Estimating the country risk premium in emerging markets: the case of the Republic of Macedonia

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Abstract

Estimation of the cost of capital is difficult in developed markets and even more difficult in emerging markets. Investments in the emerging markets are more risky than in the developed markets but return is also higher. The key question here is whether the return on investments in emerging markets should be rewarded by compensation in excess of that provided by an equivalent investment in a developed market. Contemporary literature provides alternative ways for calculating the cost of capital invested in emerging markets. In general, it can be concluded that it is widely accepted that country risk matters when investing in emerging markets and it is a key component in the estimation of the cost of capital for those investments. Country risk is non-diversifiable, which will be argued in this paper first, after which an alternative approach will be provided for quantification of country risk in the risk premium measure, which is integral component in the models for estimating the cost of capital.

Keywords: multinational companies, country risk, country risk premium, emerging markets, default spread, sovereign rating, country risk score, Macedonia

1 INTRODUCTION

It is generally accepted that risk is relevant in investing and that riskier investments should provide higher return than low risk investments. The required return on the investment is the sum of the risk-free rate and the risk premium. The latter is a reward for the investor who assumes the risk. A riskier investment has to provide a higher reward in the form of a risk premium in order to motivate the investor to undertake that investment. The central debate in the academic literature and in practice in the last decades is how to define the risk, how to measure risk, and how to convert the risk measure in an expected return on investment to compensate for the risk assumed. In the risk and return models used for valuation and in corporate finance, it is crucial to estimate the risk premium for average investment, called market risk premium or equity risk premium. This is vital for the Capital Assets Pricing Model (CAPM), which is the most used model in academic and practical analysis nowadays.

Investing in an emerging country, such as some countries in Latin America, Southeast Europe and Asia, is considered riskier than investing in big and developed markets like the USA, Japan and Western Europe countries. Certainly, the returns on investments are also higher in the emerging markets. The estimation of the required rate of return in the case of developed markets is mostly carried out with the CAPM. Although its theoretical fundamentals are widely accepted, its weaknesses in practical application are also generally recognized. The required rate of return is more difficult to assess in the case of emerging markets. Most academics agree that, in the required rate of return, the country risk must be rewarded with a country risk premium (CRP) over an equivalent investment in a developed country.

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This paper aims to argue that the country risk is relevant for investments in the emerging countries and that it should be rewarded with a risk premium. Accordingly, first we will argue that the country risk is non-diversifiable and has a market component, therefore it should be rewarded with a risk premium. Then, we will show how to measure the country risk and how to convert those measures into the country risk premium, applied in the case of the Republic of Macedonia.

2 ESTIMATING THE COST OF EQUITY IN EMERGING MARKETS

Multinational companies evaluating investment projects or an acquisition of another company abroad must estimate the future cash flows as well as the appropriate discount rate representing the cost of capital. An investment in the emerging markets provides higher returns, but also exposes investors to a higher risk. Consequently, the question is how to estimate the additional compensation in the form of a risk premium that investors require for investing in emerging markets.

Estimation of the cost of capital investment in a developed market is different than it is in emerging markets. As Estrada (2001) notes – defining the risk, determining the factors that influence the return on equity is complicated enough in developed countries but much more difficult in emerging markets. Estimation of the cost of equity in developed markets is mostly performed with the CAPM. According to that model the required rate of return is given as a [*Risk-free rate* + β***Market risk premium*], where the only risk that is compensated is the systematic risk, which embraces the risk factors common to the whole economy and cannot be diversified away. Here, the risk-free rate is the rate of return that can be earned by an investment in a risk-free asset. While no investments are risk-free, bonds issued by the governments of politically and economically stable countries are generally considered to be free from the risk of default. The beta of a security measures the sensitivity of the returns on the security to changes in systematic factors. The market risk premium is the excess return of the market as a whole, over the risk-free rate. As Watson and Head (2007) note, in the CAPM a linear relationship exists between risk and return, that is, the systematic risk of a security is compared with the risk and return of the market and the risk-free rate of return in order to calculate the required rate of return for the security and hence the fair price. The CAPM developed by Sharpe (1964) on a Markowitz (1952) portfolio theory, as a logical step forward, is a very simple to use. But, it is an economic model based on a simplified world using a wide range of assumptions. Some of them require investors to be rational; they want to maximize their utility; they have free access to all information; all of them hold diversified portfolios where the systematic risk is the only relevant risk that should be compensated for; the capital markets are perfectly competitive; and all investors have the same holding period. It is obvious that the most of these suppositions are unrealistic. The capital market is not perfect, as a result of the existence of taxes and transaction costs; information is not free, always reliable and equally accessible to investors. These and the other assumptions do not depict the real world exactly, and Sharpe (1964) observed: “the

proper test of a theory is not the realism of its assumptions but the acceptability of its implications". Although we can agree that capital markets are not perfect, as Watson and Head (2007) note, there have been a lot of empirical tests that confirm the high level of efficiency of capital markets. And if CAPM assumptions do not fully mirror the reality, the reality cannot be so far away from the assumption as to make this model completely invalid. Although most academics agree with its theoretical validity, there are a lot who argue that it has no valid practical application. Some of them, like Roll and Ross (1994) even suggest it should be discarded outright.

