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QUESTION 1 γ = risk aversion A_t = wealth

The value function:

$$V_t(A_t) = \max_{C_t, \omega_t} \left\{ (1-\beta) C_t^{1-\gamma} + \beta E_t V_{t+1} A_{t+1}^{1-\gamma} \right\}^{1/1-\gamma}$$

Dynamic capital constraint:

$$A_{t+1} = R_{p,t+1}(A_t - C_t) = \left[\omega R_{e,t+1} - (1-\omega) R_{f,t+1}\right](A_t - C_t)$$

and raise both sides with $(1-\gamma)$

① we make the conjecture: $V_t(A_t) = \Phi_t(A_t)$

→ wealth is proportional to the value function

② Put the conjecture into value function:

$$\Phi_t^{1-\gamma}(A_t)^{1-\gamma} = \max_{C_t, \omega_t} \left\{ (1-\beta) C_t^{1-\gamma} + \beta E_t \Phi_{t+1}^{1-\gamma} A_{t+1}^{1-\gamma} \right\}$$

③ substitute from the credit constraint and obtain the transformed value function

$$\Phi_t^{1-\gamma} A_t^{1-\gamma} = \max_{C_t, \omega_t} \left\{ (1-\beta) C_t^{1-\gamma} + \beta \left(E_t \Phi_{t+1}^{1-\gamma} R_{p,t+1}^{1-\gamma}\right)(A_t - C_t)^{1-\gamma} \right\}$$

④ Differentiate the transformed value function wrt consumption

$$\frac{\partial \Phi_t}{\partial C_t} = (1-\gamma)\left[(1-\beta) C_t^{-\gamma} + \beta (A_t - C_t)^{-\gamma} E_t \Phi_{t+1}^{1-\gamma} R_{p,t+1}^{1-\gamma}\right]$$

⑤ Find solution for $E_t \Phi_{t+1}^{1-\gamma} R_{p,t+1}^{1-\gamma}$

$$E_t \Phi_{t+1}^{1-\gamma} R_{p,t+1}^{1-\gamma} = \left(\frac{1-\beta}{\beta}\right) C_t^{-\gamma} (A_t - C_t)^{\gamma}$$

⑥ substitute this into the right hand side of the transformed value function and obtain Φ_t

$$\Phi_t = (1-\beta)(A_t / C_t)^{-\gamma}$$

⑦

⑧ $(1-\beta)(A_t - C_t)^{\gamma} R_{p,t+1} = \left(\frac{1-\beta}{\beta}\right) C_t^{-\gamma} (A_t - C_t)^{\gamma}$

End up with Euler equation: $E_t\left\{\beta (C_{t+1}/C_t)^{-\gamma} R_{p,t+1}\right\} = 1$

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From euler we see: stochastic discount factor

$M_{t+1} = \beta(c_{t+1}/c_t)^{-r}$

This is the marginal utility of intertemporal elasticity

$E_t M_{t+1} R_{p,t+1} = 1$

$E_t M_{t+1}(wR_{e,t+1} - (1-w)R_{f,t+1}) = 0$

$E_t M_{t+1} R_{e,t+1} = 1$

$R_{f,t+1} = 1 / E_t M_{t+1}$

The equity premium can be expressed as follows:

$$E_t R_{e,t+1} - E_t R_{f,t+1} = - \frac{cov(\beta(c_{t+1}/c_t)^{-r}, R_{e,t+1})}{E_t \beta(c_{t+1}/c_t)^{-r}}$$

- The covariance need to be negative to give a positive equity premium
- The return is log-normally distributed $\sim N(\mu, \sigma^2)$
- c_{t+1}/c_t is the growth rate of consumption which is raised by $(-\gamma)$ = risk aversion

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QUESTION 2

The equity premium is the excess return of investing in equity compared to investing in a risk-free investment. Said in another way: the equity premium is a kind of compensation for taking on risk.

