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Last Lecture
Country Risk (CR) affects discount rates
Different countries will have different risk free rates (k_f).
High CR, high risk-free rate k_f.

Q: How do MNCs set discount rates for projects in foreign countries?

This Lecture
In this class, we will use the WACC to calculate an MNC's cost of capital of projects, which can be used as the discount rate for those projects.

Chapter 17 – The Cost of Capital in an International Context

The cost of capital is the cost of a MNC's funds for a project/investment. In equilibrium, it also represents the required return on a project/investment.

Brief Review: Capital Structure

A firm can raise new capital by:
- Issuing new equity (E) –a firm gives away ownership and has to pay dividends
- Issuing debt (D) –a firm borrows and has to pay interest payments.

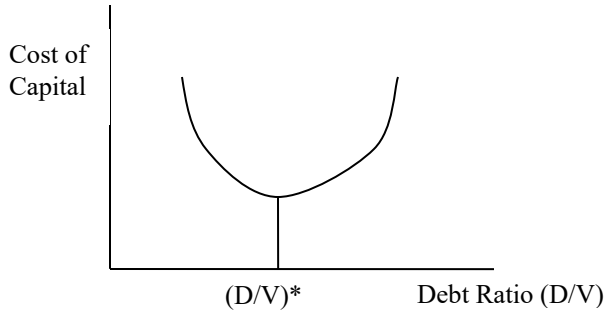
The firm can also use retained earnings, which we will consider E. (According to the *pecking order theory*, retained earnings are the first source of funds for a company.)

Recall that the *investment decision* (NPV evaluation based on CFs and risk of project) is separate from the *financing decision* (selection of E and D).

• Trade-off Theory of Capital Structure
Firms will use the E and D mix that minimizes the cost of capital, k_c. There is a U-shape relation between cost of capital and the amount of debt relative to the total value of the firm (V=E+D).

Trade-off: Debt has its (tax) advantages, but also its disadvantages (bankruptcy). E and D need to be combined optimally.

Before the optimal Debt Ratio, (D/V)*, the tax advantages dominate and decrease the cost of capital; after (D/V)*, the increased probability of bankruptcy dominates and increases the cost of capital.



The capital structure that a firm desires is called their *target structure.* It should be close to (D/V)*.

• Target Debt-Equity Ratio in Practice
Suppose that GE's target debt-equity ratio is 70%-30%. It is unlikely that GE will raise funds with a 70-30 debt-equity split for every project. For example, for a Brazilian project, GE may use a 60-40 D/E split. The target (D/V)* reflects an average; it is not a hard target for each project. That is, for other projects GE will use D/E in order to compensate and be close to the target debt-equity ratio.

It is expensive to issue shares for each project. It is common for companies to finance projects using retained earnings first (the easiest and cheapest form of E) and then use debt for the remaining part −following the *Pecking order theory.*

Measuring the Cost of Capital

The cost of capital (discount rate) used should reflect both the riskiness and the type of cash flows under consideration. If the cash flows are cash flows due to E (D), then the appropriate cost of capital is the cost of equity, k_e (cost of debt, k_d). In general, firms use both E & D to finance projects.

We will use weighted average cost of capital (WACC), k_c, where t is the effective tax rate:

$$k_c = \frac{D}{D+E} k_d * (1 \quad t) + \frac{E}{D+E} k_e$$

• Cost of debt (k_d)
The cost of debt of a project (k_d): The interest a firm has to pay to borrow from a bank or the bond market to fund a project. Sometimes k_d is called *pre-tax cost of debt.*

It is easy to determine for a firm: A firm calls a bank/investment bank to find out the interest rate it has to pay to borrow capital.

It is also easy to determine for companies that borrow from debt markets, which are rated. If the company is not rated or most of the debt is old bank debt, it is more difficult to calculate a current k_d. In these cases, we benchmark k_d with similar companies (similar size, similar industry, similar D/V, etc.)

Q: How does a bank set the interest rate for a given firm?
A: Base rate (say, a risk free rate like T-bills, k_f) + spread (reflecting the risk of the company/project, which includes CR). We will see this in Chapter 18.

Note: Interest payments are tax deductible ⇒ After-tax cost of debt = k_d * (1-t)

• Cost of equity (k_e)
The cost of equity of a project (k_e): The required (expected) return on equity a firm has to pay to investors. This is an *equilibrium* result. A model is needed to determine required rates of return on equity. We can use the CAPM or other risk-return models, for example a multifactor model, with the 3- or 5-Fama-French factors. (Recall that only undiversifiable risk is priced in expected returns.)