There have been a lot of empirical tests on the validity of the CAPM. Research has tested many areas of the CAPM application, but has mostly been concentrated on the stability of the beta coefficient over time and the strength and the nature of the linear relationship that exists between the risk and return. An early study by Sharpe and Cooper (1972) who investigated the stability of USA equity beta, found that approximately 50% of the shares' betas could be considered stable. Other studies from that period like Jacob (1971), Black, Jensen and Scholes (1972), and Fama and Macbeth (1973) investigating the linear relationship between risk and return, generally conclude that CAPM does not fully explain the observed data, although systematic risk does go a long way towards explaining the expected returns of individual securities. Black (1993) examined the risk-return relationship for the USA equity market, and he found that in some periods this relationship does not exist completely. Also, Fama and French (1992), investigating the USA equity market, concluded that there is no meaningful relationship between the average share returns and the market betas. However, they found a negative correlation between the average share returns and company size and positive correlations between average shares returns and the company book-to-market ratios. Watson and Head (2007) note also that comparative studies based on share returns from the major stock markets of Europe were equally unsupportive of the CAPM. In spite of all criticisms and weaknesses of the CAPM, this model is still not outmoded. It still provides us with a framework with which to quantify and translate risk into an easily understandable required rate of return.

Application of this model in the estimation of the cost of equity for investing in the emerging markets comes upon several problems. In these countries, as Estrada (2001) notes, beta and stock returns are largely uncorrelated. Harvey (1995) in an early research paper finds that in these markets the betas are very low, which when they are applied as an input in the CAPM, generates "too low" required returns. As a result, many studies propose an alternative way to estimate the cost of equity in emerging markets. Some of them are:

– Godfrey and Espinosa (1996) propose an adjusted CAPM, where the adjustment can be made in two different ways. The *first* is by adding to the risk-free rate the default spread, which is compounded as a difference between the yield of emerging market bond denominated in USA dollars and the yield

of a comparable USA market bond. Here, obviously we can expect that default spread should be a positive number reflecting the higher returns required by investors in bonds as a reward for the additional risk they assume for investing in an emerging market bond rather than in an equivalent bond in a developed market. In the *second* approach, they propose using an "adjusted beta". It is calculated as 60% of the ratio between the standard deviation of returns in emerging markets and the standard deviation of returns in the USA market. As in the previous case, here also we can expect this ratio to be higher than one, reflecting the higher volatility of emerging markets' returns.

- An alternative approach is based on country credit rating or country risk scores attached to the country by the relevant rating agencies (Moody's, Standard & Poor's, Fitch), then the Economist, Institutional Investor, or by Political Risk Service Group in its country risk guide. Erb, Harvey and Viskanta (1995, 1996a) have estimated that equity returns are significantly related to the level of country risk. Therefore, they propose alternative measures to quantify the cost of capital based on these indices. Harvey (2004) found a significant relation between country risk and the expected returns in the emerging countries.
- Bekaert and Harvey (1995) propose an alternative approach, where the cost of capital is allowed to vary, or to change over time in accordance with the level of market integration. The required return on investment is determined by the time-varying weighted average of the global beta and a local standard deviation.
- Estrada (2000, 2001) proposes adjusting CAPM with downside risk methodology using the semi-standard deviation. He uses three downside risk variables based on semi-deviation returns.
- Widely known today is the Global CAPM, as presented by Damodaran (2011), where beta is calculated using the global market index, such as the Morgan Stanley Capital Index (MSCI). This approach implicitly assumes fully integrated markets, thus implying that assets with the same risk must have the same expected returns regardless of where they trade. But it is dubious that the markets are fully integrated and there is a lot of evidence for barriers for integration and investor home bias. Harvey (2004) has evidence that emerging markets are rarely fully integrated with the world capital market.

The above mentioned are just a few of the academic investigators who have tried to find an alternative approach for estimating the cost of capital in emerging countries. Other researchers who treat this question are Claessens, Dasgupta and Glen (1998); Diamonte, Liew and Stevens (1996); Lessard (1996); Patel (1998); and Rouwenhorst (1999). All of the above mentioned approaches have theoretical relevance, but there are many practical barriers to their application. Most authors agree that investors in the emerging markets should be compensated for the additional risk assumed in those countries. That is in the required rate of return, the

country risk should be rewarded by a country risk premium over and above an equivalent investment in a developed market. At the same time, the base assumption is that all companies are equally exposed to country risk. The models used in practice mostly are based on CAPM. In that direction, Damodaran (2003) according to the Bludgeon approach, proposed a calculation of the cost of equity for a firm investing in a market with country risk in this way:

$$E(R) = R_f + \beta\,(ERP_m) + CRP \qquad (1)$$

Here, $E(R)$ is the cost of equity, (it can be the required or expected rate of return)[1] for investing in an emerging market; R_f is the risk-free rate in a developed market (e.g. the USA); β is a firm's beta, or the beta of an equivalent project in a developed country (e.g. the USA); ERP_m is the equity risk premium in a mature market (e.g. the USA) as the difference between the rate of return on the developed market (e.g. S&P500) or a global index (e.g. MSCI) and the R_f is the risk-free rate in a developed market (e.g. the USA), i.e. $ERP_m = E(R_m) - R_f$; CRP is the country risk premium of an emerging country.

