# Gauging the marginal investor: Disney in 2013

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Holder Name	Portfolio Name	Source	Opt	Amt Held	% Out	Latest Chg	File Dt	
		All Sources	All Y					
1. LAURENE POWELL JOBS TRU	n/a	PROXY		130,844,544	7.32	0	01/07/13	2
2. MBLACKROCK	n/a	ULT-AGG		93,837,994	5.25	-494,298	09/24/13	
3. NVANGUARD GROUP INC	n/a	ULT-AGG		80,163,479	4.49	1,183,628	06/30/13	
4. STATE STREET CORP	n/a	ULT-AGG		77,799,514	4.35	2.893,171	09/24/13	
5. CAPITAL GROUP COMPANIES	n/a	ULT-AGG		62,014,410	3.47	36.689,294	06/30/13	
6. FMR LLC	n/a	ULT-AGG		59,453,225	3.33	-1,495,596	06/30/13	
7. SUN LIFE FINANCIAL INC	n/a	ULT-AGG		55,699.112	3.12	-1,422,694	06/30/13	
8. 🖬 STATE FARM MUTUAL AUTO I	STATE FARM MUTUAL AU	13F		42,206,018	2.36	0	06/30/13	e
9. LUCAS JR GEORGE W	n/a	Co File		37,076.679	2.08	0	02/06/13	11
10. BANK OF NEW YORK MELLON	BANK OF NEW YORK MEL	13F		30,293,150	1.70	-127,337	06/30/13	1
11. NORTHERN TRUST CORPORAT	NORTHERN TRUST CORP	13F		28,465,082	1.59	224,418	06/30/13	1
12. T ROWE PRICE ASSOCIATES	T ROWE PRICE ASSOCIA	13F		25,834,722	1.45	-3,332,832	06/30/13	1
13. WELLINGTON MANAGEMENT C	WELLINGTON MANAGEME	13F		24,292,691	1.36	-4.191,722	06/30/13	1
14. JENNISON ASSOCIATES LLC	JENNISON ASSOCIATES	13F		16,644,863	0.93	2,408,938	06/30/13	2
15. DP MORGAN	n/a	ULT-AGG		15,073,679	0.84	1.496,290	06/30/13	
16. MORGES BANK	NORGES BANK	13F		14,991,213	0.84	0	12/31/12	1
17. DAVIS SELECTED ADVISERS I	DAVIS SELECTED ADVISE	13F		12,938,299	0.72	-2,546,616	06/30/13	10
18. GEODE CAPITAL MANAGEMEN	GEODE CAPITAL MANAGE	13F		12,441,353	0.70	233,702	06/30/13	1
	Loading .		% Out	79.75	Zo	om – – I	+	100%

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### Extending the assessment of the investor base

In all five of the publicly traded companies that we are looking at, institutions are big holders of the company's stock.

	Disney	Deutsche	Vale (preferred)	Tata Motors	Baidu (Class A)
		Bank			
Institutions	70.2%	40.9%	71.2%	44%	70%
Individuals	21.3%	58.9%	27.8%	25%	20%
Insiders	7.5%	0.2%	1.0%	31%*	10%

Company	Largest holder	Number of institutional investors in top ten holdings
Disney	Laurene Jobs (7.3%)	8
Deutsche Bank	Blackrock (4.69%)	10
Vale Preferred	Aberdeen (7.40%)	8
Tata Motors	Tata Sons (26.07%)	7
Baidu (Class A)	Capital Group (12.46%)	10

#### 3. The Limiting Case: The Market Portfolio

- <u>The big assumptions & the follow up:</u> Assuming diversification costs nothing (in terms of transactions costs), and that all assets can be traded, the limit of diversification is to hold a portfolio of every single asset in the economy (in proportion to market value). This portfolio is called the market portfolio.
- <u>The consequence</u>: Individual investors will adjust for risk, by adjusting their allocations to this market portfolio and a riskless asset (such as a T-Bill):

Preferred risk level	Allocation decision
No risk	100% in T-Bills
Some risk	50% in T-Bills; 50% in Market Portfolio;
A little more risk	25% in T-Bills; 75% in Market Portfolio
Even more risk	100% in Market Portfolio
A risk hog	Borrow money; Invest in market portfolic

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# 4. The Risk & Expected Return of an Individual Asset

- The essence: The risk of any asset is the risk that it adds to the market portfolio Statistically, this risk can be measured by how much an asset moves with the market (called the covariance)
- The measure: Beta is a standardized measure of this covariance, obtained by dividing the covariance of any asset with the market by the variance of the market. It is a measure of the non-diversifiable risk for any asset can be measured by the covariance of its returns with returns on a market index, which is defined to be the asset's beta.
- <u>The result</u>: The required return on an investment will be a linear function of its beta:
  - Expected Return = Riskfree Rate+ Beta \* (Expected Return on the Market Portfolio - Riskfree Rate)

#### Limitations of the CAPM

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- 1. The model makes unrealistic assumptions
- 2. The parameters of the model cannot be estimated precisely
  - The market index used can be wrong.
  - The firm may have changed during the 'estimation' period'
- 3. The model does not work well
  - If the model is right, there should be:
    - A linear relationship between returns and betas
    - The only variable that should explain returns is betas
  - The reality is that
    - The relationship between betas and returns is weak
    - Other variables (size, price/book value) seem to explain differences in returns better.