The equity premium can be expressed by means of a covariance:

$$R_{e,t+1} - R_{f,t+1} = - \frac{cov(M_{t+1}, R_{e,t+1})}{E_t M_{t+1}}$$

Here M_{t+1} is the marginal ~~expected~~ utility, this can be expressed as: $\beta(c_{t+1}/c_t)^{-\gamma}$ in the case of power expected utility. β is the subjective discount factor and (c_{t+1}/c_t) is the growth rate of consumption. γ = rate of risk aversion

$R_{e,t+1}$ = rate of return on equity

$R_{f,t+1}$ = risk free rate

It makes sense that the equity premium can be expressed by means of the covariance: the covariance need to be negative so that the equity premium is positive. This must be the case, because investors need to be compensated for the fact that they get to consume less when they need it the most, and get to consume more only when they need it the least.

The equity premium puzzle: although people don't seem very much risk averse, they are willing to pay alot to avoid risk. Said in another way, people are getting much more awarded for taking on risk than they sacrifice they make in order to take it on.

EPP

The equity premium puzzle is a quantitative problem, because researchers have a hard time explaining why the equity premium is so high.

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We can use the Lucas tree model to find the equity premium on log-form. The purpose of the Lucas tree model is to explain ~~the~~ asset pricing and asset returns in ~~[illegible]~~ a macroeconomic perspective.

In this model, all households owns one tree (which equals equity). Each tree bear fruits (which can be looked at as dividends). All trees bear the same amount of fruit, but the fruit varies stochastically from year to year. Additionally, fruit are not storable. Since all households has the same preferences and owns trees with equal amounts of fruits, there will be no actual trade in equilibrium. However, competition among households will regulate the tree prices such that, in equilibrium, everyone will be happy with holding the amount of trees they start with.

$R_{e,t+1} = R_{f,t+1}$ because there is no one to borrow or lend from (e

Model parameters:

P_t = tree price

C_t = consumption per household

y_t = amount of fruit per household

x_t = gross growth rate

$\hookrightarrow x_{t+1} = \frac{C_{t+1}}{C_t} = \frac{y_{t+1}}{y_t}$

In equilibrium $C_t = y_t$ because fruits are not storable. Additionally, return on equity will be proportional to the growth rate:

$R_{e,t+1} = \frac{P_{t+1} + y_{t+1}}{P_t}$ Conjencture: $P_t = w y_t$

Because of the conjenctore: $R_{e,t+1} = \left(\frac{1+w}{w}\right) x_{t+1}$

This leads to this Euler equation:

$$\left\{ E_t \left(M_{t+1} \left(\frac{1+w}{w} \right) x_{t+1} R_{e,t+1} \right) \right\} = 1$$

~~[illegible]~~ This model end up ~~[illegible]~~ with the following ~~ex~~pected return on equity and expected risk free rate:

$$\ln E_t R_{e,t+1} = -\ln\beta + \delta\mu + \frac{1}{2}(\gamma + (1-\gamma)\delta)\sigma^2$$
$$\ln E_t R_{f,t+1} = -\ln\beta + \delta\mu - \frac{1}{2}(\gamma - (1-\gamma)\delta)\sigma^2$$

Thus, the equity premium can be expressed as follows:

$\ln R_{e,t+1} - \ln R_{f,t+1} = \gamma \sigma^2$

This gives us these insights:
1) For the equity premium to be large the investor needs to be very risk averse or facing great risk
2) The rate of intertemporal elasticity (δ) has nothing to do with the equity premium.

δ = rate of intertemporal elasticity = risk aversion to predicted changes

δ is multiplied by μ (growth rate of consumption/dividends) in the equations for return on equity and risk free rate. Thus, δ explains that the price will be lower in the case where investor really wants to borrow to increase consumption - but they have no one to borrow from.