Damodaran (2003) states that not all firms are equally exposed to country risk and a company's exposure to country risk should not be determined by where it is incorporated and traded. Exposure to country risk should come from a company's operations, making country risk a critical component of the valuation of almost every large multinational corporation. He proposes ways to adjust the previous model in two ways: (1) adding the country risk premium to the equity risk premium $\beta\,(ERP_m + CRP)$; (2) adjusting the country risk premium with some weight, that is the ratio (λ) that is derived considering the proportion of the revenues that the company derives from that country $\beta\,(ERP_m) + \lambda\,(CRP)$. But, the crucial question is whether there should be a country risk premium. Is the country risk diversifiable and should it therefore not be considered in the model?

3 COUNTRY RISK DIVERSIFICATION

Investing in emerging markets such as countries in Latin America, Asia and Southeast Europe certainly is more risky than investing in the developed countries. To multinational companies faced with a range of risks derived from factors closely related to a particular foreign country, broadly classified as financial, economic and political risk factors, it may seem unreasonable to invest abroad. In order to facilitate international trade and to promote their exports, many countries have established a state-backed specialized institution usually named a credit export agency. Their primary task is to provide country risk insurance to companies and the second is to assist their exporters through financial support and funding. Here, among the most famous we will mention ECGD (UK), Coface (France), Hermes

[1] Here we will not differentiate between expected, required and implied rate of return, as the aim of the paper is to argue the ways to calculate the cost of capital irrespectively of whether we use historical or future (expected) data.

(Germany), Sace (Italy), EDC (Canada), or Exim Bank (USA). As Bouchet, Clark and Groslambert (2003) show, the credit export agencies may cover a large class of risks that starts with the standard default payment of a foreign client, including sovereign entities, and goes on to hedging against economic slowdown in a foreign country. These risks are usually categorized into country risk at the macro level and commercial risk at the micro level. Besides, there are official multilateral agencies that provide investors from around the world, investing anywhere in the world, with insurance for non-commercial risk, predominantly known as political risk factors insurance. The most important among them is the Multilateral Investment Guarantee Authority (MIGA), a specialized subsidiary of the World Bank Group. Most of these agencies collaborate and exchange information within the International Union of Credit and Investment Insurers (known as the Berne Union).

Besides, there is country risk insurance available to multinational companies investing abroad, the main question is whether there should be additional country risk premium for investing in emerging countries.

According to CAPM the only relevant risk is the market (non-diversifiable) risk. Thus, if the country risk can be diversified then there is no need for additional country risk premium or the opposite. As Damodaran (2003) notes, to diversify country risk, the marginal investor should primarily be globally diversified. In one paper Stulz (1999) differentiated two types of markets: *segmented markets,* where investors cannot or will not invest abroad and the risk premiums are different in each market; *open markets* are those where investors can and will invest outside their domestic markets and across different markets and achieve international diversification.

Nevertheless, global diversification is not sufficient to diversify country risk. Moreover, as Damodaran (2003) argues, there must be a low correlation between the returns from different markets to achieve country risk diversification. Levy and Sarnat (1970) in their study from the 1970s give evidence that there was a low correlation between markets. But recent studies show the opposite. Yang, Tapon and Sun (2006) show that correlation between markets has increased because of the globalization of investors and firms. They have examined the correlation between the eight most developed markets. They have found that correlation in the period from 1998 to 2002 was higher than the correlation from 1988 to 1992 in all markets considered. For example, they noted that the correlation between Hong Kong and the USA increased from 0.48 to 0.65 and the correlation between the UK and the USA markets increased from 0.63 to 0.82. Obviously there was a high correlation between markets. Then, Ball and Torous (2000) have evidence that correlations tend to increase in periods of extreme stress and high volatility. In that direction, Damodaran (2011) gives evidence that between 12 September and 16 October 2008, markets across the globe moved up and down together, with

emerging markets showing slightly more volatility. Similarly, Longin and Solnik (2001) notice that the correlations are higher in a bear than in a bull market. All this and other research shows that the correlation between the markets in the latest period is really high and accordingly the country risk cannot be diversified.

Harvey (2004) examines the country risk using data provided from Political Risk Service published in its International Country Risk Guide (ICRG), which is a comprehensive composite measure of country risk. He confirmed that investors in developed countries can diversify the fluctuation of country risk; therefore country risk does not require an additional premium. Highly developed markets are fully integrated with the world capital markets, but this is not the case with emerging markets. These markets rarely are fully integrated and investors are faced with non-diversifiable risks. Here, the country risk should be additionally rewarded with the country risk premium. He found a high correlation between the country risk and the expected returns in the emerging countries using the implied cost of equity[2] based on forecast earnings on these markets.

4 MEASURING COUNTRY RISK

Now that we have proved that the country risk is relevant for estimating the cost of capital of the investments in emerging countries we face the challenge of how to measure country risk and how to convert that measure into the country risk premium. The relevant literature provides three most used measures of country risk, which we present here.

