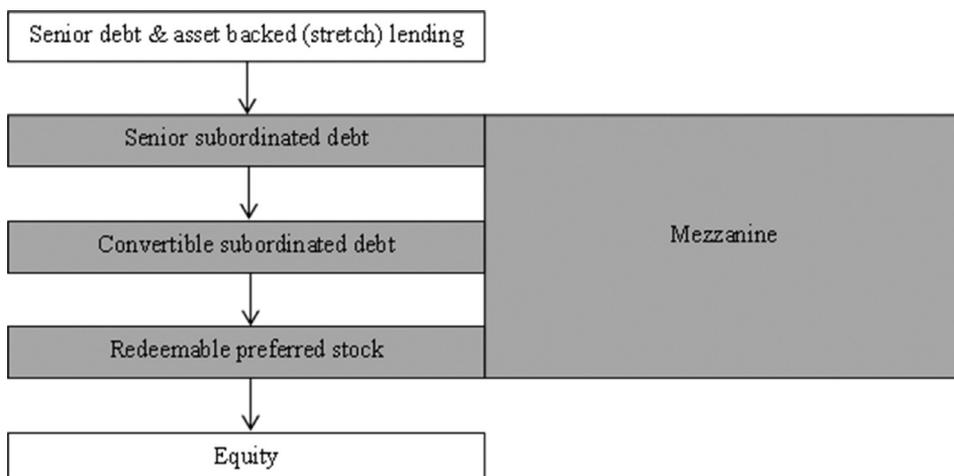


Figure 1. Types of mezzanine capital as a gap between debt and equity. Source: Silbernagel and Vaitkunas, 2012.

Tab. 1 Influence of mezzanine capital on weighted average cost of equity and return on equity (in %).

Capital structure as the shares of financial sources			Weighted average cost of capital (WACC)	Return on equity (ROE)
Debt	Mezzanine	Equity		
0	0	100	35	12
50	0	50	19	21
60	20	20	11	40

Source: Silbernagel and Vaitkunas, 2012.

1. The company has good growth perspectives, but there isn't possible to raise more senior debt without first getting more junior financing. It can be caused either by recent losses or by current heavy indebtedness.
2. Managers can obtain senior debt, but they must agree to pay the lender an unacceptably high interest rate, accept very restrictive covenants, provide personal guarantees, or put up more collateral than the company owns or chooses to put at risk.
3. The interest rate is at the acceptable level, but the company doesn't want to assume the risk of a volatility of interest rates.
4. Management can raise the capital by selling equity, but investors don't want to pay the required price, or are asking for too much equity.
5. Managers want neither to relinquish control, nor to dilute its equity.
6. The expected growth of the company is insufficient to convince venture capitalists of its future perspectives and to get venture capital.

Using the mezzanine capital has some advantages for the company. Vasilescu records, that it improves the balance sheet structure and offers a better access to additional loans or equity. Rosenthal (2004) mentions, that using mezzanine capital can increase the equity yields. And authors Torpey and Viscione (1987) emphasize its flexibility.

But the mezzanine financing has also some disadvantages. According to Rosenthal (2004) the company can use the mezzanine capital for a shorter-term period than the equity, e.g. they are repayable mostly after 5 to 8 years, only few of them are perpetuals, as mentioned by Franke and Hein (2008). And for many companies there is very difficult to obtain mezzanine capital, e.g. for small companies, for companies in the phase of restructuring, for companies with a weak market position and negative development prospects, or for companies with few financial sources, as written by Vasilescu (2008).

There are also some advantages and disadvantages for the provider of mezzanine capital, as mentioned by Vasilescu (2008). They have access to a

new investment segment and optimal opportunities for diversification. They can invest their money without any dependence on stock and bond markets. The exit risk is lower in comparison to owners, but there is difficult to exit early.

The mezzanine investors have more ways how to exit. Silbernagel and Vaitkunas (2012) record these possibilities of repayment:

1. Through cash generated by the business.
2. Through recapitalizations.
3. Through initial public offerings.
4. Through an acquisition by a competitor.

#### 4. Impact of mezzanine on financial indicators

Cost of mezzanine capital is higher than cost of debt, but lower than cost of equity. Silbernagel and Vaitkunas (2012) compare expected returns, that are equal to cost of capital, of all three types of capital providers as follows:

1. Creditors: 5–12%.
2. Mezzanine providers: 12–25%.
3. Owners:
  - a) preferred stockholders: 25–30%,
  - b) common stockholders: 30% +.