We can see that the equity premium consists of two components:
1) Risk (measured by σ^2)
2) Risk aversion (measured by γ)

In the attempt to solve the EPP, researchers has made one or both of the following assumptions:
1) Risk aversion is higher than implied by power expected utility or Epstein-Zin preferences
   → Habit formation models
2) Risk is large than implied by Mehra and Prescott
   → Barro's rare disaster model
   → Bansal and Yaron

Let's now take a closer look at the models mentioned above:

<u>The habit formation model</u>

Constantinides implied that preferences are defined over current consumption and some kind of lower floor, called habit level, instead of defining preferences over current

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consumption and ~~past of~~ future consumption.

In the original model, we use C_t for consumption, but in this model C_t is replaced by $(C_t - x_t)$, where x_t is the habit level of consumption.

The model assumes that all households have a habit level they want to maintain. They only derive utility when they get to consume more than the current habit level. The habit level is defined by previous ~~consumption~~ habit levels:

$x_{t+1} = x_t + a(C_t - x_t)$, where $a > 0$

$y_t = C_t - x_t$

The value function can be defined as usual, but the dynamic capital constraint need to be changed - because it ~~exces~~ will be negative infinity if the consumption should fall below the habit level. To make sure this does'nt happen, the households must make sure that they always can consume at at least the current habit level at all times. This can be ensured if the households hold a special portfolio of risk free assets which yields this level as its net return. We define:

$$B_t = \underset{\text{wealth}}{\underset{\downarrow}{A_t}} - \underbrace{x_t / R_f - 1}_{\text{risk-free part of portfolio}}$$

~~We~~ The value function:

$$V_t(B_t) = \max_{y_t, \omega_t} \left\{ (1-\beta)^{1-\delta} + \beta \left(E_t V_{t+1} (B_{t+1})^{1-r} \right)^{\frac{1-\delta}{1-r}} \right\}^{1/1-}$$

Define: $\Omega_t(B_t) = V_t(B_t)^{1-r}$

$$\Omega_t(B_t)^{\frac{1-r}{1-\delta}} = \max_{y_t, \omega_t} \left\{ (1-\beta)^{1-\delta} + \beta \left(E_t \Omega_{t+1} B_{t+1} \right) \right\}$$

We end up with the following expressions for risk aversion and relative risk aversion:

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$$\gamma = -\frac{d^2\Omega_t / dB^2_t}{d\Omega_t / dB_t}$$

$$RRA = -\frac{(d^2\Omega_t / dA^2_t) A_t}{d\Omega_t / dA_t} = \gamma\left(\frac{A_t}{A_t - x_t / R_{f-1}}\right)$$

We see that RRA now exceeds γ, which can explain a larger part of the equity premium. RRA will always be greater than γ, because the households will ~~be~~ behave more risk averse, since they need to maintain a habit level. The maintainance of habit level puts a lid on the households ability to take on market risk — thus, they appear more risk averse than they would have been without the habit restriction.

Barro's rare disaster model

This model takes a closer look at the risk of equity investing. Barro observes that researchers tend to ignore rare, but dramatic disasters when doing ~~research~~ research of investor behaviors — and tend to exclude them from their datasets. Barro thinks this is wrong, because he believes that investors take the prospects of rare disasters into consideration when deciding on risky investments.

Let's look at the growth rate and expectations in normal times compared to times with disasters:

happens with a probability

$0 < b_t < 1$

$(1-p)$ → Normal times: $\ln x_t = \ln g_t$

p → Disaster times: $\ln x_t = \ln g_t + \ln(1-b_t)$

↳ $x_{t+1} = (1-b_t) g_t$

$E(x_t | \text{normal}) = e^{\mu + \sigma^2/2}$

$E(x_t | \text{disaster}) = (1-pEb) Eg + \text{cov}(b_t, g_t)$

this becomes zero, because we assume disaster is stochastically unrelated

$Ex_t = (1-pEb) e^{\mu+\sigma^2/2}$

We then will end up with equity premium in continuous time:

$$r_e - r_f = \gamma\sigma^2 + pEb\left[(1-b_t)^{-\gamma} - 1\right]$$

The first part of the expression equals what we found in the Lucas Tree model.
The last part on the other hand, is Barro's explanation to the equity premium puzzle:

$$pEb\left[(1-b_t)^{-r}-1\right]$$

⇒ A disaster will lead to a larger addition to the equity premium

This is the size of the disaster if the disaster happens. This is positively related to the equity premium.