We will use the CAPM, which produces a required rate of return on equity, to value the cost of equity:

$$k_e = k_f + \beta\,(k_M - k_f)$$

k_f: Risk-free rate (ideally, the rate on a *zero coupon government bond* matching the time horizon of the investment). In practice, short-term government security rates, say 90-day T-bill rates.
k_M: Expected return on a market portfolio (in practice, the long-run return on a well-diversified market index).
$(k_M - k_f)$: Equity Risk premium (ERP), what investors demand for investing in an average risk investment, relative to the risk-free rate. In practice, the difference between the above calculated k_M & k_f.
β: Systematic risk of the project/firm = Cov(k_e,k_M)/Var(k_M). In practice, a coefficient estimated by a regression against excess market returns or risk premium, $(k_M - k_f)$.

β: Systematic Risk of the project/firm = Cov(k_e,k_M)/Var(k_M) (in practice, a coefficient estimated by a regression against excess market returns or risk premium, $(k_M - k_f)$, using 5 years of data).

Q: Which CAPM: World or Domestic?
A: The $(k_M - k_f)$ and β used depends on the view that a company has regarding capital markets. If capital markets are integrated (or if the shareholders are world-wide diversified) the appropriate equity risk premium should reflect a world benchmark (say, MSCI World Index), $(k_M - k_f)_W$. But, if markets are segmented (or if the shareholders hold domestic portfolios), then the appropriate equity risk premium should be based on a domestic benchmark (say, the Bovespa Index for Brazilian companies), $(k_M - k_f)_D$. The risk-free rate should also be adjusted accordingly. Then,

- World CAPM: $k_e = k_{e,W} = k_{f,W} + \beta_W\,(k_M - k_f)_W$
- Domestic CAPM: $k_e = k_{e,D} = k_{f,D} + \beta_D\,(k_M - k_f)_D$

The difference between these two models can be significant. According to Bruner et al. (2008), on average, there is a 5.55% absolute difference for emerging markets and a 3.58% absolute difference for developed markets. The betas (β_W and β_D) tend to be different too: the average absolute difference is 0.44 for emerging markets and 0.21 for developed markets.

Given that the evidence for integrated capital markets is weak, especially for emerging markets; we tend to think of financial markets as partially integrated. Then, a weighted average can be used to calculate k_e, where the weights can be ad-hoc or represent some measure of integration, say, based on international trade or international investments of a country as a proportion of GDP:

- Partially Integrated CAPM: $k_e = w_D\, k_{e,D} + (1- w_D)\, k_{e,W}$

In general, we tend to find that World CAPM produces low expected returns. The Fama-French 3-factor model tends to produce higher (and more realistic) expected returns. Many ad-hoc adjustments are used in the private sector.

Notes:
◊ Dividends are not tax deductible. There is an advantage to using debt!
◊ Time-consistency with k_f. The same maturity should be used for k_e and k_d. That is, if you use long-term bonds to calculate k_d, you should also use long-term data to calculate k_e.
◊ In Chapter 16 we discussed country risk. For practical purposes, many emerging market government bonds may not be considered risk-free. Thus, the government bond rate includes a default spread, which, in theory, should be subtracted to get k_f.
◊ If the company is publicly traded, getting β is simple: β is estimated by the slope of a regression against a market index. If the company is not publicly traded, we need to benchmark β. That is, we use the βs of publicly traded similar companies.
◊ There are many issues associated with the estimation of β: choice of index, noisy data, adjustment by leverage, mean reversion, etc. We will not get into these issues.

Issues:
Q: Real or Nominal? If the CFs are nominal (the usual situation), then k_e should be calculated in nominal terms.
Q: Which k_f to use? Local or Foreign? The k_f that reflects the risk of the cash flows. If the CFs are in MXN, then k_f should be a Mexican treasury rate (for example, CETES).
Q: Which maturity for k_f to use? The maturity that reflects the duration of the cash flows. In practice, the duration of the project is matched to the maturity of k_f (potentially a problem for many emerging markets where there is no long-term debt market).
Q: Which β to use? The β of the company or the β of the project? β should reflect the systematic risk of the project.

Example: GE wants to do an investment in Brazil.
Equity investment: BRL 100M

Debt issue: BRL 150
Value of Brazil investment = D + E = BRL 250 ($\Rightarrow$ 60-40 D/E split)
Brazilian Tax Rate = t = 34% (25% corporate rate + 9% social contribution on net profits)
Cost of capital of project = k_c = ?