Country's sovereign credit rating assigned by a relevant credit rating agency (S&P, Moody's, Fitch). This is a measure of the country default risk rather than equity risk. But considering that both risks are to some extent influenced by the same factors (as are the currency stability, budget and trade balance, political stability) this measure can be considered as an approximately correct measure of country risk. This measure is focused on default risk and ignores the rest of the factors that could influence the equity market. This is the first problem related to this measure. Secondly, the rating agencies lag behind market movements and do not reflect the changes in the factors of default risk immediately. As Damodaran (2011) finds, Moody's did not change India's rating in a period of three years, from 2004 to 2007, when this economy evidenced a double-digit growth. Third, he also notes that rating agencies are focused only on the default risk and this could obscure other risks that could still affect the equity market. Fourth, the methodology used by the rating agencies, the steps and specific considerations that are taken in assigning the country ratings are not disclosed. This lack of transparency obscures from observers the relative weight given to the specific variable used in every instance. Therefore a decision based on the sovereign credit rating cannot be exactly reliable. Fifth, as Porras (2011) notes, the ratings provided

[2] Implied cost of equity is a discount rate which allows the sum of expected cash flow of a company (based on analytical forecasting of earnings) to be equal to the current stock price.

by the agencies often do not completely reflect expectations about the future, but they have an important historical component. Finally, credit rating agencies do not provide ratings for all countries.

Country risk scores. Specialized firms and agencies provide comprehensive numerical country risk scores. They evaluate the degree of risk for each country using a methodology that aims at developing a holistic approach to country risk. They assess the general investment climate for any kind of foreign investor and rank the countries based on their respective degree of risk. Bouchet, Clark and Groslambert (2003) provide a comprehensive view of country risk assessment. In their book we can find a selection of the most widely used ranking techniques that have been developed by these organizations. The list is far from exhaustive. Here we can mention the Geneva-based firm, Business Environment Risk Intelligence (BERI), Nord Sud Export (NSE), Political Risk Services (PRS), which publishes its International Country Risk Guide (ICRG), and the Economist Intelligence Unit (EIU). The country risk score provided by these services is a comprehensive measure of the country risk considering the economic fundamentals of each country. Thus, Political Risk Service (PRS group) takes into consideration political, economic and financial risk indicators to construct a composite measure of country risk. These services express country risk numerically, usually on a scale from 0 to 100. Harvey (2004) examines the relation between country risk score, the cost of capital and the returns in the emerging markets using the country risk scores provided by the PRS Group.

Damodaran (2011) notes three main problems related with using these risk measures. First, the measures are internally consistent but may not be easily comparable among services; second, the methodology for estimating the country risk scores is not transparent, and the observers are prevented from making a comprehensive judgement because of lack of data; third, the measures are linear and thus they do not provide a view of the comparability of the country risk between countries (a country with a risk score of 80 is not twice as risky as a country with a risk score of 40).

Market based measures in contrast to sovereign credit rating assigned by the credit rating agencies, instantly reflect market changes and have a wider scope. Godfrey and Espinosa (1996), and many others, such as Damodaran (2011) and Porras (2011), proposed quantifying the country risk from the **bond default spread** that is a spread between the yield to maturity of an emerging market sovereign bond denominated in USA dollars or euro and the yield of a comparable USA or euro bond, respectively. Both securities must be issued in the same currency and have equal maturity. Sovereign bond spreads are widely considered a comprehensive measure of a country's overall risk premium, stemming from market, credit, liquidity, and other risks. The biggest problem related with the both measures is the lack of data. That is, most emerging countries have not issued

bonds denominated in dollars, euro or any another developed country's currency, or else the bonds are not liquid.

Similarly, Damodaran (2011) proposes the use of the **credit default swap spread** (CDS) the market for which has grown rapidly in recent years. The default spreads driven from the CDS markets are more updated and more precise than bond default spreads. But they are also more vulnerable and sensitive to market information and in some cases they move irrationally. Under normal market conditions, CDS spreads are a very useful source of information on country risk as they are flexible enough to capture changes in the relevant set of information and seem to do so earlier than changes in country credit ratings. Revoltella, Mucci and Mihaljek (2010) examined the CDS market movement in the last couple of years and concluded that they can be misleading as a measure of country risk. They found that the CDS market can be subject to rapid shifts in investors' sentiments that are unrelated to underlying country risk fundamentals. This can in turn lead to underpricing or overpricing of sovereign risk, thus lowering the informative content of CDS spreads as a measure of country risk. Another big problem related with this measure is the lack of data, especially for the emerging countries.

Porras (2011) says that **equity market volatility** can be considered a good measure of country risk. Thus, emerging markets have higher volatility than developed markets. This is correct but there is another problem related to the liquidity of emerging equity markets. That is, market volatility is to a large extent a function of market liquidity. Markets that are risky and illiquid often have low volatility. One market could be very risky, but due to low liquidity in some period, volatility could be understated and, by contrast, volatility could be overstated in a period of great liquidity. This assertion in Damodaran (2011) can be illustrated in the case of the Macedonian Stock Exchange. Within a period of one year[3] with the highest trading volume, (this can be seen from figure 1), as a representative period, we take a 245 trading days period from 9 February 2007 to 6 February 2008 in which the annualized standard deviation computed using daily returns is 27.2 %. In the year with the lowest trading volume (i.e. 245 trading days with the lowest trading volume) from 3 December 2009 to 1 December 2010 when the realized volume was 10.4 times lower than in the earlier period of the highest volume, the annualized standard deviation is nearly half, or 15.1%. It is clear that market liquidity has an impact on its volatility.