#### Alternatives to the CAPM



#### Why the CAPM persists...

- The CAPM, notwithstanding its many critics and limitations, has survived as the default model for risk in equity valuation and corporate finance. The alternative models that have been presented as better models (APM, Multifactor model..) have made inroads in performance evaluation but not in prospective analysis because:
  - The alternative models (which are richer) do a much better job than the CAPM in explaining past return, but their effectiveness drops off when it comes to estimating expected future returns (because the models tend to shift and change).
  - The alternative models are more complicated and require more information than the CAPM.
  - For most companies, the expected returns you get with the the alternative models is not different enough to be worth the extra trouble of estimating four additional betas.

### Application Test: Who is the marginal investor in your firm?

- You can get information on insider and institutional holdings in your firm from:
  - http://finance.yahoo.com/
  - Enter your company's symbol and choose profile.
- Looking at the breakdown of stockholders in your firm, consider whether the marginal investor is
  - An institutional investor
  - An individual investor
  - An insider
- Follow up by evaluating whether the marginal investor is likely to be diversified.
  - If yes, you are on safer ground using the risk and return models that assume that only non-diversifiable risk is rewarded.
  - If no, you will have to adapt your risk measure to bring in some or all o fthe company-specific risk that you were ignoring.

#### From Risk Models to Hurdle Rates: Estimation Challenges

"The price of purity is purists..."

Anonymous

#### Inputs required to use the CAPM -

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- The capital asset pricing model yields the following expected return:
  - Expected Return = Riskfree Rate+ Beta \* (Expected Return on the Market Portfolio - Riskfree Rate)
- □ To use the model, we need three inputs:
  - a. The current risk-free rate
  - b. The expected market risk premium, the premium expected for investing in risky assets, i.e. the market portfolio, over the riskless asset.
  - c. The beta of the asset being analyzed.

#### The Riskfree Rate and Time Horizon

- On a riskfree asset, the actual return is equal to the expected return. Therefore, there is no variance around the expected return.
- For an investment to be riskfree, i.e., to have an actual return be equal to the expected return, two conditions have to be met –
  - There <u>can be no default risk</u>, which generally implies that the security has to be issued by the government. Note, however, that not all governments can be viewed as default free.
  - There can be <u>no uncertainty about reinvestment rates</u>, which implies that it is a zero-coupon security with the same maturity as the cash flow being analyzed.

#### **Riskfree Rate in Practice**

- <u>Definition</u>: The riskfree rate is the rate on a zero coupon default-free bond matching the time horizon of the cash flow being analyzed.
- Implication: Theoretically, this translates into using different riskfree rates for each cash flow - the 1 year zero coupon rate for the cash flow in year 1, the 2-year zero coupon rate for the cash flow in year 2 ...
- A Practical Solution: Practically speaking, if there is substantial uncertainty about expected cash flows, the present value effect of using time varying riskfree rates is small enough that it may not be worth it.
- In corporate finance, almost everything we do is long term.
  So, using a long-term default free rate as the riskfree rate makes sense.

#### The Bottom Line on Riskfree Rates

- Currency Matching: The riskfree rate that you use in an analysis should be in the same currency that your cashflows are estimated in.
  - In other words, if your cashflows are in U.S. dollars, your riskfree rate has to be in U.S. dollars as well.
  - If your cash flows are in Euros, your riskfree rate should be a Euro riskfree rate.
- Just use the government bond rate? The conventional practice of estimating riskfree rates is to use the government bond rate, with the government being the one that is in control of issuing that currency. In November 2013, for instance, the rate on a ten-year US treasury bond (2.75%) is used as the risk free rate in US dollars.
- If the government is default-free, using a long term government rate (even on a coupon bond) as the risk free rate on all of the cash flows in a long term analysis will yield a close approximation of the true value. For short term analysis, it is entirely appropriate to use a short term government security rate as the riskfree rate.