• Cost of debt (k_d)
GE decides to use a domestic CAPM, with the following data.
GE can borrow in Brazil at 60 bps over Brazilian Treasuries (k_f)
k_f = 11.90% (3-year Brazil government bond yield)
k_d (for GE) = .1190 + .0060 = **.1250** (12.50%)

• Cost of equity (k_e)
Similar projects in Brazil have a beta of 1.1 ($\beta_{GE\text{-}Brazil}$ = 1.1)
Return of the Brazilian market (BOVESPA) in the past 20 years: 14% (k_M = 14%)
$k_e = k_f + \beta\,(k_M - k_f)$ = .1190 + 1.1 * (.14 - .1190) = **0.1421** (14.21%)

• Cost of Capital –WACC- (k_c)

$$k_c = \frac{D}{D+E} k_d * (1-t) + \frac{E}{D+E} k_e$$

k_c = (.60) x **.1250** x (.66) + (.40) x **.1421** = **.10634** (10.634%)

This is the discount rate that GE should use to discount the cash flows of the Brazilian project. That is, GE will require a **10.634%** rate of return on the investment in Brazil. ¶

Remark: Every time the cost of capital increases, the NPV of projects goes down. Anything that affects k_c, it will also affect the profitability (NPV) of a project.

Application: Argentina defaults in some of its debt. Argentine country risk increases, $k_{f,Arg}$ goes up and $k_{c,Arg}$ also goes up. Then, NPV projects in Argentina can become negative NPV projects: $\Rightarrow$ MNCs may suddenly abandon Argentine projects.

Estimating the Equity Risk Premium: ($k_M - k_f$)
To compute the ERP, we need to determine a market portfolio (S&P? MSCI World?), and a method (and sample period) to compute the expectation. There are three different methods to compute k_M:

1) Surveys. Usually an average of ERPs provided by individual investors, institutional investors, managers and, even, academics.

2) Historical data. Expectations are computed using past data. This is the most popular approach. For example, compute k_M with the historical sample mean equity market return, $\bar{X}$. If we use this approach, it pays to use as much data as possible –more data, lower S.E. We think of k_M as a *long-run* average of market returns.

3) Forward-looking data. An (implied) ERP is derived from market prices, for example, market indexes, options & futures on market indexes, etc. Of course, we also need a model (a formula) that extracts the ERP from market prices.

Once we compute k_M and chose a corresponding k_f, we are ready to determine the ERP. But, we make decisions along the way. For example, using Robert Shiller's monthly data, with **150 years of data**, we produce an estimate of the ERP = $E[(r_{m,t} - r_f)] = (k_M - k_f)$. = **4.34%**. This ERP estimate involved the following decisions:
– Computation of returns (log returns)
– Method of computing ERP (Historical data)
– Sample period (1871-2021)
– Market portfolio (S&P Composite Index)
– Risk-free rate (10-year U.S. bond rate).

Then,

Annualized Market return = **0.007378** * 12 = **0.088536**
Annualized risk-free rate = **0.04511**
ERP = **0.088536** - **0.04511** = **0.043426** (**4.34%**)

Aside: Many economists consider this estimated ERP as "*too high.*" Why? The degree of risk aversion to justify it is unreasonable high.

Estimating the Equity Risk Premium: Historical Method and Precision of Estimates
Risk premiums are estimated with error. To deal with this issue, practitioners, using the historical data method, like to use as many years as possible to build the long-run average. Remember, the sample average, $\bar{X}$, comes with an associated standard error:

$$S.E.(\bar{X}) = s/\sqrt{T}$$

where s is the standard deviation (SD) and T is the length of the data.

Thus, more data means a lower standard error -i.e., more precision. This may be a problem for emerging markets, where there is limited reliable return data.

Example: Suppose we have 2 markets: a Developed Market (DM) with T=100 annual observation and an annualized standard deviation (SD) equal to 15%; & an Emerging Market (EM) with T=50 and SD=30%.
We can calculate the S.E. for both markets.
$S.E._{DM}$ = .15/sqrt(100) = .015 (or 1.5%)
$S.E._{EM}$ = .30/sqrt(50) = .0424 (or 4.24%).

Note: A 95% C.I. for an EM around 0% goes from [-8.5% to 8.5%]. Not very precise! ¶

But, note that even with more than **100 years of data** for developed markets there is no consensus on an ERP. As a matter of fact, in a recent review paper, by two Federal Reserve economists, Duarte and Rosa (2015) list over 20 different approaches to estimate the ERP in the U.S. Using data from 1960 to 2013, Duarte and Rosa (2015) report estimates from -0.4% to 13.1%, with a 5.7% average for all model. A wide range!

Table 17.1 presents ERP estimates in international markets, translated to USD, using monthly data from 1970 to 2021. The estimates range from **0.88%** (Italy) to **11.56%** (Hong Kong), with a 3.17% world average. Again, a wide range.

Table 17.1:
MSCI Index USD Equity Returns and ERP – Developed Markets: (1970-2021)

Market	Equity Return	Standard Deviation	ERP
U.S.	8.31	**15.01**	**0.0382**
Canada	7.95	19.21	0.0346
France	8.80	21.95	0.0431
Germany	8.80	21.48	0.0431
Italy	**5.37**	**25.25**	**0.0088**
Switzerland	10.34	17.64	0.0585
U.K.	7.37	21.20	0.0288
Japan	9.56	20.46	0.0506
Hong Kong	**16.06**	**33.23**	**0.1156**
Singapore	11.71	27.48	0.0722
Australia	7.35	23.42	0.0273
World	**7.66**	**14.54**	**0.0317**
EAFE	7.69	16.64	0.0306

Table 17.2 reports equity returns and ERP estimates for EM, with, as expected, higher numbers.