Porras (2011) makes a general criticism of all these measures of country risk, saying that they assume that the country risk is the same for all firms and for all projects. The truth is that the country risk is not the same for all firms and all projects. Some segments of the economy can be less risky than others, and some parts of the project may not be exposed to risk. Furthermore, Porras (2011) says

[3] The average number of trading days during one year on the Macedonian Stock Exchange is 245 days. Because of high volatility, its measurement is for one year, or more precisely for a period of 245 trading days.

that country risk is not totally systematic and a part of it is diversifiable, and only that part should be rewarded with a risk premium.

5 MEASURING COUNTRY RISK PREMIUM APPLIED IN THE CASE OF THE REPUBLIC OF MACEDONIA

Macedonia is an emerging country with a young capital market. Although the Macedonian Stock Exchange was founded back in 1995, the first ten years were completely calm, and the interest of investors was sharply expressed in the period from 2005 to 2008. The Macedonian Stock Exchange Index MBI10, valued at 1,000 MK denars on the starting day, 4 January 2005, increased in two years by ten times, reaching its maximum of 10,057 MKD on 31 August 2007. News of the emergence of the global financial crisis and the bankruptcy of U.S. banks caused the index to collapse dramatically, as did the trading volume. In a period of a year and a half, the index dropped to reach a low level of around 2,000 MKD, which level has been maintained until today, starting from the beginning of 2009. The period of high liquidity was accompanied by intensive growth, but in the current period of low liquidity there is a relatively small trading volume compared with the period of 2006 and 2007. Summarily, the MBI10 index annual average growth rate for the entire analysed period since its introduction on 4 January 2005 till 31 August 2011 was 140.16% (in the year 2007 it increased by 209.1%). The average daily log return for the entire analysed period amounts 0.053%, and the annualized standard deviation, using daily log returns, was 26.39%. The maximum realized daily return is 8.1%, and maximum daily loss -10.28%. There is obviously great volatility in the returns of this young market, clearly depicted on the figure 1.

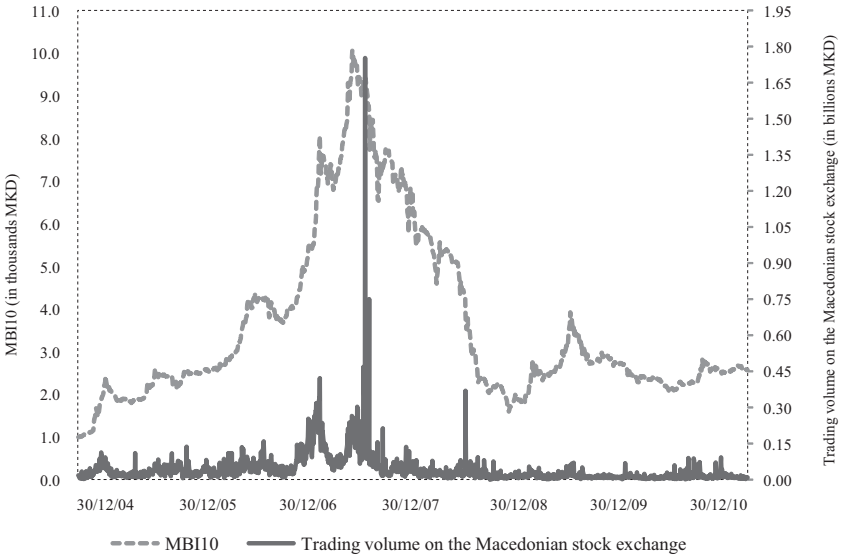
According to the Stulz (1999) differentiation, the market in the Republic of Macedonia is a segmented market. The legislation does not allow individual investors to buy shares overseas, except for institutional investors. In addition, the interest of individual investors is too low for them to buy shares in investment funds or to put money in the pension funds. It can be said that Macedonian investors cannot achieve global diversification. This is the first condition that shows that country risk cannot be diversified, and this risk should be rewarded with a risk premium. In addition we review several approaches to measuring the country risk premium in the Republic of Macedonia.

Bond default spread. This is a market-based approach for measuring the country risk premium. Currently, there are two internationally traded euro bonds issued by the Government of the Republic of Macedonia, one 10 year and one 3.5 year bond. In this analysis, we will consider the 10-year euro denominated bond issued on 8 December 2005 due 8 December 2015 at the coupon interest rate of 4.625% per annum. The payments related to this bond are made in euro. The bond is traded on the London Stock Exchange. A comparable risk-free asset issued in a developed market is considered the German ten-year bond. In figure 2 we have graphed the yields on a euro-denominated ten-year Macedonian bond and the comparable

German ten-year bond and highlighted the default spread from 2006 to 2011. The yields and the spread have changed over time. Assuming that we want to determine the country risk premium on 31 August 2011, then the default spread on this particular point in time would have amounted to 4.49%: the difference between the interest rate on the Macedonian bond of 5.592% and the rate of the comparable German bond on the same day of 1.101% (CRP = 5.592% - 1.101% = 4.49%).

