Capital Budgeting and Political Risk: Empirical Evidence[♣]

Martin Holmén*

Department of Economics, Uppsala University

Bengt Pramborg

Stockholm University School of Business

Current version: November 29, 2005

Abstract

This paper surveys and investigates Swedish firms' use of capital budgeting techniques for Foreign Direct Investments. We document that the use of the theoretically correct net present value (NPV) method decreases with the political risk in the host country, and that the use of the Payback method increases with the political risk. Country-specific political risk is most likely unsystematic and therefore not part of the cost of capital in an NPV analysis. However, in the presence of capital market imperfections, these risks may be important and as they are difficult to estimate (rendering high deliberation costs), managers may be reluctant to rely on the NPV method, and instead act boundedly rational and use simpler rules of thumb. This type of behavior might partly explain why surveys find that alternative methods such as the Payback method are frequently used despite their theoretical drawbacks.

Key words: Capital budgeting, foreign direct investments, political risk, expropriation risk, bounded rationality, deliberation costs

JEL classification: G31

[♣] The authors would like to thank Annika Alexius, Fredrik Berchtold, James Dean, Nils Gottfries, Niclas Hagelin, Lars Norden, Thomas J. O'Brien, and Jonas Råsbrant for their valuable comments. Comments from participants at the 2005 SNEE conference, and at seminars at Stockholm University School of Business and Uppsala University are also acknowledged. Financial support from Jan Wallander's and Tom Hedelius' Research Foundation (Pramborg) and The Bank of Sweden Tercentenary Foundation (Holmén) is gratefully acknowledged.

* Corresponding author: Martin Holmen, Department of Economics, Uppsala University, Box 513, SE-751 20 Uppsala, Sweden; E-mail: Martin.Holmen@nek.uu.se; Tel: +46 18 471 7634; Fax +46 18 471 1478

Capital Budgeting and Political Risk: Empirical Evidence

Abstract

This paper surveys and investigates Swedish firms' use of capital budgeting techniques for Foreign Direct Investments. We document that the use of the theoretically correct net present value (NPV) method decreases with the political risk in the host country, and that the use of the Payback method increases with the political risk. Country-specific political risk is most likely unsystematic and therefore not part of the cost of capital in an NPV analysis. However, in the presence of capital market imperfections, these risks may be important and as they are difficult to estimate (rendering high deliberation costs), managers may be reluctant to rely on the NPV method, and instead act boundedly rational and use simpler rules of thumb. This type of behavior might partly explain why surveys find that alternative methods such as the Payback method are frequently used despite their theoretical drawbacks.

Key words: Capital budgeting, foreign direct investments, political risk, expropriation risk, bounded rationality, deliberation costs

JEL classification: G31

1. Introduction

Several authors have pointed out that the way capital budgeting is taught and practiced presents a paradox.[1] Typically, students in corporate finance are taught that a project will increase the shareholder value if its net present value (NPV) is positive. The NPV is computed by forecasting the project's cash flow and discounting it at a discount rate reflecting the price charged by the capital markets for the cash flow risk. For investors with well-diversified portfolios, only the project's systematic risk affects its value: its idiosyncratic risk should not be considered. Capital market imperfections such as costly external financing and bankruptcy costs are mostly ignored when it comes to the way capital budgeting is taught (Stulz, 1999).[2]

In practice, the NPV method is used extensively, but it is by no means the only technique used. Alternative methods, such as the Payback method and the use of earnings multiples, are also common. The payback is seen as possibly the most seriously flawed method, since it ignores the time value of money and cash flows beyond an arbitrary cut-off date. Surprisingly, Graham and Harvey (2001) report that 57% of the CFOs in their survey of US firms always or almost always use the Payback method in capital budgeting decisions, as compared to the 76% (75%) using the NPV method (internal rate-of-return (IRR)). The use of the Payback method seems even more popular in Europe, as reported by Brounen, de Jong, and Koedjik (2004). They find the Payback method to be the most frequently used method among firms in the UK, Germany, and France, and it is also very common in the Netherlands, where it is the second most popular method after the NPV.

In this paper, we provide survey evidence on firms' capital budgeting methods for foreign direct investments (FDIs) and we investigate the potential impact of idiosyncratic

[1] See e.g. Weingartner (1969), Mao (1970), Stanley and Block (1984), and Arnold and Hatzopolous (2000).
[2] This absence is remarkable, given that capital market imperfections are an integral part when teaching corporate capital structure and risk management. In fact, given capital market imperfections it is not necessarily the case that the NPV rule maximizes shareholder value (Brealey and Myers, 2000, p 24).

country-specific political risk on the capital budgeting process.[3] We provide evidence as to whether such risks may help explain why firms rely on alternative methods, such as the Payback method, despite their theoretical flaws. Political risks are most likely to be associated with high *deliberation costs*, i.e. substantial resources spent to make estimates of cash flows and the risk profiles for FDIs in countries with high political risk.[4] Facing these deliberation costs, it is possible that these are avoided by managers by using rules of thumb, such as the Payback method, instead of the more information intensive, and therefore costly, NPV method. If so, this would support the theoretical concept of *bounded rationality*, according to which decision makers, when facing high deliberation costs, use rules of thumb in an effort to approximate optimality (Baker, Ruback, and Wurgler, 2004).

To investigate the influence of political risk on capital budgeting decisions, we survey Swedish firms and combine the survey responses with unique data from the Swedish central bank on each firm's FDIs per country and the Economist Intelligence Unit's political risk indices. This dataset enables us to approximate the political risk of each firm's portfolio of FDIs and test (i) whether political risks are related to the choice of capital budgeting method and (ii) whether firms adjust the chosen methods for political risks. Previous research has explored how various firm and manager characteristics correlate with the choice of capital budgeting method. However, as far as we know, the relation between firms' investment risk characteristics and the choice of capital budgeting method has not previously been explored.

Our main results are as follows. The survey responses indicate that larger firms are more likely to use the NPV method or the IRR method when evaluating FDIs than are smaller

[3] Political risk incorporates factors influencing the host country's political and economic environment. The FDIs of a multinational corporation are located in the host countries' jurisdiction. The FDIs' cash flows can therefore be affected by changed policies by the host country. A host country's expropriation of the multinational's FDI is the most dramatic form of such a policy. Other potential policy changes include rules pertaining to capital repatriation, equity ownership restrictions, legal requirements, tax codes, laws for the protection of patents, local personnel and product usage, and bureaucratic procedures (Mahajan, 1990).

[4] With perfect capital markets, these risks would not be of any importance as they are mostly unsystematic. However, with imperfections such as costly external financing and financial distress costs, firms should take these risks into account.

firms. Public firms are more likely to use the NPV method and earnings multiples. Larger firms and public firms are also more likely to use real option methods when evaluating FDIs. The different capital budgeting methods in general appear to be complements rather than substitutes. The Payback method is the most popular method. While 68% of the firms in our sample use the NPV method, 79% use the Payback method.

Further, our results show that firms commonly make adjustments for country-specific political risks. Sixty-five percent of the firms responded that they adjust for country-specific political risks by at least one of the following methods; increasing the discount (hurdle) rate, decreasing forecasted cash flows, shortening the payback period, or requiring higher earnings multiples. In addition, 43% of the firms indicated that they use different decision criteria for FDIs in countries with higher political risk (developing countries) as compared to FDIs in countries with lower political risk (developed countries).

Our cross-sectional analysis indicates that when firms evaluate FDIs, the use of the NPV method decreases and the use of the Payback method increases with political risk. We also find that firms shorten the payback period when the political risk is higher. Possibly, managers find it problematic to assess political risk when using the NPV method and are therefore more likely to rely on the Payback method as a rule-of-thumb when these risks are significant. This supports the argument of Baker et al. (2004) of bounded rationality in the capital budgeting process and it might, at least partly, explain why a number of surveys have found that alternative methods, such as the Payback method, are frequently used despite their theoretical drawbacks (see e.g. Graham and Harvey, 2001; Sandahl and Sjögren, 2003).

The rest of the paper is organized as follows. The next section provides a discussion on the discrepancy between theoretical recommendations and corporate practice and our research questions. Section three contains a description of the questionnaire and the data. We also define the variables used in the empirical analysis. In section four, we present our results.

Finally, section five concludes and puts our results into the perspective of earlier literature on possible explanations as to why firms frequently use the payback method.