Table 17.2:
MSCI Index USD Equity Returns and ERP – Emerging Markets: (1987*-2021)

Market	Equity Return	Standard Deviation	ERP
Argentina (404)	24.21	51.49	0.1972
Brazil (404)	**22.23**	**47.67**	**0.1774**
Mexico (404)	17.67	29.26	0.1318
Poland (344)	15.88	43.24	0.1139
Russia (320)	**21.09**	**47.54**	**0.1660**
India (344)	**12.10**	**28.35**	**0.0760**
China (344)	**4.90**	**31.94**	**0.0041**

Korea (404)	11.75	34.08	0.0726
Thailand (404)	11.58	32.24	0.0606
Egypt (320)	11.61	31.69	0.0862
South Africa (344)	9.47	26.31	0.0498
World (620)	**7.66**	**14.54**	**0.0317**
EM Asia	8.85	23.13	0.0436

Estimating the Equity Risk Premium: Ad-hoc adjustments

Given the imprecision of ERP estimates, for a market with limited reliable return history, say Brazil, Hungary or a generic Country J, it is sometimes easier to adjust a $(k_M - k_f)$ from a well-established market, say, the U.S., to get a more precise estimate of that market's ERP_J.

There are several ways to do this adjustment. These approaches are mainly intuitive, with simplicity in mind (taken from Damodaran (2012)):

◊ *Country Risk Approach*: The U.S. market risk premium is increased by country risk (CR_J, the sovereign default spread of the bond issued by Country J):

$(k_M - k_f)_J = (k_M - k_f)_{US} + CR_J$ (⇒ no distinction between bond and equity risk!)

◊ *Relative Equity Market Approach*: The U.S. market risk premium is modified by the volatility of the Country J's equity market, σ_J, relative to the volatility of the U.S equity market, σ_{US}:

$(k_M - k_f)_J = (k_M - k_f)_{US} * \sigma_J / \sigma_{US}$ (⇒ problem: σ_J is also an indicator of liquidity!)

◊ *Mixed Approach*: The U.S. market risk premium is increased by combining Country J's CR, equity market volatility and bond market volatility. We expect equity spreads to be higher than debt spread. Then, we need to adjust the CR upward. One way to do this is to use the relative volatility of Country J's equity market to the volatility of Country J's bond market, $\sigma_{J,bond}$:

$(k_M - k_f)_J = (k_M - k_f)_{US} + CR_J * \sigma_J / \sigma_{J,bond}$.

Notes:

◊ We may have very different numbers from these three approaches. Judgement calls/adjustments may be needed.

◊ Following the idea of CR from bond markets, a *country equity risk premium* (*CER*) can be easily derived for Country J: $CER_J = (k_M - k_f)_J - (k_M - k_f)_{US}$.

◊ We construct a market risk premium for Country J based on USD rates. To convert this premium into a local currency premium, we can use IFE combined with relative PPP to estimate $E[e_f]$. That is, using the linearized version of both formulas, we get:

$(k_M - k_f)_J$ (in local currency) $\approx (k_M - k_f)_J + (I_J - I_{US})$.

Example: Suppose the limited returns history of Brazil's equity markets makes GE's risk manager uncomfortable. She wants to adjust $(k_M - k_f)_{Brazil}$ using different methods, using the U.S. market as a benchmark: the relative equity market approach and the mixed approach. GE uses the following data:
$(k_M - k_f)_{US}$ = **0.0382** (from Table 17.1)

$k_{f,US}$ = **4.50%**

σ_{US} = **15.01%**
σ_{Brazil} = 37.3% (based on past 15 years)
$\sigma_{Brazil,bond}$ = 23.1% (based on past 15 years)
CR_{Brazil} = **2.80%**
I_{Brazil} = 8%
I_{US} = 3%

◊ *Relative Equity Market Approach*:

$$(k_M - k_f)_{Brazil} = 0.0382 + .028 * .373/.231 = 0.093741$$

$\Rightarrow k_{e,Brazil} = r_f + \beta\,(k_M - k_f)_{Brazil} = .0450 + 1.1 * 0.093741 = 0.1481.$

If we want the ERP in local currency (BRL), then:

$(k_M - k_f)_{Brazil}$ (in BRL) $\approx 0.093741 + (0.08 - 0.03) = 0.093741 + 0.05 = 0.1437$

◊ *Mixed Approach*:

$$(k_M - k_f)_{Brazil} = 0.0382 + .028 * .373/.231 = 0.08341$$

$\Rightarrow \quad k_{e,Brazil} = k_f + \beta\,(k_M - k_f)_{Brazil} = .0450 + 1.1 * 0.08341 = 0.1368.$

Note: We can calculate CER_{Brazil} from any of these approaches. For example, using the Mixed Approach:

$CER_{Brazil} = 0.08341 - 0.0382 = 0.04521$ (in USD!) ¶

CER as a factor in the estimation of k_e:
Q: How sensitive are companies to CER? There are different ways to incorporate CER into k_e. (They are all CAPM extensions, delivering two-factor models.)