Similar findings about cost of mezzanine capital published also authors Rosenthal (2004), Sinnenberg (2005) or Weissenberg, Cohen and Culliney (2003).

But according to Silbernagel and Vaitkunas (2012) the mezzanine returns can be made up of four components in total, as follows:

1. Cash interest – a periodic payment of cash based on a percentage of the outstanding value of the mezzanine capital and the interest rate can be fixed or variable (according to PRIBOR or other base rates).
2. Payable in kind (PIK) interest – it is not paid in cash but by increasing the amount of provided capital.
3. Ownership – with the mezzanine capital is often connected a warrant or a conversion feature si-

Tab. 2 Strengths and limitations of most used models of estimating cost of equity.

Models	The constant growth discounted cash flow model (DCF)	The capital asset pricing model (CAPM)	The risk-premium method
Strengths	The method maximally considers specifics of the company. The input data are readily available. There is considered the time value of money including its forward looking.	There is incorporated a basic concept of risk and return. It is an interest-rate sensitive model, that complements a stock price sensitive model.	It is based on the fact, that equity is riskier (and more expensive) than debt. It is sensitive to interest rates.
Limitations	Some of the underlying assumptions of the model are at odds with investors and capital market behavior. Growth rates are subjective. Analysts' forecasts are short-termed, whereas the model is long-termed in nature.	The cost of equity depend on one factor (beta). There are some problems with estimating beta.	The risk premium is estimated subjectively. There is a correlation between historic and future risk premiums.

Source: Malko, Swensen and Monteleone, 2007.

imilarly to convertible bonds. It is almost always accompanied by cash, or PIK interest or by both.

4. Participation payout – the lender may take, instead of equity, a return, measured by some financial indicators like sales, cash flow, profit or the ratio EBITDA (earning before interest, taxes, depreciation and amortisation).

Besides the fact, that the mezzanine capital is cheaper than equity, there is, according to Silbernagel and Vaitkunas (2012), one more financial advantage, that mezzanine investors are looking for companies (investment projects) with their internal rate of return (IRR) between 11 and 25%, whilst owners require its value over 25%.

Using the mezzanine capital can significantly influence the weighted average cost of capital (WACC) and return on equity (ROE), as illustrated on Tab. 1.

## 5. Estimating cost of capital

Cost of capital is, according to Brealey and Myers (2003) an opportunity cost, because it is the return foregone by investing in the project rather than investing in securities. This definition is valid especially for cost of equity, whilst cost of debt are mostly real paid.

### 5.1 Cost of common equity

Cost of equity is, according to Palliam (2005) a compensation to investors for time and risk. So it consists of two components. The rate for time is equal to risk-free rate and it is the same for all companies. But the rate for risk differs from one company to another

and depends on many particular characteristics of the company. Collins and Huang (2011) found these risk determinants associated with cost of equity:

1. Size.
2. Financial leverage.
3. Systematic risk.
4. Growth.
5. Dispersion in earnings expectations.
6. Industry differences in the cost of equity.

There exist many methods of calculating cost of common equity, which can be, according to Fu, Kraft and Zhang (2012) divided into two categories as follows:

**Methods based on analysts' forecasts:** e.g. constructional models, estimating cost of equity as a premium to cost of debt, putting the cost of equity equal to return on equity reached on the market, ...

**Methods considering the stock returns:** e.g. capital asset pricing model (CAPM), arbitrage pricing theory (APT), Fama-French three factor model, Gordon growth model, cost of equity based on realized returns, earnings-to-price ratio, ...

Authors Malko, Swensen and Monteleone (2007). emphasize, that no one method should be used in isolation to determine the cost of equity, which is an opportunity cost equal to an utility's required return on equity (ROE). The cause is that each model has some strengths and some limitations. These authors mention strengths and limitations of three, most used, models of estimating cost of equity, namely the constant growth discounted cash flow model (DCF), which is also known as a Gordon growth model, the capital asset pricing model (CAPM) and the risk-premium method. The strengths and limitations of these three models are compared on Tab. 2.

### 5.2 Cost of debt

The cost of debt measures, according to Damodaran (2004), the current cost of borrowing funds to finance projects and is determined by riskless rate, default risk and tax advantage. But companies borrow more types of debt, namely both fixed- and floating-rate debt, both straight and convertible debt and both debt with and without sinking funds and each form is connected with different cost, as mentioned by Brigham and Ehrhardt (2008), who recommend to use the marginal cost of new debt, not the average cost of debt. The cause is, that in financial management there are compared project's expected future returns with the cost of new, marginal, capital. Furthermore, by calculating the tax advantage there shouldn't be, according to Damodaran (2004), used the effective tax rate, but the marginal tax rate, because the interest payments save the tax at the margin, as they are deducted from the last or the next financial unit of income.