2. Arguments for using alternative methods

Earlier empirical research has shown the use of alternative methods to the NPV to be very common (Graham and Harvey, 2001; Sandahl and Sjögren, 2003; Brounen, de Jong, and Koedjik, 2004; Liljeblom and Vaihekoski, 2004). The common use of the payback period is seen as especially surprising.[5] Several possible explanations for the use of the Payback method have been discussed in the literature. Weston and Brigham (1981, p. 405) suggest that it may be rational for cash constrained firms to use this method. If an investment project does not create positive cash flows at an early stage, the firm will cease its operations and will therefore not receive positive future cash flows , or else will not have the resources to pursue other investments during the next few years. Other suggested explanations for the use of the Payback method is that it may be used by managers to approximate the riskiness of a project (Mao, 1970; Ehrhardt and Brigham, 2003, p. 265), that it can approximate the option value of waiting to invest (McDonald, 2000; Boyle and Guthrie, 1997)[6], and that it can be explained by the lack of sophistication of management (Graham and Harvey, 2001).[7]

In this paper, we focus on capital market imperfections and deliberation costs as explanations for the use of the payback method. With perfect capital markets, unsystematic risks should not be of any importance. Investors with well-diversified portfolios can diversify unsystematic risk and their required return reflects systematic risk only. Therefore, rational

[5] This is because the Payback method does not consider the time-value of money, and cash flows beyond an arbitrary cut-off date are disregarded. While the NPV method is the theoretically correct method, the Payback method is the method associated with most excessive short-termism. See e.g. Segelod (2000) for a discussion and empirical evidence on short-termism. Other methods, such as earnings multiples, are also related to short-termism (because typically, only next year's earnings are used as the input)

[6] Even though Boyle and Guthrie (1997) only consider traditional cash flow risk, they point out that in an international environment, their model could be expanded to include uncertainty about foreign laws and regulations, i.e. political risks.

[7] Chaney (1989), Narayana (1985) and Weingartner (1969) have suggested that the use of payback stems from various aspects of the shareholder-manager agency problem.

value-maximizing managers should evaluate investment projects using the NPV rule, with a discount rate reflecting systematic risk only. Since country-specific political risk most likely is unsystematic, it should not influence the required rate of return.[8] However, markets are not perfect, and theoretical advances within the fields of corporate risk management and capital structure have shown that total risk may be of importance for financial management.[9] In fact, Harvey (2000) and Mishra and O'Brien (2005) find that total risk is the most significant risk factor in explaining ex ante equity returns in emerging markets.

It might be argued that effects of political risks could be included by rational managers in an NPV analysis. Several authors have discussed and modeled how firms should incorporate political risk in their capital budgeting and a number of ad hoc adjustments to the discount rate have been developed by investment banks (e.g. Godfrey and Espinosa, 1996). Many of these models employ equity market return volatility as a risk factor, based on political risk intuition.[10] More theoretical models are often relatively difficult to implement.[11] Many models require that the decision maker assesses the political situation and the risk for each country where an investment is to be made. Furthermore, these risks may be non-linear, and a complication is that they are usually accessible as qualitative judgments only, such as a scaling from one to five (which is what we use in this paper). Erb et al. (1996a) show that country risk measures are correlated with future equity returns and equity valuation. However, translating political risk measures into estimates of probabilities and expected shortfalls or risk premiums in the capital budgeting process is complex, especially as the estimated parameters may change over time. Therefore, estimating the effects of events in politically

[8] Some country risks may to some extent be systematic and should therefore be part of the cost of capital (Bruner et al., 1998; Damodaran, 2003). However, many political risks, such as the risk of expropriation, are most likely unsystematic.

[9] These imperfections include indirect and direct financial distress costs (Jensen and Meckling, 1976; Smith and Stulz, 1985), agency costs (Myers and Majluf, 1984; Stulz, 1984), and costly external financing (Myers and Majluf, 1984; Froot, Scharfstein, and Stein, 1993).

[10] Note however that many developing countries have no equity markets (Erb et al, 1996b). Thus, there is a negative correlation between political risks and the existence of an equity market.

[11] See e.g. Clark (1997 and 2003), Mahajan (1990), Pointon and Hooper (1995), and Shapiro (1978).

risky countries incurs high deliberation costs. Since managers have limited available resources, they may be inclined to use rules of thumb to avoid these costs and proxy for the optimal decision. Baker et al. (2004) argue that boundedly-rational managers cope with complexity by using rules of thumb in financial management that ensure an acceptable level of performance and, hopefully, avoid severe bias.[12]

Consider the risk that the host country will expropriate the firm's FDI. The risk of expropriation is probably negligible until the project is fully developed (Mahajan, 1990). However, at some point in time, the risk of expropriation and the associated cost of financial distress increase significantly.[13] Thus, the present value of expected cash flow declines significantly after this point in time and the FDI's NPV is, to a large extent, determined by the short-term cash flows. Furthermore, the deliberation costs associated with correctly estimating the risk of expropriation and the cost of financial distress beyond this point might be high. Focusing on the short-term cash flows using the Payback method as a rule of thumb under these conditions may, in fact, i) roughly approximate an optimal decision by the NPV method and ii) avoid large deliberation costs.

Based on the above discussion , we set out to answer two research questions: First, we investigate whether firms rely less on the NPV method and more on rules of thumb when there are large investment-specific risks for which data is difficult to access or evaluate; in this case political risk. We specifically ask how firms' use of the NPV method and the Payback method is affected by political risk in the host country. If the deliberation cost were positively correlated with political risk, we would expect to find an increased use of rules of thumb (Payback method) with increased political risk.

[12] Bounded rationality assumes that some type of cognitive or information-gathering cost prevents agents from making fully optimal decisions. See Conlisk (1996) for a review of the bounded rationality literature.

[13] Other unsystematic risks that are similar to political risk in this respect include the risk for technological breakthroughs by competitors and the loss of vital suppliers or customers. In the short run, technological breakthroughs by a competitor are unlikely but in the medium and long run, new technologies will most likely emerge. Similarly, in the short run, suppliers and customers might be contracted, but it is uncertain whether they will renew the contracts.

Second, we investigate if firms adjust the capital budgeting methods for political risk in the host country. We document the use of several adjustment methods, and cross-sectionally investigate whether firms adjust the payback period based on the level of political risk. If the deliberation cost increases with political risk, firms may be inclined to shorten the payback period, in effect reducing the forecast period necessary for making decisions. In a univariate framework, Segelod (2000) finds that firms do shorten the payback period when political risk is higher. Based on this, we expect that firms will shorten the payback period when making investments in countries with relatively high political risk.

Our research questions are related to Erb et al. (1996b). Using country credit risk ratings, they construct expected equity returns and equity volatility estimates for 135 countries, many of which did not have a functioning equity market at the time. The expected hurdle rates and volatility estimates are then used to develop payback measures related to the statistical concept of hitting time. The equity investors can then compare the hitting time with his or her expectations about political and economic risks. In our capital budgeting framework, the corporate manager evaluating a FDI when deliberation costs are high, e.g. no equity market in the host country, will rely on the Payback method. Furthermore, the higher the political risk, the shorter the required payback period.

3. Data and method

In this section, we discuss the survey design, present the questionnaire, and detail the sampling procedure including the robustness tests we performed. In addition, we discuss the choice of firm characteristic variables and the limitations of the data.

3.1 Survey design and sample collection procedure

Several surveys concerning firms' capital budgeting practices have been conducted. Most of these focus on how capital budgeting methods vary with firm characteristics and over time.[14] Our survey and research design differ from previous surveys in some dimensions. First, we focus on capital budgeting for FDIs and survey firms' use of different capital budgeting methods for this purpose. This is interesting because firms' FDIs will be exposed to host countries' political risks. [15]

Second, we survey how firms manage political risks when investing abroad. Several authors have suggested that firms could manage political risks by pre-investment planning, e.g. buying insurance, structuring the investment, and/or developing local stakeholders.[16] We survey to what extent firms actually use these pre-investment strategies to manage political risks. In addition, we survey whether firms use more stringent investment criteria and/or different decision criteria when investing in countries with high political risk.

Third, we relate each firm's capital budgeting methods to its actual portfolio of FDIs. Thus, we are able to investigate whether the capital budgeting methods of a firm with its entire FDIs in low-risk countries differ from the methods used by firms with some of their FDIs in high-risk countries. In particular, we focus the analysis on whether firms are more likely to use the Payback method instead of the theoretically correct NPV method when the risk of expropriation is perceived to be high.

[14] For the US, see e.g. Mao (1970), Schall et al (1978), Stanley and Block (1984), Moore and Reichart (1983), Trahan and Gitman (1995), Bruner et al. (1998), and Graham and Harvey (2001). For the UK, see e.g. Sangster (1993), Pike (1996), and Arnold and Hatzopoulos (2000). For France, Germany, the Netherlands, and the UK, see Brounen, de Jong, and Koedjik (2004). For Finland, see Liljeblom and Vaihekoski (2004). For Sweden, see e.g. Segelod (2000) and Sandahl and Sjögren (2003). Some of these studies, notably Graham and Harvey (2001), do not only consider capital budgeting but also cost of capital and capital structure issues.

[15] Political risks are not limited to overseas investments. However, in some parts of the world, unanticipated actions by governments and courts toward foreign companies are much more likely.

[16] See e.g. Bradley (1977), Robock (1971), and Shapiro (1981).

The questionnaire was deliberately kept as short as possible in an attempt to increase the response rate. In this paper, we use three questions from the survey (see the Appendix for an English translation):

(1) Popularity of different capital budgeting methods: The first question asked respondents to rank how often they use each of a number of capital budgeting methods.