◊ *Beta as a Measure of Exposure*:

We assume that CER exposure is proportional to the β of the company/project. That is, the sensitivity to CER is treated in the same way as the sensitivity to market risk. (This is the implicit assumption of the CAPM used above). Then,

$$k_{e,J} = k_{f,US} + \beta\,(k_M - k_f)_J = k_{f,US} + \beta\,[(k_M - k_f)_{US} + CER_J].$$

◊ *Using different weights for CER Exposure ("lambda approach")*:
We can allow each project/company to have its own sensitivity to CER. This sensitivity is called lambda, λ. Similar to β, λ is scaled around 1 (λ=1, average exposure).

$$k_{e,J} = k_{f,US} + \beta\,(k_M - k_f)_{US} + \lambda\,CER_J.$$

There is no consensus on how to estimate λ. The easier way to do this: Estimate λ using the proportion of revenue generated by the company/project in the country relative to the rest of the companies in the country. (It is possible to adjust this estimate by where the production facilities are located, by a company's risk-management, etc.). A regression (say, returns against a CR indicator) can also be used to estimate λ.

◊ *Equal CER Exposure*:
A popular alternative method to estimate k_e is to estimate k_e as a U.S. company/project and, then, add CER. Very simple method that treats all companies/projects as equally exposed to CER:

$$k_{e,J} = k_{f,US} + \beta\,(k_M - k_f)_{US} + CER_J.$$

Example: Suppose that GE's risk manager wants to re-estimate k_e using the lambda approach. She uses the following additional data:
$k_{f,US}$ = **4.50%**
CER_{Brazil} = **0.04521** (using the Mixed Approach)
Revenue from Brazil: 50%
Exports contribution to Brazil's GDP: 13% ⟹ average revenue for a typical Brazilian firm: 87%

$$\lambda_{GE\text{-}Brazil} = .50/.87 = 0.5747$$

$$k_{e,Brazil} = k_{f,US} + \beta\,(k_M - k_f)_{US} + \lambda_{GE\text{-}Brazil}\,CER_{Brazil}$$
$$= \mathbf{.0450} + 1.1 * (\mathbf{0.0382}) + .5747 * (\mathbf{0.04521}) = \mathbf{0.1130}$$

If we want to express the cost of capital into BRL, we proceed as usual (linearized IFE+PPP):

$k_{e,Brazil}$ (in BRL) = **0.1130** + .05 = **0.1630** (**16.30%**). ¶

17.3 Determinants of the Cost of Capital for MNCs

Intuition: Economic factors that make the CFs of a firm more stable reduce the k_c.
1) Size of firm (larger firms get better rates from creditors and have lower βs)
2) Access to international markets (better access, more chances of finding lower rates)
3) Diversification (more diversification, more stable CFs, lower rates. Also, βs closer to β_M)
4) Fixed costs (the higher the proportion of fixed costs, the higher the β)
5) Type of firm (cyclical companies have higher βs)

6) FX exposure (more exposure, less stable CFs, worse rates)
7) Exposure to CR (again, more exposure to CR, less stable CFs, worse rates).

Example: Calculating the Cost of Capital (Nov 2014)
General Electric (GE): Huge, internationally diversified company
Walt Disney (DIS): Large, moderate degree of international diversification
The GAP (GPS): Medium cap, low international diversification.

Data:
T = Medium-term, say 5 -years
US Treasuries (k_f): 1.70% (5-year T-bill rate, from Bloomberg)
S&P 500 return (k_M): 8.15% (39 years: 1976-2014)
tax rate (t): 27.9% (effective U.S. tax rate, according to World Bank)
Recall: $k_a = \frac{D}{D+E} k_d * (1 - t) + \frac{E}{D+E} k_e$

	E	D	Rating	Spread	β	k_d	k_e	WACC
GE	109B	260B	AA-	87	1.58	2.57	11.89	**4.82**
DIS	46B	15B	A+	55	1.50	2.25	11.38	**8.98**
GPS	2.9B	1.4B	BBB-	154	1.31	3.24	10.15	**7.60**