### 5.3 Cost of hybrid securities

The hybrid securities can have, according to Damodaran (2004) a form of either preferred stock, or convertible bond. The cost of preferred stock is calculated as the preferred dividend per share divided by market price per preferred share. And the cost of convertible bond consists of two components, because it can be viewed as a combination of a straight bond (debt) and a conversion option (equity). So there are separately estimated cost of the bond and cost of the option.

### 5.4 Weighted average cost of capital

Cost of equity and debt are different because of a different rate of risk, which is valid also for cost of individual financial sources within equity and debt. So there is necessary to calculate the weighted average cost of equity, which is used by financial decisions making. But there must be considered the incremental weighted average cost of capital, because, according to Groth and Anderson (1997) the historical cost of capital is inappropriate.

## 6. Results and discussion

Cost of mezzanine capital can be estimated by combining the methods of calculation cost of equity, debt and especially cost of hybrid securities, described by Damodaran (2004). But each type of mezzanine capital is specific and its cost must be estimated separately as follows.

### 6.1 Cost of senior subordinated debt

The creditors, whose lent capital is subordinated to

other debts, bear a higher risk in comparison to other creditors. The subordination is evident especially in the case of the corporate default, when the subordinated debt is reimbursed after reimbursing other kinds of debt like bank loans, corporate bonds, trade payables or payrolls. The senior creditors have a priority before subordinated debt providers by paying interests, too.

There can be found out an analogy within equity providers, because there can be issued two basic kinds of stock, namely the common stock and preferred stock. The preferred stockholders have the same priority before the common stockholders. There is only one difference in subordination of debt and equity. Common stockholders have a decision-making power and preferred stockholders haven't, whilst in the case of debt, no one creditor has a decision-making power. Nevertheless, the difference in beared risk is approximately the same. But there must be considered the cost of debt before the interest tax shield to eliminate some distortions.

So if the cost of common equity were *e.g.* 10%, cost of preferred equity 8% and cost of senior debt before the interest tax shield equal to 4%, then there should be required the interest rate for senior subordinated debt approximately on 6%, which is the cost of subordinated debt before considering interest tax shield.

### 6.2 Cost of convertible subordinated debt

As written above, holders of convertible bonds can convert it into common stock. So it can be viewed as a debt with a call option to convert it into equity. This call option can be evaluated by using either the Black-Scholes, or the Binomial model, described *e.g.* in Damodaran (2004).

The cost of convertible bonds can be estimated as a combination of cost of both equity and debt, as mentioned above. So there are separately calculated cost of the convertible bond itself as the cost of debt and cost of the call option as the cost of equity. Then the cost of equity is added to the cost of debt and so there is calculated the cost of convertible bonds.

There is evident, that the cost of convertible bonds is higher than cost of other classical forms of debt and higher than cost of senior subordinated debt, too, because of the possibility of its holder to become a common stockholder, which is a more riskier position than a creditor.

### 6.3 Cost of redeemable preferred stock

Redeemable preferred stock is one kind of equity with some special rights of its issuer to redeem it and thus to take it out of circulation after a certain

period. So this right can be viewed as a call option, which is analogous to convertible bonds. But in this case, the issuer disposes of this right.

The cost of redeemable preferred stock is estimated as combination of cost of preferred stock and cost of the call option. Both these part are cost of equity, but the cost of the call option is subtracted from the cost of preferred stock.

So the cost of redeemable preferred stock is lower than cost of other kinds of preferred stock but higher than both previous kinds of mezzanine capital, because this form is the closest to equity.

## Conclusion

The mezzanine capital has become an important financial source. In the case of growing perspectives of the company, it can be a suitable alternative to straight debt or straight equity, because using both

classical kinds of capital is connected with many disadvantages. Furthermore, there are more kinds of mezzanine capital, so the company can select the most suitable form for financing investments. The basic forms of mezzanine capital are senior subordinated debt, convertible subordinated debt and redeemable preferred stock.

One of the basic criterions considered by decision making of the source of financing is the cost of capital. But in the case of mezzanine capital, only few authors were dedicated to estimate its cost. This article has its aim to apply previous knowledge about cost of capital to estimate cost of mezzanine financing. The cost of senior subordinated debt is estimated analogous to cost of common stock compared to preferred stock and by estimating convertible bonds and redeemable preferred stock is used the option pricing theory and cost of these forms is calculated as a combination of cost of bonds or preferred stock themselves and cost of the call option.