(2) Methods to manage country-specific political risk: Respondents were asked to rank how often they use each of a number of methods to manage country-specific risks. These methods include the adjustments of cash flows and discount rates as well as e.g. purchasing political risk insurance.

(3) Different decision criteria: Finally, the respondents were asked to indicate whether they use different decision criteria for investments in developing countries and developed countries.

In September 2003 with a follow-up in November the same year the questionnaire was sent to Swedish firms that had responded to a survey from the Swedish central bank (Riksbanken) in the spring of 2003, regarding how much FDI the firm had invested as of December 2002 (we exclude firms that replied that they had no FDIs). A total of 497 firms met the criteria and 200 responded, 72 of which only answered after the follow-up. From the 200 responses, 145 are usable (54 firms responded that the questions were irrelevant for them, for example because the FDIs had been made some years before. For one firm there is no accounting data).[17] The ratio of usable responses to the total number of recipients is 0.291. Compared to other surveys, e.g. Graham and Harvey (2001) and Brounen, de Jong, and Koedijk (2004), with response rates of 0.12, and 0.05, respectively, this is a high response rate.

[17] We received various comments from the firms that considered the questionnaire irrelevant. Common reasons include that the firm "makes almost no investments in foreign countries", the firm "had made no FDIs during the last five years", the firm "did not make FDIs anymore", the firm "was sold to another company recently", and the firm "had recently gone bankrupt".

We performed two tests to check for response bias. First, we compared respondents to non-respondents by means of Wilcoxon rank sum tests, on nine variables.[18] This test indicates no response bias with one exception: respondents were significantly larger than non-respondents. Then, we compared the respondents that answered directly to the firms that only responded after a reminder. This second test, also using Wilcoxon rank sum tests on nine variables, indicated no response bias. To check whether it can be expected that the documented size bias will affect our conclusions, we used a classification, similar to Graham and Harvey (2001), and Brounen, de Jong, and Koedijk (2004), where firms were considered small if they had total sales of less than 100 million USD, mid-sized if their sales were in the range 100 million USD to 1000 million USD, and large if their sales exceeded 1000 million USD. We used the currency exchange rate SEK/USD as of December 31, 2002, which equals 8.75, to translate SEK denominated numbers into USD. Using this classification, 63 (50) of the usable responses are from small (mid-sized) firms and 32 are from large firms.[19] Thus, the sample mainly contains smaller firms. We expect that any possible bias will not seriously affect our findings, since the numbers of firms in the respective category indicate that we should be able to distinguish size effects cross-sectionally.

3.2 Firm characteristics

Since we sent the questionnaire to firms that responded to the Riksbank that they had FDIs, we have ascertained that we have a sample containing firms with FDIs. Further, the Riksbank survey asked respondents to specify their FDIs on a country-by-country basis, which the Riksbank has kindly let us share. Our final sample of 145 firms reported a total of 1152 FDIs

[18] The variables are: size, industry, liquidity, investment rate, proportion of current assets, leverage, proportion of FDI, and our measures of risk and growth in firms' FDI portfolios: political risk and GDP growth per capita of host countries. All variables are explained in detail in section 3.2..

[19] We find similar numbers of firms classified as small, mid-sized, and large, respectively, when we classify the firms based on total assets (TA), using a cut-off value for small firms of TA<250 million USD, and for large firms of TA>2500 million USD. We use different cut-off values because total assets are, on average, about 2.5 times larger than sales.

to the Riksbank and the average firm had FDIs in eight countries representing on average 25% of its assets.[20] Since the Riksbank data gives us information as to in which countries firms have FDI, we can calculate a measure of the political risk to which these FDIs are exposed. From the Economist Intelligence Unit (EIU), we gather information for 61 countries on *expropriation risk* (and other indices on political risk). Using this data, we create a firm-specific political risk variable, which is defined as the weighted average of the EIU index values over the period 1995-2002.[21] The weights are the proportion of total FDI in each country. The firms in our sample have FDIs in more than 120 countries, so our index is not complete. However, for most firms, the index covers more than 90% of total FDI. For the 13 firms with lower index coverage, there are only six countries missing, namely the three Baltic states, Bermuda, Luxembourg, and the United Arab Emirates. For these countries, we set the risk measure on par with countries we estimated to be similar in terms of political risk.[22] We also use robustness tests to handle these countries, which are discussed below.

We complement the data from the survey and the risk indices with publicly available information on firm characteristics. Table 1 reports descriptive statistics for our sample and formalizes our variable definitions. Earlier surveys (see e.g. Graham and Harvey, 2001) have found that larger firms, highly levered firms, and public firms more commonly use the NPV method. Therefore, we include these variables as explanatory variables (Size, Leverage, and Public, as defined in table 1). It is also possible that managers in public firms and larger firms are more sophisticated and therefore less likely to use the Payback method (Graham and Harvey, 2001). Graham and Harvey (2001) also find that firms with high leverage use most

[20] Specifically, the 1152 FDIs are reported on a country level, not on a project level. Since there can be more than one FDI per country, the number of projects is likely to be considerably larger. However, in this paper, we use the convention to call the total invested amount by a firm in one country an FDI.
[21] We use the average value over a number of years, because we do not have any information as to when each firm made its FDI, only the balance as of December 2002.
[22] We set the expropriation risk (which ranges from "1" to "5", with "5" being the riskiest) of the Baltic states, Bermuda and the United Arab Emirates to "2", which is on par with, for example, Bulgaria, Slovakia, and Saudi Arabia while Luxembourg received a "1", the ranking for countries with the lowest risk.

capital budgeting methods more often than those with low leverage (a notable exception is the Payback method).

[Insert Table 1]

As suggested by Weston and Brigham (1981, p. 405), it may be rational for cash constrained firms to use the Payback method. We include liquidity (Liquidity) to proxy for this and, in addition, we include the investment rate (Investment rate) to proxy for how much capital the firm needs. Firms with low liquidity and a high investment rate may be more inclined to use the Payback method.

Since it is possible that there may be industry effects (Graham and Harvey, 2001, Sandahl and Sjögren, 2003), we include an industry dummy for firms in capital intense industries. We define manufacturing, construction, transport, and real estate as capital intense industries (Industry), which is similar to the classification used by Graham and Harvey (2001).[23] In addition, we include the ratio of fixed assets to total assets (Fixed Asset Ratio) as an alternative proxy for firms' investments in fixed assets. Graham and Harvey (2001) used an additional classification: a dummy variable for utilities. However, there are only four utilities in our sample, so this classification is not meaningful for us.

Finally, we include variables to reflect different aspects of firms' FDIs. The first variable (%FDI) measures the proportion of FDIs of total assets, which can be interpreted as being a proxy for how important FDIs are to a firm. The second variable measures the implied expropriation risk of a firm's FDIs (Exprop risk), which is the value-weighted average of each host country's expropriation risk. This variable is clarified by an example. If a firm has 25% of its FDIs in Norway (index values for 2002: Expropriation risk = 1), and 75% of its FDIs in Indonesia (Expropriation risk = 4), it will have a value for Exprop Risk of $(0.25 \cdot 1 + 0.75 \cdot 4)$ = 3.25. Our final variable is the value-weighted GDP-per-capita growth of the host countries

[23] They used a dummy for industry which is set to one for firms in manufacturing/transport/energy, and zero for other firms. We used this specification which did not change our results.

where a firm has FDIs (GDP growth), for which we use the same weighting as for the Exprop Risk variable. Proxying for the growth rate of investment cash flows, GDP growth in the host country may affect the value of waiting to invest and McDonald (2000) and Boyle and Guthrie (1997) suggest that the Payback method may approximate this option value. Thus, by including a GDP growth variable, we attempt to control for this alternative explanation to why firms use the Payback method. Additionally, Segelod (2000) found that firms may adjust their payback periods when they make capital budgeting decisions based on the growth prospects of the host country.

Panel B in table 1 shows descriptive statistics at the host country level. The expropriation risk index is quite skewed and most countries (31 countries out of 61) have the lowest possible ranking of "1". Only a few countries have an index value larger than "2" (the numbers in parentheses include the six countries with the authors' assigned risk, see footnote 22). Further, countries are ranked based on how much FDI they have received. It can be seen that Norway is the country where most sample firms had FDIs (81 firms), followed by other countries in Northern Europe. In contrast, the country that received the largest amount of FDIs is the US (28%), followed by North European economies.

Table 2 displays Spearman rank correlations of the firm characteristic variables used in this study. The rank correlations indicate that larger firms are associated with higher leverage, lower liquidity, more fixed assets, and that they are more likely to be public firms. Moreover, larger firms are exposed to higher expropriation risk. It is also evident that firms in capital intense industries have a larger proportion of their assets as FDIs, and that those with large proportions of FDIs are exposed to a higher expropriation risk. Finally, we note that FDIs with a higher expropriation risk also are those with higher GDP growth.