Figure 1

MBI10 movement and the trading volume on the Macedonian Stock Exchange



Source: Macedonian Stock Exchange.

Here, the only relevant number is the current return, or yield, which may or may not be equal to coupon interest rate when the instrument was issued, which in the case of the Macedonian government bond was 4.625%. The 4.49% is a correct measure if the return at maturity is expressed as the yield. Otherwise, if it were expressed as an annual effective rate we should calculate the risk in this way:

$$\frac{1 + Macedonian\ bond\ rate}{1 + US\ bond\ rate} - 1 \qquad (2)$$

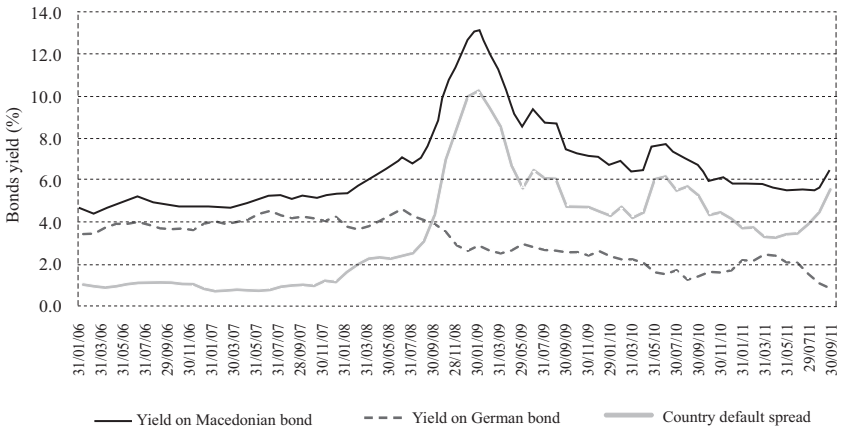
In our case it would be [(1 + 0.05592) / (1 + 1.01101)] – 1 = 0.044421, or 4.44%.

As can be seen from figure 2, the bond default spread widened dramatically in a one-year period from July 2008 to July 2009 due to the world financial crisis and the uncertainty perceived by investors in connection with putting their money in

emerging market assets. The monetary interventions by the governments of the countries in the world, with coordinated fiscal stimuli aimed at direct financial support of the real economy, consumption incentives, increasing liquidity of the financial system through state warranties and recapitalization of problematic banks resulted in a recovery of the world economy from the beginning of the second quarter of 2009. That resulted in decreasing risk aversion and increasing optimism of investors. Thus, global risk indicators improved, as Revoltella, Muci and Mihaljek (2010) show a dramatically narrowing of CDS spreads, in the case of emerging markets from Central and Eastern Europe. Figure 2 also shows a declining default spread of the Macedonian bond from the beginning of 2009. The general trend of decline in risk premiums was interrupted by the escalation of the public debt crisis in the eurozone recently. In the Republic of Macedonia the upward pressure on the risk premium is especially evident in the period of escalation of the Greece debt crisis, a normal consequence of the tight neighbourly economic relations. As depicted in figure 2, the bond default spread increased from May 2011.

Figure 2

Macedonian and German 10 years government yields and bond default spread



Source: Bloomberg.

Also, from figure 2 it is obvious that the default spread is a volatile measure. The evidence that spreads change over time has led to the suggestion that taking the current yields to estimate the spread is not a reliable measure at one point in time, so Damodaran (2011) and Porras (2011) proposed that it would be more reasonable to consider the average spread calculated over a period of time. Table 1 shows the average sovereign bond default spread for different period of averaging. The average number is calculated as simple arithmetic average. As can be seen, there is a great difference between the particular averages, ranging from 3.8 to 5.41%, and the use of any of them would have a different impact on the cost of equity and

the return on investments. The literature provides different opinions for the length of period that should be taken in averaging. In order to settle this debate, we propose to use the simple arithmetic average of the different averages, and for simplicity in this analysis, we will take a bond default spread of 4.48%.

Table 1

Average sovereign bond default spread

Years average	Average sovereign bond default spread (%)
5	3.80
4	4.51
3	5.41
2	4.56
1	4.11
Average	4.48

Source: Author's calculations.

Sometimes information about the **CDS spread** is considered a better measure. However, there have been no CDS related to the debt of the Republic of Macedonia.

Imputed or synthetic spread. The sovereign credit rating of a country that is assigned by the credit rating agencies can be converted into a country risk premium. Damodaran (2011), for each sovereign credit rating, has determined a typical default spread, expressed by Moody's sovereign rating. The Republic of Macedonia is not ranked by this agency. Its long-term credit rating that is assigned by Standard & Poor's for local currency exposure is BB, and is the same as for exposure in foreign currency BB. An equivalent Moody's rating would be Ba2. For this sovereign credit rating the default spread according to Porras (2011) is 3%, and according to Damodaran (2011) is 2.75%. We assume that the risk-averse investor will pick the higher premium.