## References

- Bean, L. (2008). Mezzanine Financing: Is It for You? *The Journal of Corporate Accounting & Finance*, pp. 33–35.
- Brealey, R. A., Myers, S. C. (2003). *Principles of Corporate Finance*. 7<sup>th</sup> ed., McGraw-Hill, Phoenix, 1071 pp.
- Brigham, E. F., Ehrhardt, M. C. (2008). *Financial Management. Theory and Practice*. 12<sup>th</sup> ed., Thomson South-Western, Mason, 1071 pp.
- Collins, D., Huang, H. (2011). Management entrenchment and the cost of equity capital. *Journal of Business Research*, 64, pp. 356–362.
- Cumming, D. J., MacIntosh, J. G. (2003). A cross-country comparison of full and partial venture capital exits. *Journal of Banking & Finance*, 27, pp. 511–548.
- Damodaran, A. (2004). *Investment Valuation*. 2<sup>nd</sup> ed., 1372 p.
- Franke, G., Hein, J. (2008). Securitization of mezzanine capital in Germany. *Financ Mark Portfolio Manag*, 22, pp. 219–240.
- Fu, R., Kraft, A., Zhang, H. (2012). Financial reporting frequency, information asymmetry, and the cost of equity. *Journal of Accounting and Economics*, 54, pp. 132–149.
- Groth, J. C., Anderson, R. C. (1997). The cost of capital: perspectives for managers. *Management Decision*, 35(6), pp. 474–482.
- Korver, M. R., Ongena, S. (2008). European mezzanine. *Applied Financial Economics*, 18, pp. 1613–1622.
- Leonard, C. (2005). Mezzanine Participations. *Briefings in Real Estate Finance*, 5, pp. 67–74.
- Malko, J. R., Swensen, P. R., Monteleone, J. A. (2007). Some Thoughts on Estimating the Cost of Common Equity for a Regulated Business. *The Electricity Journal*, 20(5), pp. 56–61.
- Naqi, S. A., Hettihewa, S. (2007). Venture capital or private equity? The Asian experience. *Business Horizons*, 50, pp. 335–344.
- Nývtlová, R., Režňáková, M. (2007). *Mezinárodní kapitálové trhy. Zdroj financování*. Grada Publishing, Praha, 224 pp.
- Palliam, R. (2005). Estimating the cost of capital: considerations for small business. *The Journal of Risk Finance*, 6(4), pp. 335–340.
- Reiners, M. (2004). *Finanzierungskosten im Lebenszyklus der Unternehmung. Ein optionspreistheoretischer Ansatz*. Verlag Dr. Kovač, Hamburg, 334 pp.
- Rejnuš, O. (2010). *Finanční trhy*. Key Publishing, Ostrava, 659 pp.
- Rosenthal, S. (2004). Comparing mezzanine to alternative debt and equity products. *Briefings in Real Estate Finance*, 4(1), pp. 65–73.
- Silbernagel, C., Vaitkunas, D. (2012). Mezzanine Finance. *Bond Capital*, pp. 1–7.
- Sinnenberg, J. (2005). Making Sense of Mezzanine Financing. *Private companies*, pp. 1–1.
- Torpey, W. J., Viscione, J. A. (1987). Mezzanine money for smaller businesses. *Harvard Business Review*, pp. 116–118.
- Vasilescu, L. G. (2008). Mezzanine debt: benefits or drawbacks for firm's financing? *The Young Economists Journal*, pp. 14–21.
- Vasilescu, L. G. (2010). Financing gap for smes and

the mezzanine capital. *Ekonomika istraživanja*, 23(3), pp. 57–67.

Weissenberg, A. F., Cohen, J., Culliney, P. (2003). Mezzanine financing for hospitality property owners. *Journal of Retail & Leisure Property*, 3(2), pp. 115–121.

Wonglimpiyarat, J. (2009). The influence of capital market laws and initial public offering (IPO) process on venture capital. *European Journal of Operational Research*, 192, pp. 293–301.

**Doručeno redakci: 26. 3. 2013**

**Recenzováno: 19. 5. 2013**

**Schváleno k publikování: 7. 6. 2013**

**Ing. Zdeněk Konečný**

Brno University of Technology

Faculty of Business and Management

Department of Finance

Kolejní 2906/4, 612 00 Brno, Czech republic

Tel.: 541 143 787

E-mail: konecnyz@fbm.vutbr.cz