[Insert Table 2]

The data collection procedure described above enables us to use a unique dataset to analyze important aspects of firms' capital budgeting methods. However, a number of drawbacks should be kept in mind. First, there is a timing issue that we cannot resolve with the present data set. We have access to how much FDI each firm had invested in 2002, but we have no information as to when each investment was made. Thus, responses regarding capital budgeting practices do not necessarily specifically relate to the FDIs reported in the database. Second, we have information on a country-by-country basis for each firm, but not on a project level. Therefore, several investments made over a possibly long time period may be included in the same FDI number. Third, the data provided on FDIs is accounting numbers. FDIs may have different economic values than accounting values, caused by e.g. inflation and standardized depreciation schedules. Finally, the usual limitations of survey research apply, where a major caveat is that responses represent beliefs. We cannot verify that the beliefs coincide with actions. Among other reasons, these shortcomings suggest that our findings should be further investigated.[24]

4. Results

This section contains our main results. First, in section 4.1, we report on the survey results and perform univariate tests (pairwise rank correlations). The indicated relationships are further investigated in section 4.2 using cross-sectional regressions.

4.1 Descriptive statistics and univariate tests

The first question of the survey asked respondents to rank how often they used different capital budgeting methods. Figure 1 displays the results. The bars in the figure (referring to

[24] In this respect, it may be useful to know that the Riksbank survey on FDIs is not unique. The World Bank requires the Riksbank to perform this survey on an annual basis, and this also applies to other central banks. Thus, it should be possible to make out-of-sample research using similar data.

the left-hand vertical scale) show the proportion of firms that used each method at least seldom. It is evident that a majority of firms used each method, except real options. The line shows how often each method was used, only including users in the calculation. The possible values range from "1" = "seldom" to "4" = "always" (right-hand scale). The result suggests that firms that adopted a method used it quite frequently, real options once more being the exception. The frequency is, on average, close to "3" = "almost always" for most methods. However, few firms (12%) used Real Options, and those that used the method did so infrequently (average ranking being between "seldom" and "sometimes"). The results are broadly in line with those of Graham and Harvey (2001) and Brounen, de Jong, and Koedjik (2004).

[Insert Figure 1]

Table 3 displays Spearman rank correlations between the explanatory variables (firm characteristics) and the frequency at which each capital budgeting method was used. It is evident that the use of the NPV method is positively related to firm size and public firms. Furthermore, firms with low liquidity and a large share of fixed assets used NPV more frequently. We also note that public firms were more likely to use earnings multiples than other firms. This might be an important metric for these firms to consider since they have to communicate their earnings to analysts and the public. There is a negative correlation between the use of the Payback method and liquidity, which supports the notion that firms that are capital constrained use the Payback method (Graham and Harvey, 2001). Finally, we note that all correlations between the different capital budgeting methods are positive and most are significant. This suggests the methods to be complements rather than substitutes.

[Insert Table 3]

The next question asked the respondents to rank how often they used a number of pre-specified methods to manage country-specific risks, and the final question asked the

respondents to indicate whether they used different decision criteria in countries with high political risks versus countries with low political risks. Figure 2 displays the results.

[Insert Figure 2]

The left-hand side of the figure shows that the involvement of local partners was used by more than 75% of the sample firms. Firms involving local partners on average used this strategy "sometimes". The second most used method was to limit dependence to one partner. In terms of adjusting their investment criteria for country-specific political risks (right-hand side of the figure), our findings indicate that more than 50% of the sample firms required higher returns, adjusted cash flow and/or earnings estimates, and used shorter payback periods. Interestingly, asked directly, 43% of the respondents indicated that they used different decision criteria when making FDIs in countries with high political risk as compared to countries with low political risk. Comments we received include that the firm "refrains from investments in countries with high political risk", that the firm "uses higher hurdle rates for these investments", and that the firm "uses a shorter payback period". This suggests that firms do consider this (mostly idiosyncratic) risk and that it is an important factor for firms making foreign investment decisions.

Table 4 displays rank correlations between firm characteristics and methods to manage country-specific risks. The positive correlations between the methods suggest them to be complements rather than substitutes. Moreover, it is noteworthy that for firms with higher expropriation risk in their FDIs, it was more common to buy political risk insurance, require higher returns, and use shorter payback periods. However, since larger firms also are characterized by a higher expropriation risk, size could contribute to explain the use of political risk insurance and the requirement of higher returns.

[Insert Table 4]

This section has provided descriptive statistics and univariate tests on firms' capital budgeting methods for FDIs. To provide further evidence as to which factors may explain the use of different methods, in particular whether country-specific political risks may explain differences in capital budgeting methods, we use cross-sectional regressions.

4.2 Cross-sectional regressions

In this section, we use logistic cross-sectional regressions to investigate our research questions. First, we investigate whether political risk affects the choice of capital budgeting method. We report six different logistic regressions on the use of the NPV and the Payback method. The first three models are logit models, using indicator variables as dependent variables. The first two of these include indicator variables representing the use of the NPV and the Payback method, respectively. The third model's dependent variable is an indicator variable set to one for firms using the Payback method more frequently than the NPV method. In addition, we report three ordered logit models. The first two models include dependent variables indicating the frequency at which the NPV and the Payback methods are used, respectively. The third ordered logit model includes a dependent variable defined as the frequency at which the Payback method is used minus the frequency at which the NPV method is used as the dependent variable. The explanatory variable of main interest is the value-weighted expropriation risk of firms' portfolios of FDIs (Exprop Risk), which serves as a proxy for firm-specific political risk. We also include a number of control variables (as discussed in section 3.2).

The estimated logit regression models are reported in table 5 panel A. All estimated regression models are adjusted for heteroscedasticity according to White (1980). Model 1 indicates the use of the NPV method to decline with the risk of expropriation. The expropriation risk variable is negatively significant at the 10% level, a result which is in line

with our expectation, i.e. that firms are less likely to use the NPV method when there are large political risks. Model 2 provides evidence that firms more frequently rely on the Payback method when the perceived expropriation risk is high. In model 2, the expropriation risk variable is positively significant at the five-percent level, while Model 3 presents stronger results in line with our expectations. The dependent variable indicates whether the firm uses the Payback method more frequently than the NPV method when evaluating FDI. The expropriation risk variable is positively significant at the five-percent level. These results are consistent with managers using the Payback method as a rule of thumb to avoid high deliberation costs.

[Insert Table 5]

Supporting the evidence of Graham and Harvey (2001), we find larger and public firms to be more likely to use the NPV method, while firms with a large proportion of fixed assets are more likely to use both the NPV method and the Payback method. This result is counter to the findings of Graham and Harvey (2001) who discover opposite signs in their (univariate) analysis. Leverage is negatively related to the Payback method, but we find no significant relation to the use of the NPV method. Our proxies for cash constraints and capital needs (Liquidity, Investment Rate, and the capital intense Industry Dummy) are insignificant in all models. Similarly, the GDP growth in the host country is insignificant in all models.

In panel B of table 5, we report the ordered logit models. In model 1 the dependent variable is equal to 0 if NPV is never used, 1 if NPV is seldom used, 2 if NPV is sometimes used, 3 if NPV is almost always used and 4 if NPV is always used when evaluating FDIs. Model 2 is similar, but includes the use of the Payback method as the dependent variable. In Model 3 the dependent variable is equal to the frequency (0 to 4) at which payback is used when evaluating FDIs minus the frequency at which NPV is used when evaluating FDIs. Thus, the variable can assume values between –4 and 4.

The results are similar to those reported in panel A. The frequency at which NPV is used declines with the risk of expropriation. The coefficient for Exprop Risk is negatively significant at the five-percent level in model 1, but insignificant in model 2. It is positive and significant at the five-percent level in model 3; once more in line with our expectations. The results for the control variables are also similar to those reported above, i.e. large and public firms more frequently use the NPV method while the fixed asset ratio (leverage) is positively (negatively) related to the use of the NPV method (Payback method). In sum, our results suggest that country-specific political risks affect the choice of capital budgeting method for FDIs.

Now, we turn our attention to whether managers adjust the payback period based on political risk. We investigate whether these are more likely to shorten the payback period if they are exposed to higher political risk. Table 6 displays the results from our cross-sectional regressions (only including firms using the Payback method). In panel A, the dependent variable is an indicator variable which is set to one if a firm shortens the payback period to manage political risk and zero otherwise (see question 2.e in the Appendix). In panel B, the dependent variable represents how often the firms use a shorter payback period to manage political risk. It is evident that none of the firm characteristic variables contribute to explain this method, except Exprop Risk and GDP Growth. The first models in each panel, for which all variables are included, can be rejected by an F-test; an indication that they are mis-specified. Only including Exprop Risk and GDP Growth, the models cannot be rejected. Thus, it seems as if the major determinants of the practice of adjusting the payback period are project-specific risk and return (as proxied by political risk and the GDP growth of the host country). Our findings support the findings of Segelod (2000). A potential explanation for our results is that managers make adjustments to cope with the trade-off of reducing deliberation costs (shortening the payback period when the political risk is higher, thereby reducing the

need to make longer term projections), and approximating optimality as far as possible (lengthening the payback period when expected growth is higher, capturing more of the long-term profitability).