Relative standard deviation of the stock markets. As Damodaran (2011) notes, if we assume a linear relationship between market risk premium and standard deviation of returns on the stock market, then the country risk premium of emerging countries can be written as:

$$ERP_{country\ X} = ERP_{USA}\frac{\sigma_{\text{coutnry X}}}{\sigma_{\text{USA}}} \tag{3}$$

Here, $ERP_{country\ X}$ is a market risk premium for an emerging country, ERP_{USA} is the market risk premium in the USA as representative of a mature market, $\sigma_{countryX}$ and σ_{USA} are the measures of the volatility of the stock markets in the emerging market and developed market respectively, and $\frac{\sigma_{country\ X}}{\sigma_{USA}}$ is the relative standard deviation

which should reflect the difference that would correct the risk premium in a developed country; here a benchmark is the USA stock market, to get the risk premium in emerging market.

Damodaran (2011) estimated the historical USA equity risk premium at 4.4%. This size we take as a benchmark for the risk premium in a mature capital market. The annualized standard deviation of the USA stock market index S&P 500, calculated using historical daily log returns for a five year analysed period from 1 September 2006 to 31 August 2011, is 25.87%. At the same time, the standard deviation of MBI10 of the Macedonian Stock Exchange index, calculated using historical daily log returns for the same period is 26.31%. This size is calculated in the same way as for the S&P500. By applying these values, estimation of the market risk premium in the Republic of Macedonia on 31 August 2011 is as follows:

$$ERP_{R.\ Macedonia} = 4.4\frac{26.31}{25.87} = 4.47$$

Country risk premium for the Republic of Macedonia could be extracted in the following way:

$$CRP_{R.\ Macedonia} = 4.47 - 4.4 = 0.07$$

This result shows extremely low CRP for the Republic of Macedonia, approximately the same as the historical USA equity risk premium. The risk-averse investor would not be convinced that this would be the right value to use in the relevant model for estimating the cost of capital. This model for estimating CRP is not relevant in this case as it compares markets that are different in structure and liquidity. Besides, these two markets shows that they moved inversely. Namely, the coefficient of correlation between the log returns on the two indexes for the analyzed five years period is negative, amounting to -0.011. The standard error of historical returns on the MBI10 is very high at 11.77%. As figure 1 shows, the drastically decreased liquidity on the Macedonian capital market after the world financial crisis is the main reason for the low volatility expressed by the standard deviation of the MBI10 index. We consider that these markets are not comparable, and the relative standard deviation is not an appropriate corrective measure of the USA risk premium. The resulting CRP of 0.07% for the Republic of Macedonia is not a reliable measure. This technique would produce relevant results in the case of more integrated markets, comparable in their structure and liquidity.

Default spread plus relative standard deviation. This approach is an integration of the previous two approaches. Here, we make correction of the country default spread with the relative standard deviation. Default spread is considered by many authors a good measure of country risk, but it is a measure of credit risk of the

country. We can expect the country equity risk premium to be higher than country default spread. Therefore, the default spread is corrected by the relative standard deviation obtained as a ratio between stock market volatility and the volatility of the government bonds market. This expression is presented in the following way:

$$CRP = CDF \frac{\sigma_{equity}}{\sigma_{country\ government\ bond}} \tag{4}$$

Here, *CRP* is a country risk premium; *CDF* is a country default spread; and $\frac{\sigma_{equity}}{\sigma_{country\ government\ bond}}$ is a relative standard deviation.

Above we mentioned that synthetic default spread by S&P credit rating for the Republic of Macedonia is 3%. Using historical monthly returns for a period of five years, the annualized standard deviation on MBI10 is σ_{MBI10} = 42.82%, and the annualized standard deviation of the monthly yields on the Macedonian government bond is $\sigma_{country\ government\ bond}$ = 7.19%. The standard error is also very high, amounting in the case of equity returns to 19.15% and in the case of bonds to 3.21%. As expected, the bond volatility is drastically smaller than the stock market volatility. From these data, the country risk premium is computed as follows:

$$CRP_{R.\ Macedonia} = 3.0 \frac{42.28}{7.19} = 17.88$$

Market risk premium in the Republic of Macedonia, computed by adding a country risk premium to a market risk premium in a mature market (in this case we take the United States) would be 4.4. + 17.88 = 22.28%.

The resulting CRP for the Republic of Macedonia is extremely high and does not depict the reality. This is due to at least two problems related to this approach, as noted in Damodaran (2011) and Porras (2011). The first is that the relative standard deviation (σ_{equity} / $\sigma_{country\ government\ bond}$) is a very volatile number. Volatility is evident between different countries, and also in the same country in different periods. The relative standard deviation for the Republic of Macedonia calculated for a period of two years, considering the period 2006-11, ranged from 5.67% for the two-year period 2007-2009, to 19.26% for the last two-year period (2009-11). It would be different also taking different lengths of the period for calculating the standard deviations; in this case, it would be different using e.g. three years for calculating instead of two years. There is no standardized approach that should be followed. The second problem that is usually related with this technique is that the government bonds in many cases just exist, but are not traded. Nevertheless, these are serious criticisms of this method, and the results are not reliable.