For comparison, before the financial crisis, in Nov 2006, we got the following numbers:
US Treasuries (k_f): 4.25%
S&P 500 return (k_M): 9.02% (1976-2006)
tax rate (t): 25%

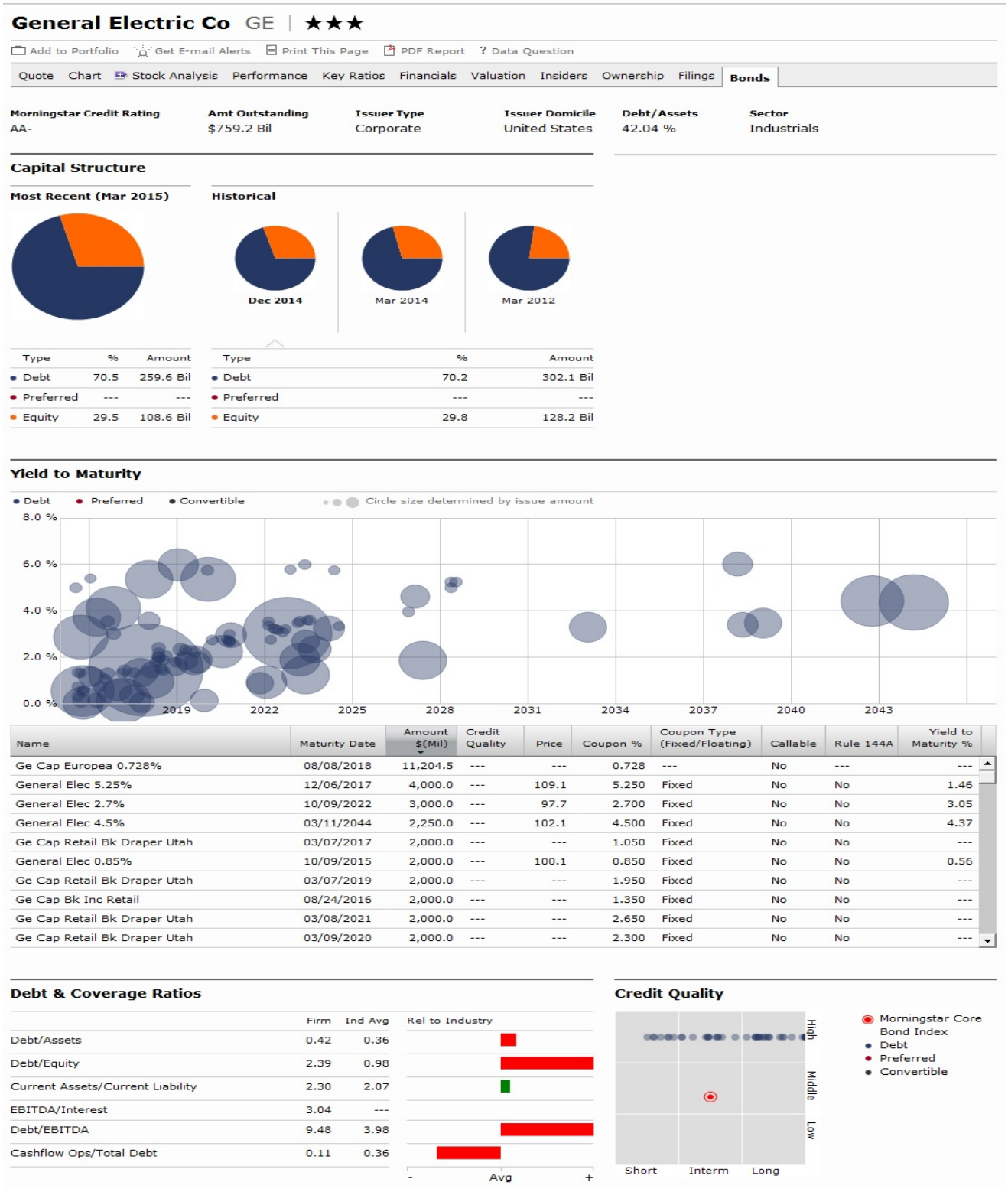
	E	D	Rating	Spread	β	k_d	k_e	WACC
GE	111B	410B	AAA	92	0.65	5.17	7.35	**4.62**
DIS	31B	13B	A-	140	0.93	5.65	8.69	**7.37**
GPS	5B	0.5B	BBB-	213	0.91	6.38	8.59	**8.24**

Note: k_d went down and βs increased from 2006 to 2014. We see simple results at work:
- ◊ Lower interest rates ⟹ lower WACC
- ◊ Higher betas ⟹ higher WACC. ¶

Example: Country risk matter.
According to The Economist (Sep 20, 2014), Western oil firms operating in Kurdish-run Iraq in mid-2014, after ISIS seized the city of Mosul, increased the assumed cost of capital from 12.5% to 15%. ¶