[Insert Table 6]

We performed a number of robustness tests for the choice of capital budgeting method. First, we used alternative specifications of our control variables, which did not change our results.[25] Second, we adjusted the Exprop Risk index by adding (subtracting) the value of 0.5 to (from) the author-assigned index values as discussed on page 11 and in footnote 22 and, in addition, by adding the maximum (minimum) level of political risk to the proportion *not* indexed.[26] Adding political risk to the author-indexed and not-indexed proportions of FDI strengthened our results, while reducing political risk weakened the significance for the coefficient for political risk in table 5, models 1 and 2. However, the significance for model 3 in both panels of table 5 remains. Third, we used a number of alternative indices for political risk: e.g. the EIU indices "Policy environment for foreign investment rating", "Political stability rating" and "Degree of property rights protection". As compared to the results for Exprop risk, the results using alternative indices somewhat weakened the significance of the coefficient for political risk in models 1 and 2 (in both panels of table 5), but for model 3, the coefficients were about as significant as those reported. In sum, we interpret the results from the robustness tests as supportive of our finding that political risk affects the investment decision process.

Further, we cross-checked whether other risk management methods influenced firms' capital budgeting decisions (see the Appendix, questions 2a–2d, and the left-hand side of figure 3). This may be important because, for example, managers may be more (less) likely to

[25] For Size we used the log of sales, for Liquidity we used the acid ratio, and we also used other industry categorizations (e.g. a dummy for manufacturing only).
[26] Thus, for a firm with 90% of its FDI covered by the EIU index, we assigned the maximum value of the countries rated by the EIU for the remaining 10%. Thus, in this case, the remaining 10% would be assigned an Exprop risk value of "4.88".

use the NPV method (Payback method) for FDIs in host countries with high political risk, if they use political risk insurance to manage political risk. We included dummy variables, representing the usage of these alternative methods, in the regressions of table 5, but this did not change our results. Finally, we investigated whether firms with more political risk were more likely to use any of the methods in question 2 (thus including these methods as dependent variables in cross-sectional regressions). To save space, we do not report the results. We note, however, that the use of political risk insurance is significantly and positively related to political risk, firm size, and liquidity, and that it is significantly and negatively related to GDP growth.

5. Conclusion and Discussion

We survey Swedish firms' capital budgeting techniques for Foreign Direct Investments (FDIs) and focus on whether and how country-specific political risks are taken into account. More specifically, we conjecture that there exist capital market imperfections and that FDIs in politically risky countries are associated with high deliberation costs and investigate how country-specific political risks affect the capital budgeting process.

Almost two thirds of the firms adjusted for country-specific political risks by increasing the discount (hurdle) rate, decreasing forecasted cash flows, shortening the payback period, and/or requiring higher earnings multiples. Forty-three percent of the firms used different decision criteria for FDIs in countries with high political risk (developing countries) as compared to FDIs in countries with low political risk (OECD countries).

Our cross-sectional analysis indicates that the use of the net present value method (the Payback method) decreases (increases) with the risk of expropriation. We also find that firms adjust the payback period based on political risk and host country growth. Our findings suggest that in the presence of political risks, managers are reluctant to rely on the traditional

NPV method and we suggest this to be due to the fact that managers find it difficult to take such risks into account. This is consistent with managers acting as boundedly-rational decision makers, using simple rules of thumb when the deliberation cost is high, and then adjust these to proxy optimal decision as far as possible. Note that since political risks are unsystematic, our findings highlight the importance of market imperfections in capital budgeting. This type of behavior might partly explain why a number of surveys have found the Payback method to be frequently used, despite its theoretical drawbacks.

Our interpretation of the results has implications for some of the explanations as to why firms frequently use the Payback method which have been proposed in the literature. First, Weston and Brigham (1981) suggest that cash constrained firms use the Payback method not to be forced to use external financing. External financing is more costly due to capital market imperfections. However, our cross-sectional results fail to support this argument for the use of the Payback method.

Second, Graham and Harvey (2001) suggest that the management's lack of sophistication can explain the use of the payback method, and that firm size may be a proxy for this. We find support for a size effect, but argue that lack of sophistication can be interpreted in terms of high deliberation costs. Managers of smaller firms may have less specialized training in financial management and/or less resources to evaluate investment alternatives (economies of scale). Therefore, the deliberation costs may be relatively higher for these managers and they might be inclined to use the Payback method.

Third, McDonald (2000) and Boyle and Guthrie (1997) argue that the Payback method may be used to approximate the value of the waiting to invest option. The shorter the estimated payback period, the more costly it is to delay the investment.[27] Our results suggest that firms shorten the cut-off payback period when the risk of expropriation increases. Thus,

[27] Compare to the early exercise of an American call option on a stock paying high dividends.

when the risk of expropriation is substantial, the cost of waiting to invest must be really high before the firm decides to invest. This behavior appears to be consistent with McDonald (2000) and Boyle and Guthrie (1997).

Fourth, Mao (1970) and Ehrhardt and Brigham (2003) suggest the Payback method to be a complement to the NPV analysis, since it can be used as an approximation of the riskiness of a project. Our findings suggest that in general the different capital budgeting methods seem to be complements. However, we find that when political risk is perceived to be substantial the Payback method is used as a substitute for the NPV method.

Finally, a general implication of our results is that political risk may be socially costly, not only in the sense of reducing foreign investments in the country, but also in the sense that the foreign investments taking place will mainly be short term. Long-run investments are reduced, which potentially reduces the benefits for the host country.

References

Arnold, G.C. and P.D. Hatzopoloulos, 2000, The theory-practice gap in capital budgeting: evidence from the United Kingdom, Journal of Business Finance and Accounting, 27, 603–626.

Baker, M., R.S. Ruback, and J. Wurgler, 2004, Behavioral corporate finance: A survey, In Eckbo (Ed.) Handbook in corporate finance: Empirical corporate finance. Elsevier, Amsterdam. Forthcoming.

Boyle, G.W., and G.A. Guthrie, 1997, Payback and the value of waiting to invest, Working paper University of Otago.

Bradley, D.G., 1977, Managing against expropriation, Harvard Business Review, 75–83.

Brealey, R.A. and S.C. Myers, 2000, Principles of Corporate Finance, 6th edition. Irwin McGraw-Hill, London.

Brounen, D., A. de Jong, and K. Koedijk, 2004, Corporate finance in Europe: Confronting theory with practice, Financial Management, 33, 71–101.

Bruner, R.F., K.M. Eades, R.S. Harris, and R.C. Higgins, 1998, Best practice in estimating the cost of capital: Survey and Synthesis, Financial Practice and Education, 13-28.

Chaney, P.K., 1989, Moral hazard and capital budgeting, Journal of Financial Research, 12, 113-128.

Clark, E., 1997, Valuing political risk, Journal of International Money and Finance, 16, 477–490.

Clark, E., 2003, Pricing the cost of expropriation risk, Review of International Economics, 11, 412–422.

Conlisk, J., 1996, Why bounded rationality? Journal of Economic Literature, 34, 669–700.

Damodaran, A., 2003, Measuring Company Exposure to Country Risk: Theory and Practice, Journal of Applied Finance, 63-75.

Ehrhardt, M.C. and E.F. Brigham, 2003, Corporate finance: a focused approach. Thomson South-Western, Mason, Ohio.

Erb, C.B., C.R. Harvey, and T. Viskanta, 1996a, Political risk, economic risk, and financial risk, Financial Analyst's Journal, 52, 28-46.

Erb, C.B. C.R. Harvey, and T. Viskanta, 1996b, Expected returns and volatility in 135 countries, Journal of Portfolio Management, 22, 46-58.

Froot, K.A., D.S. Scharfstein, and J.C. Stein, 1993, Risk management: Coordinating corporate investment and financing policies, Journal of Finance 48, 1629–1658.

Godfrey, S. and R. Espinosa, 1996, A practical approach to calculating cost of equityfor investments is emerging markets, Journal of Applied Corporate Finance, 9, 80-89.

Graham, J.R. and C.R. Harvey, 2001, The theory and practice of corporate finance: evidence from the field, Journal of Financial Economics, 60, 187–243.

Harvey, C.R., 2000, The drivers of expected returns in international markets, Emerging Market Quarterly, 4, 1-17.

Jensen, M.C., and W.H. Meckling, 1976, Theory of the firm: Managerial behaviour, agency costs, and ownership structure, Journal of Financial Economics 3, 305–360.

Liljeblom, E. and M. Vaihekoski, 2004, Investment valuation methods and required rate of return in Finnish publicly listed companies, Finnish Journal of Business Economics 53, 6–22.

Mahajan, A., 1990, Pricing expropriation risk, Financial Management, 19, 77–86.

