**FIN 440 LECTURE 12**

**risk & capital budgeting**

**CHAPTER REFERENCE – CHP 11**

**The 3 measures of a projects risk**

1. **Project stand alone risk** – risk diversified away within firm as it is combined with the firm’s other projects & assets
2. **Project’s contribution-to-firm risk** – risk diversified away by shareholders as they diversify their investment portfolios
3. **Systematic risk** – market risk, cannot be reduced through diversification

**The 2 measures of incorporating risk into capital budgeting**

1. **Certainty equivalent approach**
2. **Risk – adjusted discount rate approach**

**Certainty equivalent approach**

* involves adjusting the operating cash flows and/or the discount rate
* **CERTAIN CASH FLOW = RISKY CASH FLOW X CERTAINTY EQUVALENT FACTOR** (e.g. safe 700 = risky 900 \* certainty factor 0.70 )
* The greater the risk associated with a particular cash flow, the smaller the CE factor
* Adjust all after-tax cash flows by certainty equivalent factors to get certain cash flows.
* Discount the certain cash flows by the risk-free rate of interest.

**Risk adjusted discount rates**

* Involves adjusting the discount rates to reflect higher risk
* Riskier projects will use higher risk-adjusted discount rates.
* Calculate NPV using the new risk-adjusted discount rate.

1. How do we determine the appropriate risk-adjusted discount rate (k\*) to use?
2. Many firms set up risk classes to categorize different types of projects.

**SUMMARY – risk & capital budgeting**

You can adjust your capital budgeting methods for projects having different levels of risk by:

* Adjusting the discount rate used (risk-adjusted discount rate method),
* Measuring the project’s systematic risk,
* Computer simulation methods,
* Scenario analysis,
* Sensitivity analysis.