CHAPTER 17 - BONUS COVERAGE: Cost of Debt – GE Data (2014)

From Morningstar we can get Debt, Equity, bond yields & rating, and beta. For example: (http://quicktake.morningstar.com/StockNet/bonds.aspx?Symbol=GE&Country=usa):



General Electric Co GE | ★★★

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Morningstar Credit Rating	Amt Outstanding	Issuer Type	Issuer Domicile	Debt/Assets	Sector
AA-	$759.2 Bil	Corporate	United States	42.04 %	Industrials

Capital Structure

Most Recent (Mar 2015)

Type	%	Amount
Debt	70.5	259.6 Bil
Preferred	---	---
Equity	29.5	108.6 Bil

Historical

Dec 2014 | Mar 2014 | Mar 2012

Type	%	Amount
Debt	70.2	302.1 Bil
Preferred	---	---
Equity	29.8	128.2 Bil

Yield to Maturity

Debt • Preferred • Convertible — Circle size determined by issue amount

8.0 % | 6.0 % | 4.0 % | 2.0 % | 0.0 %

2019 | 2022 | 2025 | 2028 | 2031 | 2034 | 2037 | 2040 | 2043

Name	Maturity Date	Amount $(Mil)	Credit Quality	Price	Coupon %	Coupon Type (Fixed/Floating)	Callable	Rule 144A	Yield to Maturity %
Ge Cap Europea 0.728%	08/08/2018	11,204.5	---	---	0.728	---	No	---	---
General Elec 5.25%	12/06/2017	4,000.0	---	109.1	5.250	Fixed	No	No	1.46
General Elec 2.7%	10/09/2022	3,000.0	---	97.7	2.700	Fixed	No	No	3.05
General Elec 4.5%	03/11/2044	2,250.0	---	102.1	4.500	Fixed	No	No	4.37
Ge Cap Retail Bk Draper Utah	03/07/2017	2,000.0	---	---	1.050	Fixed	No	No	---
General Elec 0.85%	10/09/2015	2,000.0	---	100.1	0.850	Fixed	No	No	0.56
Ge Cap Retail Bk Draper Utah	03/07/2019	2,000.0	---	---	1.950	Fixed	No	No	---
Ge Cap Bk Inc Retail	08/24/2016	2,000.0	---	---	1.350	Fixed	No	No	---
Ge Cap Retail Bk Draper Utah	03/08/2021	2,000.0	---	---	2.650	Fixed	No	No	---
Ge Cap Retail Bk Draper Utah	03/09/2020	2,000.0	---	---	2.300	Fixed	No	No	---

Debt & Coverage Ratios

	Firm	Ind Avg	Rel to Industry
Debt/Assets	0.42	0.36	
Debt/Equity	2.39	0.98	
Current Assets/Current Liability	2.30	2.07	
EBITDA/Interest	3.04	---	
Debt/EBITDA	9.48	3.98	
Cashflow Ops/Total Debt	0.11	0.36	

\- Avg +

Credit Quality

High | Middle | Low

Short | Interm | Long

Morningstar Core Bond Index
Debt
Preferred
Convertible

CHAPTER 17 - BONUS COVERAGE: Cost of Debt (2011)

Intel Plans First Non-Convertible Bonds in 24 Years to Fund Stock Buybacks

By Sapna Maheshwari – (Bloomberg) - Sep 14, 2011 2:07 PM CT

Intel's USD 1.5 billion of five-year notes may yield 110 basis points more than similar-maturity Treasuries, the USD 2 billion of 10-year notes may pay a spread of 135 basis points and the USD 1.5 billion of 30-year bonds may offer 160 basis points more than benchmarks, said the person with knowledge of the transaction who declined to be identified because terms aren't set.

Intel is graded A1 by Moody's Investors Service and A+ by Standard & Poor's, Bloomberg data show.

The average A rated bond pays a 217 basis-point spread and the average AA graded company debenture offers a 187 basis-point spread, Bank of America Merrill Lynch index data show, indicating strong demand for Intel's offering.

CHAPTER 17 – BONUS: ISSUING BOND DEBT - GOOGLE

Google debuts in high-grade bond market with $3 billion deal

On Monday May 16, 2011, 1:04 pm EDT

BRADENTON/NEW YORK, May 16 (IFR) - Google Inc hit the U.S. bond market on Monday with its high grade market debut, announcing a $3 billion sale of 3-year, 5-year and 10-year notes that will take advantage of low borrowing rates.

Proceeds of the SEC-registered deal will be used to repay commercial paper and for general corporate purposes, the company said in a statement. Citigroup, Goldman Sachs and JP Morgan are joint lead managers on the deal, which garnered an Aa2 rating from Moody's Investors Service, the third-highest rating in the agency's scale.