Mao, J.C.T., 1970, Survey of capital budgeting: Theory and practice, Journal of Finance, 25, 349-360

McDonald, R.L., 2000, Real options and rules of thumb in capital budgeting, In Brennan, M.J., Trigeorgis, L., (Eds.), Project flexibility, agency, and competition: New developments in the theory and applications of real options. Oxford University Press, London.

Mishra, D.R. and T.J. O'Brien, 2005, Risk and ex ante cost of equity estimates of emerging market firms, Emerging Market Review, 6, 107-120.

Moore, J.S. and A.K. Reichert, 1983, An analysis of the financial management techniques currently employed by large US corporations, Journal of Business Finance and Accounting, 10, 623–645.

Myers, S.C., and N.S. Majluf, Corporate financing and investment decisions when firms have information that investors do not have, Journal of Financial Economics, 13, 187-221.

Pike, R., 1996, A longitude survey on capital budgeting practices, Journal of Business Finance and Accounting, 23, 79–92.

Pointon, J., and V. Hooper, 1995, Exchange rate and expropriation risk in multinational capital budgeting: A stochastic calculus approach, International Journal of Business Studies, 3, 81–88.

Robock, S.H., 1971, Political risk: Identification and assessment, Columbia Journal of World Business, 6–20.

Sandahl, G. and S. Sjögren, 2003, Capital budgeting methods among Sweden's largest groups of companies: The state of the art and a comparison with earlier studies, International journal of Production Economics, 84, 51–69.

Sangster, A., 1993, Capital investment appraisal techniques: A survey of current usage, Journal of Business Finance and Accounting, 20, 307–332.

Schall, L.D., G.L. Sundem, and W. R. Geijsbreek, Jr., 1978, Survey and analysis of capital budgeting methods, Journal of Finance, 33, 281–287.

Segelod, E., 2000, A comparison of managers' perceptions of short-termism in Sweden and the U.S., International Journal of Production Economics, 63, 243–254.

Shapiro, A.C., 1978, Capital budgeting for the multinational corporation, Financial Management, 17, 7–16.

Shapiro, A.C., 1981, Managing political risk: A policy approach, Columbia Journal of World Business, 63–69.

Smith, C.W., and R.M. Stulz, 1985, The determinants of firms' hedging policies, Journal of Financial and Quantitative Analysis 20, 391–405.

Stanley, M.T., and S. B. Block, 1984, A survey of multinational capital budgeting, Financial Review, 36-54.

Stonehill. A. and L. Nathanson, 1968, Capital Budgeting and the multinational corporation, California Management Review, 39-54

Stulz, R.M., 1984, Optimal hedging policies, Journal of Financial and Quantitative Analysis 19, 127–140.

Stulz, R.M., 1999, What's wrong with modern capital budgeting? Financial Practice and Education, 9, 7–11.

Trahan, E.A. and L.J. Gitman, 1995, Bridging the theory-practice gap in corporate finance: a survey of chief financial officers, Quarterly Review of Economics and Finance, 35, 73–87.

Weingartner, H.M., 1969, Some new views on the payback period and capital budgeting decisions, Management Science, 15, 594-607.

Weston, J.F. and E. Brigham, 1981, Managerial Finance, 7th edition. Holt, Rinehart & Winston, Hinsdale, IL.

White, H., 1980, A heteroscedasticity-consistent covariance matrix estimator and direct test for heteroscedasticity, Econometrica, 48, 817-838.

Appendix: English translation of questions

Survey on International Investment evaluation

1. How often do you use the following methods to determine which foreign direct investments or acquisitions should be made in foreign countries?

Method ...	Always	Almost Always	Sometimes	Seldom	Never
a) Net Present Value or Adjusted Present Value					
b) Internal (or Modified Internal) Rate of Return					
c) Earnings multiples (e.g. P/E)					
d) Payback period					
e) Accounting Rate of Return (e.g. ROI, ROCE)					
f) Real Options evaluation					
g) Other: *)					

*) Comment: ……..... ……

2. Do you use any of the following methods to manage country-specific political risk?*

Method	Always	Almost Always	Sometimes	Seldom	Never
a) Buy political risk insurance					
b) Limit technology transfer to foreign units					
c) Involve local partners					
d) Limit dependence on one single partner					
e) Use more stringent investment criteria:					
… higher required return/ internal rate of return					
… adjust cash flow and/or earnings estimates					
… shorter payback period					
… higher required earnings multiples					
… other:*)					

*) Comment: ……

……

3. Do you use different decision criteria for investments in countries with high political risk (developing countries) as compared to investments in countries with low political risk (developed countries)?

Yes ……. No ……

If your response is yes, please comment how they differ (please continue on the other side of this document).
Comment: ……

* *Political risk* includes e.g. risk of revolution and war, but also risk of expropriation, restrictions on repatriations, loss of patents, copyrights and technology, and other forms of protectionism.

Table 1
Descriptive statistics

The table displays variable definitions and descriptive statistics. Panel A displays firm characteristics, and Panel B displays statistics on host countries. All variables are defined using book values unless otherwise stated. The data sources are: *FR*, Financial Reports ending in the year 2002; *SSE*, The Stockholm Stock Exchange; *RB*, Riksbanken (the Swedish Central Bank); *EIU*, the Economist Intelligence Unit; and *WB*, the World Bank. The risk of expropriation rating scores countries between 1 and 5, with 5 indicating highest risk and 1 lowest risk. The descriptive statistics include: Q1, the first quartile; Median; Q3, the third quartile; and the mean value. Panel B displays country statistics on: the average value from 1995 to 2002 of the expropriation index for countries with FDIs, where the risk of expropriation rating scores countries between 1 and 5, with 5 indicating highest risk and 1 lowest risk.; and the average value from 1995 to 2002 of GDP growth per capita. Panel B displays statistics on the top five countries in terms of how many sample firms that had FDIs in the country (the values in parentheses include six countries for which the authors assigned a political risk index, see footnote 10); and on the top five counties regarding how much FDI the country received (percentage of total FDI in parenthesis).

Panel A: Firm Characteristics

Variable	Definition	Source	Q1	Median	Q3	Mean
Size	Total assets (MSEK)	*FR*	477	2005	6218	3610
Leverage	Long term debt ÷ total assets	*FR*	0.09	0.21	0.35	0.25
Liquidity	Current assets ÷ short-term debt	*FR*	1.31	1.71	2.46	2.49
Fixed asset ratio	Fixed assets ÷ total assets	*FR*	0..88	0.94	0.98	0.91
Investment rate	(yearly change in fixed assets + depreciation) ÷ fixed assets	*FR*	–0.02	0.08	0.21	0.13
Public	Indicator variable for listed firms	*SSE*	-	-	-	0.35
Industry	Indicator variable for firms in capital intense industries	*RB*	-	-	-	0.66
%FDI	Foreign direct investment ÷ total assets	*RB, FR*	0.06	0.18	0.35	0.25
Exprop risk*	A country-weighted average of expropriation risk	*RB, EIU*	1	1	1.07	1.10
GDP growth	A country-weighted GDP per capita growth rate (%)	*RB, WB*	2.59	2.90	3.29	3.04

Panel B: Country data

	Source	Q1	Median	Q3	Mean
Expropriation risk in countries with FDI (Total no. is 61 (67))	*EIU*	1 (1)	1 (1.5)	2 (2)	1.65 (1.67)
GDP growth in countries with FDI (Total no. is 67)	*WB*	2.16	3.23	4.12	3.30
Top five countries with FDI:	*RB*				
No. of firms	*Total amount*				
1. Norway (81)	1. USA (28.3%)				
2. Denmark (73)	2. Germany (12.9%)				
3. Finland (71)	3. Great Britain (11.7%)				
4. Germany (63)	4. The Netherlands (7.2%)				
5. Great Britain (56)	5. Denmark (5.6%)				

*) The EIU index originally runs from "1" = riskiest to "5" = safest. As we want to interpret riskier countries as having higher values, our index is calculated as Exprop risk = – (EIU index – 6), which creates an index that runs from "1" = safest to "5" = riskiest.

Table 2
Spearman rank correlations, firm characteristics

The table reports Spearman Rank correlation coefficients for firm characteristic variables. The firm characteristic variables are defined as follows : Size is the book value of total assets; Leverage is long-term debt divided by total assets; Liquidity is the ratio of current assets to short-term debt; Fixed Asset Ratio is the ratio of fixed assets to total assets; %FDI is the book value of foreign assets to total assets; Investment rate is the change in fixed assets from the previous year plus depreciation; Public is an indicator variable that is assigned the value of one for listed firms; Industry is an indicator variable that is assigned the value of one for firms in capital intensive industries; Exprop Risk is defined as the value weighted expropriation risk of the firm's FDIs. Expropriation risk estimates are collected from EIU Country Forecasts. The risk of expropriation rating scores countries between 1 and 5, with 5 being high and 1 being non-existent. Significance is indicated with *, **, and *** for the 10%, 5%, and 1% level, respectively. The number of observations is 142.