6 CHOOSING COUNTRY RISK PREMIUM

Table 2 below gives a systematized view of the results of the above approaches. Obviously the country risk premium varies dramatically in the different approaches. The smallest is in the country default spread with respect to country sovereign credit rating approach and dramatically above it is the default spread plus the relative standard deviation approach. Which approach should we choose?

Of course, choosing the right size of the country risk premium depends on the personal assessment of the analyst and his/her expectations concerning the prosperity of the country in the long run. The latest approach gives an abnormal CRP of 17.88% resulting from the high relative standard deviation. We calculated this number using monthly returns of the market index MBI10 and bonds for the last five years. If we had used a shorter period, the relative standard deviation would have been much larger. This number is not constant, and varies dramatically. Also, there is no standardized approach for using this technique, so we suggest that this measure should be discarded as not reliable for the case of the Republic of Macedonia. Also, the low liquidity on the Macedonian market produced low volatility of the market returns for the analyzed period after the financial crisis, resulting in very low CRP of 0.07% according to the relative equity market standard deviations approach. Accordingly, this number is also not a reliable measure in the case of Macedonia.

TABLE 2

Equity risk premium and country risk premium in the Republic of Macedonia, August 2011 (in %)

Approach	Mature market equity premium	Republic of Macedonia	
		Country risk premium	Total equity risk premium
Country bond default spread with respect to German bond	5.4*	4.48	9.88
Country default spread with respect to country sovereign credit rating	5.4	3.00	8.4
Relative equity market standard deviations	4.4	0.07	4.47
Default spread plus relative standard deviation	4.4	17.88	22.28

** Damodaran, 2011.*

Source: Author's own calculations.

Two other approaches produce normalized CRP values. Estimation of the CRP using the country sovereign credit rating cannot be considered a reliable measure, always having in mind that the credit rating assigned to the particular country in most cases lags and does not incorporate the newest information related to market

movements and does not reflect the changes in the factors of default risk immediately. Besides, this measure of country risk has many other disadvantages, as noted in section 3. This in return contributes to the CRP estimated using the country rating not mirroring the reality. Therefore, we suggest that the CRP of 3%, which is used as a proxy for all countries with this rating, should not be considered as a reliable measure.

Instead, the bond default spread reflects the risk aversion of the investors at a particular moment. It is the most updated market information considering the current world economic environment. We consider the CRP derived as a difference between the yields of the Macedonian risk-free asset, i.e. the government bond, and the comparable mature market risk-free asset, the German government bond, with an average of 4.48%, to be the most reliable measure to estimate the required return on the capital invested in the Republic of Macedonia.

7 CONCLUSION

Investments in emerging countries are riskier than investments in developed countries. The return on investment in emerging countries should be rewarded with a country risk premium over the return on an equivalent investment in developed countries. There is empirical evidence confirming the strong relation between the country risk and the returns on investment in emerging countries, but no such dependency in developed countries. Emerging market countries are segmented markets, rarely fully integrated with world capital markets and investors cannot globally diversify in order to eliminate the country risk. This requires country risk to be taken into account in the assessment of the cost of capital for investment in emerging countries. This paper offers several ways in which to gauge country risk and how to convert it into risk premium, which is an integral component in the models for estimating the cost of capital for investment in emerging countries.

The simplest measure of country risk is the default spread between yields on sovereign bonds issued by emerging countries denominated in USA dollars or euro and the yield on comparable bonds issued in the USA or the EU. Another such market-based measure is the credit default swaps spread, the market for which has grown dramatically in recent years. The problem with these approaches, although they are considered to provide the most updated market information, is that most emerging countries do not have such government bonds or CDS. As an alternative is the country sovereign credit rating assigned by an international credit rating agency (S&P, Moody's, Fitch) or the assessment of country risk by the PRS Group, Euromoney, which provide comprehensive measures of country risk score, as it is derived taking into account the fundamentals in each country (political, economic and financial). Analysts can use other forms of market data such as the relative stock market volatility or bond market volatility. Approaches often give different results. Analysts can rely on some of it depending on their personal estimates and the current situation.

Using the different techniques in the case of the Republic of Macedonia a country risk premium that moves from 0.07 to 17.88% has been estimated. Given the long-term economic prosperity of the country as a young emerging economy, we believe that in August 2011 it is best to take a country risk premium of 4.48%, and overall market risk premium of 9.88% for determining the required rate of return on invested capital in this country. This number is obtained as the difference between the yield on the long-term Macedonian government bond and a comparable German government bond, as a most appropriate technique for this case. Because of the weaknesses of the other approaches, the values of CRP obtained using those approaches are considered unreliable, which we have proven in the case of the Republic of Macedonia. This analysis would be more beneficial if it were extended to a wide range of emerging countries. Such a comparative analysis considering, e.g. the emerging countries of the South East European region, would provide a clear view of the relevance of the existing methodologies for estimation of the CRP that can be mostly found in the academic literature, and for determination of the most valuable technique. For the time being, such comparative data are not available and a future extension of this paper is needed to support the validity of the conclusion for the case of the Republic of Macedonia.

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