Google is one of the few large-cap technology companies to actually have debt on its balance sheet -- albeit at about $2 billion of commercial paper, a tiny sum compared to its $169 billion market cap.

The company is the latest in a spate of new or rare technology company borrowers coming to the corporate bond market this year, as they look to take advantage of low interest rates and realize that having some debt makes sense.

"We are seeing some of the large cap tech companies deciding that having debt on the balance sheets is an appropriate way of having a capital structure and running a company, which is relatively new to them," said one banker.

"Generally most of these large cap tech companies have only used the debt markets to finance their acquisitions. They typically don't use the debt markets for anything else."

Now, with rates so low and their own industries having reached a level of maturity, many are using the debt markets as a way of returning value to shareholders, at a time when they have large levels of cash trapped overseas.

Microsoft, for instance, raised funds in the bond market in February in part to buy back shares, while Google is improving its debt profile by extending the maturity of its debt. Both have large levels of cash overseas.

Cisco Systems in March sold $4 billion of three-year fixed and floating rate notes and six-year bonds; eBay in October last year sold $1.5 billion of three, five and 10 year notes.

Google is planning to sell $1 billion of 3-year notes, that launched at 33 basis points over comparable Treasuries. The company will sell $1 billion of 5-year notes at 43 basis points over Treasuries and $1 billion of 10-year notes at 58 basis points over Treasuries. That compares with market "whispers" that put the 3-year in the mid 30s, the 5-year in the high 40s and the 10-year in the mid 60s. Pricing is expected later on Monday.

At the guidance stage, sources heard book size on the deal was already up to $8-$9 billion, with sources originally hearing there was little chance of an increase.

Google may grab the lowest coupon levels seen so far this year. The 2011 coupon to beat in 3-years is 1.25 percent, with both IBM and Colgate-Palmolive pricing deals with a 1.25 percent coupon. The 2011 coupon to beat in 5-years is 2.50 percent set by Microsoft on Feb 3. The 2011 coupon to beat in 10-years is 3.85 percent, set by Berkshire Hathaway's Pacificorp last week.

While at the lowest levels seen since December 2010, benchmark Treasury rates are still not in a spot which would allow any all-time low coupon records to be hit, with the all-time low coupon record in 3-years at 0.75 percent, in 5 years at 1.375 percent and in 10-years at 2.95 percent.

Google's strong debt protections measures are backed up by its almost $11 billion of operating profit and $7 billion of free cash flow for fiscal 2011, ended March, according to Moody's Senior Vice President Richard Lane. The company also has nearly $37 billion in cash balances, he said. "These strengths, combined with solid business execution, will drive strong profitability, significant free cash flow generation, and ample financial flexibility," Lane said.

However, the company is facing challenges from well-funded rivals, including Microsoft, rated Aaa, and Apple, which is not rated, along with private companies such as Facebook, he said. "An additional rating constraint considers the still developing nature of Internet technologies, usage, and behavioral patterns, all of which pose challenges to constantly invest and innovate," he said.

(Reporting by IFR senior analysts Andrea Johnson and Danielle Robinson; Additional reporting by Reuters reporter Jennifer Saba; Editing by Ciara Linnane.)

CHAPTER 17 – BRIEF ASSESMENT

1. Padres Co. wants to do an investment in the Dominican Republic (DR). Padres Co. uses the WACC to determine the cost of capital (and the CAPM to determine the cost of equity). Using the following information, set k_c.
Equity investment: DOP 200M (DOP = DR peso)
Debt issue: DOP 150M
DR tax rate = t = 25%
Cost of project = k_c = ?
k_f = 6.5%
Padres' spread over DR's k_f = 2.52%
$\beta_{\text{similar project-DR}}$ = 1.10
Return of DR's stock market = 14% (k_M = 14%)

2. Suppose you do not trust the DR's k_M estimate. You decide to use an average of the estimates provided by the relative equity market approach and the mixed approach. You have the following data:
$(k_M - k_f)_{US}$ = 3.65%
σ_{US} = 15.2%
σ_{DR} = 42.5%
$\sigma_{DR,bond}$ = 28%
CR_{DR} = 4.20%
$E[I_{DR}]$ = 4%
$E[I_{US}]$ = 2%

Compute the new estimate of k_c.

3. Now, Padres Co. wants to re-estimate k_e using the lambda approach. Padres Co. has the following additional data:
$k_{f,US}$ = 2.5%
Revenue from DR: 20%
Exports contribution to DR's GDP: 15%.

Using your results from exercise 2, compute the new estimate of k_e.

4. What is the effect on Padres Co.'s estimated DR's cost of capital under the following events?
(A) DR risk-free rate decreases?
(B) Padres Co.'s investment in DR becomes more diversified
(C) Padres Co.'s CFs become less predictable
(D) DR decides to decrease the corporate tax rate.