	Leverage	Liquidity	Fixed Asset Ratio	Investment Rate	Public	Industry	%FDI	Exprop Risk	GDP Growth
Size	0.15*	–0.26***	0.22***	–0.06	0.29***	0.18**	–0.11	0.16**	–0.07
Leverage		–0.02	0.26***	0.03	–0.02	0.06	–0.07	0.12	–0.00
Liquidity			–0.14	–0.21**	–0.12	0.07	0.21**	0.10	–0.03
Fixed Asset Ratio				–0.01	–0.11	0.06	–0.06	0.09	0.06
Investment Rate					–0.02	0.01	–0.12	–0.15*	–0.06
Public						–0.10	0.05	0.06	0.04
Industry							0.17**	0.10	–0.10
%FDI								0.18**	–0.01
Exprop Risk									0.22***

Table 3
Spearman rank correlations, question 1

The table reports Spearman Rank correlation coefficients for firm characteristic variables and responses to question one regarding the use of different capital budgeting methods. The firm characteristic variables are defined as follows: Size is the book value of total assets; Leverage is long-term debt divided by total assets; Liquidity is the ratio of current assets to short-term debt; Fixed Asset Ratio is the ratio of fixed assets to total assets; %FDI is the book value of foreign assets to total assets; Investment rate is the change in fixed assets from the previous year plus depreciation; Public is an indicator variable that is assigned the value of one for listed firms; Industry is an indicator variable that is assigned the value of one for firms in capital intensive industries; Exprop Risk is defined as the value weighted expropriation risk of the firm's FDIs. Expropriation risk estimates are collected from EIU Country Forecasts. The risk of expropriation rating scores countries between 1 and 5, with 5 being high and 1 being non-existent. The responses to the questions take values from 0-4, where a higher value indicates more often (see the survey in the Appendix). Significance is indicated with *, **, and *** for the 10%, 5%, and 1% level, respectively. The number of observations is 142.

	NPV	IRR	Earnings Multiples	Payback	Accounting Return	Real Options
Size	0.52***	0.26***	0.15*	0.05	0.19**	0.24***
Leverage	–0.04	0.04	–0.07	–0.18**	0.02	0.01
Liquidity	–0.17**	–0.06	0.00	–0.01	–0.06	–0.22***
Fixed Asset Ratio	0.22***	0.25***	–0.12	–0.07	0.04	0.08
Investment Rate	–0.06	–0.02	–0.06	0.06	0.05	0.09
Public	0.29***	0.01	0.30***	0.05	0.11	0.24***
Industry	0.06	0.08	–0.14	–0.05	–0.05	–0.06
%FDI	0.01	–0.01	0.05	–0.04	–0.01	–0.06
Exprop Risk	-0.05	–0.03	0.00	–0.08	0.05	-0.03
GDP growth	0.00	–0.05	–0.07	–0.00	-0.01	–0.16*
NPV		0.45***	0.27***	0.05	0.16*	0.23***
IRR			0.12	0.15*	0.17**	0.21**
Earnings Multiples				0.06	0.35***	0.20**
Payback					0.24***	0.06
Accounting Return						0.12

Table 4
Spearman rank correlations, questions 2 and 3

The table reports Spearman Rank correlation coefficients for firm characteristic variables and responses to questions 2 and 3 regarding the use of different methods to manage country-specific risk. The firm characteristic variables are defined as follows: Size is the book value of total assets; Leverage is long-term debt divided by total assets; Liquidity is the ratio of current assets to short-term debt; Fixed Asset Ratio is the ratio of fixed assets to total assets; %FDI is the book value of foreign assets to total assets; Investment rate is the change in fixed assets from the previous year plus depreciation; Public is an indicator variable that is assigned the value of one for listed firms; Industry is an indicator variable that is assigned the value of one for firms in capital intensive industries. Exprop Risk is defined as the value weighted expropriation risk of the firm's FDIs. Expropriation risk estimates are collected from EIU Country Forecasts. The risk of expropriation rating scores countries between 1 and 5, with 5 being high and 1 being non-existent. The responses to question 2 take values from 0-4, where a higher value indicates more often, and the responses to question 3 take the values 0 = no and 1 = yes (see the survey in the Appendix). Significance is indicated by *, **, and *** for the 10%, 5%, and 1% level, respectively. The number of observations is 134 for question 2, and 117 for question 3.

	Question 2								Question 3
	Buy insurance	Limit Tech transfer	Local partners	Limit Dependence one partner	Higher Required return/IRR	Adjust CF and/or earnings estimates	Shorter payback	Higher earnings multiples	Different decision criteria
Size	0.25***	0.07	0.05	0.05	0.25***	0.14	0.01	0.15*	–0.03
Leverage	–0.01	–0.06	–0.01	–0.04	0.01	–0.03	–0.08	–0.07	–0.00
Liquidity	0.06	0.17**	0.03	0.09	0.02	–0.07	0.06	0.03	0.16*
Fixed Asset Ratio	0.03	0.00	0.07	0.11	0.15*	0.05	0.04	–0.08	–0.06
Investment rate	–0.05	–0.07	–0.19**	–0.01	–0.16*	–0.04	–0.03	–0.10	–0.05
Public	0.17**	0.12	0.05	0.00	0.09	0.14*	0.00	0.15	–0.03
Industry	0.04	0.19**	0.05	–0.02	0.03	–0.09	0.00	–0.07	–0.18*
%FDI	–0.03	0.16*	0.14	0.10	0.13	0.12	0.07	0.18**	0.03
Expropriation Risk	0.15*	0.11	0.07	0.13	0.17**	0.11	0.19**	0.16*	–0.09
GDP Growth	–0.18**	–0.16*	0.10	–0.09	–0.02	–0.03	–0.11	–0.10	–0.15
Buy insurance		0.38***	0.16*	0.26***	0.28***	0.24***	0.33***	0.30***	0.21**
Limit tech transfer			0.24***	0.40***	0.22***	0.26***	0.32***	0.38***	0.21**
Local partners				0.52***	0.26***	0.29***	0.23***	0.28***	0.26***
Limit dependence one partner					0.31***	0.23***	0.43***	0.41***	0.27***
Higher required return/IRR						0.53***	0.56***	0.60***	0.19**
Adjust CF and/or earnings estimates							0.61***	0.57***	0.15
Shorter payback								0.73***	0.22**
Higher earnings multiples									0.30***

Table 5

Logit and ordered logit regressions with the frequency at which the NPV method and the Payback method, respectively, are used when evaluating Foreign Direct Investments

The table reports estimated logit (panel A) ordered logit regressions (Panel B) with the frequency at which the NPV method and the Payback method are used when evaluating Foreign Direct Investments (FDIs). In panel A Model 1 (Model 2) the dependent variable is equal to 1 if NPV (Payback) is used when evaluating FDIs, and zero otherwise. In panel A Model 3 the dependent variable is equal to one if Payback is used more frequently than NPV when evaluating FDIs, and zero otherwise. In panel B Model 1 (Model 2) the dependent variable is equal to 0 if NPV (Payback) is never used, 1 if NPV (Payback) is seldom used, 2 if NPV (Payback) is sometimes used, 3 if NPV (Payback) almost always, and 4 if NPV (Payback) is always used when evaluating FDIs. In panel B Model 3, the dependent variable is equal to the frequency at which Payback (0 to 4) is used when evaluating FDIs minus the frequency at which NPV (0 to 4) is used when evaluating FDIs. Thus, the variable varies between -4 and 4. Coefficients are reported with z-values in parenthesis. Reported z-values are asymptotically robust to heteroscedasticity (White, 1980). Significance is indicated by *, **, and *** for the 10%, 5%, and 1% level, respectively. The number of observations is 142. Exprop Risk is defined as the value weighted expropriation risk of the firm's FDIs. Expropriation risk estimates are collected from EIU Country Forecasts. The risk of expropriation rating scores countries between 1 and 5, with 5 being high and 1 being non-existent. %FDI is equal to the book value of the firm's all FDIs divided by the book value of the total assets. Public Dummy is equal to one if the firm is listed on a stock exchange, and zero otherwise. Size is equal to the natural logarithm of the book value of total assets at the end of 2002. Leverage is equal to the book value of long-term debt divided by the book value of total assets at the end of 2002. Fixed Asset Ratio is equal to fixed assets divided by total assets. Liquidity is the ratio of current assets to short-term debt. Investment rate is equal to the change in fixed assets from the previous year plus depreciation. Industry Dummy is equal to one if the firm is active in a capital intense industry, and zero otherwise. GDP growth is equal to the value weighted GDP growth per capita 1995-2002 in the countries where the firm has FDIs.