# What is the Euro riskfree rate? An exercise in November 2013

Rate on 10-year Euro Government Bonds: November 2013



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### When the government is default free: Risk free rates – in November 2013



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### What if there is no default-free entity? Risk free rates in November 2013

- Adjust the local currency government borrowing rate for default risk to get a riskless local currency rate.
  - In November 2013, the Indian government rupee bond rate was 8.82%. the local currency rating from Moody's was Baa3 and the default spread for a Baa3 rated country bond was 2.25%.

Riskfree rate in Rupees = 8.82% - 2.25% = 6.57%

In November 2013, the Chinese Renmimbi government bond rate was 4.30% and the local currency rating was Aa3, with a default spread of 0.8%.

Riskfree rate in Chinese Renmimbi = 4.30% - 0.80% = 3.50%

- Do the analysis in an alternate currency, where getting the riskfree rate is easier. With Vale in 2013, we could choose to do the analysis in US dollars (rather than estimate a riskfree rate in R\$). The riskfree rate is then the US treasury bond rate.
- Do your analysis in real terms, in which case the riskfree rate has to be a real riskfree rate. The inflation-indexed treasury rate is a measure of a real riskfree rate.

# Three paths to estimating sovereign default spreads

Sovereign dollar or euro denominated bonds: The difference between the interest rate on a sovereign US \$ bond, issued by the country, and the US treasury bond rate can be used as the default spread. For example, in November 2013, the 10year Brazil US \$ bond, denominated in US dollars had a yield of 4.25% and the US 10-year T.Bond rate traded at 2.75%.

Default spread = 4.25% - 2.75% = 1.50%

- <u>CDS spreads</u>: Obtain the default spreads for sovereigns in the CDS market. The CDS spread for Brazil in November 2013 was 2.50%.
- Average spread: If you know the sovereign rating for a country, you can estimate the default spread based on the rating. In November 2013, Brazil's rating was Baa2, yielding a default spread of 2%.

### Risk free rates in currencies: Sovereigns with default risk in November 2013

#### Figure 4.2: Risk free rates in Currencies where Governments not Aaa rated



#### Risk free Rates in January 2023

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Riskfree Rates in January 2023 : Government Bond Rate-based Estimates 35.00% 30.00% 25.00% Riskfree Rate in Currency = Government Bond rate in Currency minus Default Spread for Country, based on local soveriegn currency rating 20.00% 15.00% 10.00% 5.00% 0.00% Iceland Krona Romanian Lev US \$ \$ ZN Thai Baht Euro Malyasian Ringgit HK \$ Canadian \$ Qatari Dinar British Pound Australian \$ czech Koruna Chilean Peso Phillipine Peso In dian Rupee Nigerian Naira Russian Ruble lapanese Yen Vietnamese Dong Taiwanese \$ Croatian Kuna ndonesian Rupiah Swiss Franc Turkish Lira Chinese Yuan Swedish Krona Danish Krone Israeli Shekel Singapore \$ Vorwegian Krone Korean Won Peruvian Sol Bulgarian Lev Polish Zloty Pakistani Rupee South African Rand Hungarian Forint Mexican Peso Kenyan Shilling Brazilian Reai Colombian Peso Zambian kwacha -5.00% Riskfree Rate Default Spread based on rating Aswath Damodaran

#### Measurement of the equity risk premium

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- The equity risk premium is the premium that investors demand for investing in an average risk investment, relative to the riskfree rate.
- As a general proposition, this premium should be
  greater than zero
  - increase with the risk aversion of the investors in that market
  - increase with the riskiness of the "average" risk investment
- If so, it also follows that equity risk premiums should change over time, as economic circumstances change and investor composition also changes.

#### What is your risk premium?

- Assume that stocks are the only risky assets and that you are offered two investment options:
  - a riskless investment (say a Government Security), on which you can make 3%
  - a mutual fund of all stocks, on which the returns are uncertain
- How much of an expected return would you demand to shift your money from the riskless asset to the mutual fund?
  - a. Less than 3%
  - b. Between 3% 5%
  - c. Between 5% 7%
  - d. Between 7% -9%
  - e. Between 9%- 11%
  - f. More than 11%

#### **Risk Aversion and Risk Premiums**

- If this were the entire market, the risk premium would be a <u>weighted average of the risk premiums</u> demanded by each and every investor.
- The weights will be determined by the wealth that each investor brings to the market. Thus, Warren Buffett's risk aversion counts more towards determining the "equilibrium" premium than yours' and mine.
- As investors become more risk averse, or the market becomes "more risky", you would expect the "equilibrium" premium to increase.

#### Risk Premiums do change..

- Go back to the previous question. Assume now that you are making the same choice but that you are making it in the aftermath of a stock market crash (it has dropped 25% in the last month). Would you change your answer?
  - a. I would demand a larger premium
  - b. I would demand a smaller premium
  - c. I would demand the same premium