	Panel A: Logit Regressions			*Panel B: Ordered Logit Regressions*		
	Model 1 NPV	Model 2 Payback	Model 3 Payback vs NPV	Model 1 NPV	Model 2 Payback	Model 3 Payback vs NPV
Exprop Risk	–1.419	2.864	2.001	–1.654	0.863	1.860
	(–1.72)*	(2.53)**	(2.03)**	(–2.13)**	(1.18)	(2.45)**
% FDI	0.778	–1.117	–0.499	0.432	–0.210	–0.720
	(0.62)	(–1.09)	(–0.54)	(0.46)	(–0.26)	(–0.89)
Public Dummy	1.278	0.115	–0.766	0.658	0.187	–0.477
	(2.41)**	(0.23)	(–1.79)*	(1.81)*	(0.53)	(–1.44)
Size	0.480	0.140	–0.367	0.479	0.054	–0.218
	(2.73)***	(1.15)	(–3.41)***	(4.28)***	(0.69)	(–3.46)***
Leverage	–1.237	–3.894	–0.703	–0.695	–2.169	–1.223
	(–1.22)	(–3.11)***	(–0.81)	(–0.73)	(–2.47)**	(–1.31)
Fixed Asset Ratio	4.022	3.799	–0.961	3.647	1.497	–0.537
	(1.89)*	(1.91)*	(–0.52)	(2.44)**	(0.98)	(–0.52)
Liquidity	0.069	0.112	–0.058	0.039	0.039	–0.010
	(0.91)	(1.16)	(–1.30)	(1.10)	(1.11)	(–0.53)
Investment Rate	–0.300	–0.209	0.394	–0.186	0.079	0.144
	(–0.78)	(–0.38)	(0.84)	(–0.51)	(0.26)	(0.50)
Industry Dummy	–0.301	–0.608	–0.260	–0.166	–0.139	–0.250
	(–0.52)	(–1.09)	(–0.62)	(–0.41)	(–0.43)	(–0.77)
GDP Growth	–0.104	–0.469	–0.401	0.096	–0.217	–0.222
	(–0.39)	(–1.38)	(–1.59)	(0.44)	(–0.97)	(–0.93)
Prob > F	0.019	0.080	0.003	0.000	0.451	0.000
No. of obs. 1/0	97/44	112/30	56/86			
Total no. of obs.	142	142	142	142	142	142

Table 6
Logit and ordered logit regressions on the frequency at which the shorter payback period method is used to manage country-specific political risk

The table reports estimated logit (panel A) and ordered logit regressions (Panel B) with the frequency at which firms use a shorter payback period (SPP) for managing political risk. In panel A, the dependent variable is equal to 1 if SPP is used, and zero otherwise. In panel B, the dependent variable is equal to 0 if SPP is never used, 1 if SPP is seldom used, 2 if SPP is sometimes used, 3 if SPP is almost always used, and 4 if SPP is always used. Coefficients are reported with z-values in parenthesis. Reported z-values are asymptotically robust to heteroscedasticity (White, 1980). Significance is indicated by *, **, and *** for the 10%, 5%, and 1% level, respectively. The number of observations is 133. Exprop Risk is defined as the value weighted expropriation risk of the firm's FDIs. Expropriation risk estimates are collected from EIU Country Forecasts. The risk of expropriation rating scores countries between 1 and 5, with 5 being high and 1 being non-existent. %FDI is equal to the book value of the firm's all FDIs divided by the book value of the total assets. Public Dummy is equal to one if the firm is listed on a stock exchange, and zero otherwise. Size is equal to the natural logarithm of the book value of total assets in the end of 2002. Leverage is equal to the book value of long-term debt divided by the book value of total assets at the end of 2002. Fixed Asset Ratio is equal to fixed assets divided by total assets. Liquidity is the ratio of current assets to short-term debt. Investment rate is equal to the change in fixed assets from the previous year plus depreciation. Industry Dummy is equal to one if the firm is active in a capital intense industry, and zero otherwise. GDP growth is equal to the value weighted GDP growth per capita 1995-2002 in the countries where the firm has FDIs.

	Panel A: Logit Regressions		*Panel B: Ordered Logit Regressions*	
	Model 1	Model 2	Model 1	Model 2
Exprop Risk	2.903	2.746	1.722	1.508
	(1.91)*	(1.98)**	(2.87)***	(2.37)**
% FDI	1.105		1.243	
	(0.85)		(1.04)	
Public Dummy	–0.157		–0.298	
	(–0.31)		(–0.67)	
Size	0.043		0.030	
	(0.37)		(0.26)	
Leverage	–0.360		–1.224	
	(–0.32)		(–1.23)	
Fixed Asset Ratio	0.297		1.151	
	(0.15)		(0.83)	
Liquidity	0.044		0.130	
	(0.47)		(1.89)*	
Investment Rate	–0.112		–0.188	
	(–0.22)		(–0.44)	
Industry Dummy	–0.135		0.091	
	(–0.29)		(0.25)	
GDP Growth	–0.688	–0.626	–0.589	–0.468
	(–1.93)*	(–1.78)*	(–2.17)**	(–1.70)*
Prob > F	0.79	0.07	0.14	0.06
No. of obs. 1/0	70/35	70/35		
Total no. of obs.	105	105	105	105

Figures

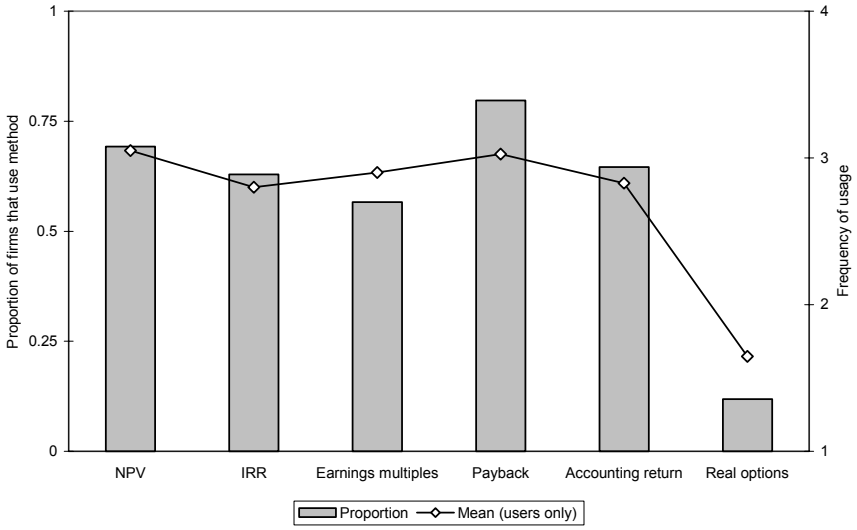

Figure 1: The relative popularity of different Capital Budgeting Methods.

The figure displays the proportion of firms that used each method and the frequency of usage for firms that used each method, respectively. The bars (scale on left vertical axis) present the proportions of firms that used each method, and the line (scale on right vertical axis) presents the mean rank of each method, calculated from firms that used each method, respectively. The rank is in the range 1–4, where 1 = seldom, 2 = sometimes, 3 = almost always, and 4 = always (the number of observations is 142).

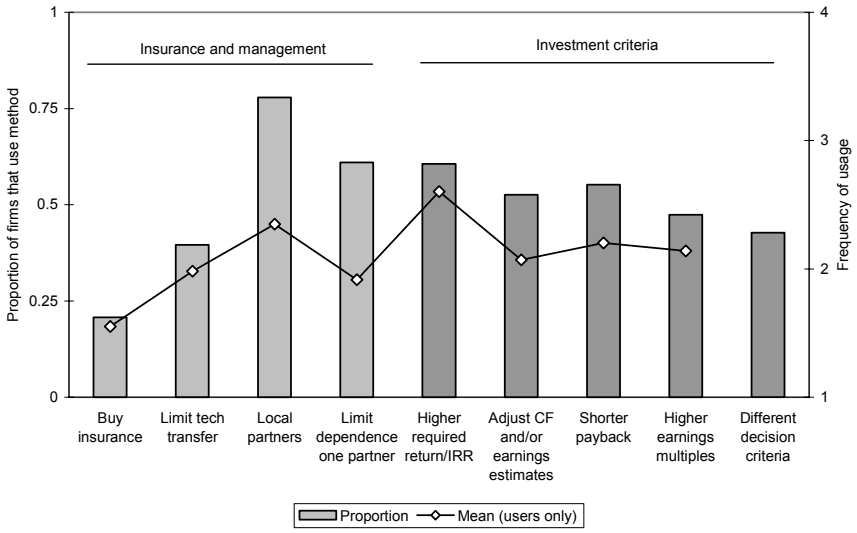

Figure 2: Methods to manage country-specific political risk.

The figure displays the proportion of firms that used each method and the frequency of usage for firms that used each method, respectively. The bars (scale on left vertical axis) present the proportions of firms that used each method, and the line (scale on right vertical axis) presents the mean rank of each method, calculated from firms that used each method, respectively. The rank for all questions but the last is in the range 1–4, where 1 = seldom, 2 = sometimes, 3 = almost always, and 4 = always (numbers of observations are in the range 134–140). For the last question, only the proportion is displayed (number of observations is 117).