The term is square brackets is the excess marginal utility of consumption in disaster times over normal times. ~~If a disaster~~ Given a disaster happens: the more discomfort the disaster causes, the larger addition to the equity premium.

Bansal and Yaron on long-term risk

This model uses Epstein-Zin preferenses and a much ~~more~~ richer specification of risk. Bansal and Yarons explantion of the empirically large magnitude of the equity premium is that long-term ~~risk~~ uncertainty about the growth of consumption/dividends yields uncertainty, which in turn makes the equity premium large. Said in another way: they don't believe that risk aversion is extremely high, but that the risk of equity investing is very high - because of the uncertainty when it comes to long-term devolopment of the growth rate of dividends.

They use the following assumption:
- Consumption equals dividends
- Constant variance
- Epstein-Zin preferences

The define the growth rate like this:

$$x_{t+1} = \underbrace{x_t}_{\text{persistent trend}} + \underbrace{\eta_{t+1}}_{\text{temporary}}$$

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The persistent components can be expressed as an AR(1) process:

$$x_t = (1-\rho)x_t + \rho x_{t+1} + \sigma_\varepsilon^2$$

conditional expectations and variance:

$E_t\, x_t = x_t$ } short-term development of the growth rate } short-term uncertainty

$V_t\, x_t = \sigma_\eta^2$

unconditional expectations and variance:

$E x_t = \mu$ } long-term development of the growth rate

$V x_t = \sigma_\eta^2 + \sigma_\varepsilon^2 / (1-\rho^2)$

From this, we can see that the long-term uncertainty will be larger than short-term uncertainty if ρ is close to 1. If this is the case, the long-run development of dividend growth rate will be higher than what can be read off the short-term fluctuations of the asset return.

The rate of return on equity is presented like this:

~~$r_{e,t+1}$ ...~~

$R_{e,t+1} = \frac{P_{t+1}+D_{t+1}}{P_t}$

$\downarrow$

$\ln R_{t+1} = \ln(P_{t+1}+D_{t+1}) - \ln(P_t)$

$$r_{e,t+1} = k_0 + k_1 z_{t+1} - z_t + g_{t+1}$$

$$z_{t+1} = \ln P_{t+1} - \ln D_{t+1}$$

$$g_{t+1} = \Delta D_{t+1}$$

$$r_{e,t+1} = k_0 + k_1 \ln P_{t+1} + (1-k_1)\ln D_{t+1} - \ln P_t$$

Bansal and Yaron makes use of the stochastic discount factor (marginal expected utility)

$$M_{t+1} = (1-\beta)^{(1-\gamma)/(1-\delta)} \left(C_{t+1}/C_t\right)^{-\delta(1-\gamma)/(1-\delta)} R_{p,t+1}^{(\delta-\gamma)/(1-\delta)}$$

$$\ln M_{t+1} = m_{t+1} = \left(\frac{1-\gamma}{1-\delta}\right)\ln\beta + \delta\left(\frac{1-\gamma}{1-\delta}\right) g_{t+1} + \left(\frac{\delta-\gamma}{1-\delta}\right) R_{p,t+1}$$

Euler

$$E_t\left(B_0 + \left(\frac{1-\gamma}{1-\delta}\right)\left(\delta g_{t+1} - R_{p,t+1}\right)\right) = 1$$

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In the end, Bansal and Yaron end up with the following expression for the equity premium:

$$\ln E_t R_{e,t+1} - \ln E_t R_{f,t+1} = \gamma \sigma_\eta^2 + \underbrace{(\gamma - \delta)(1-\delta)\left(\frac{\kappa_1}{1-\rho \kappa_1}\right)^2 \sigma_\varepsilon^2}_{}$$

Effects of news about long term growth of dividends. This, this equals the long-term equity return. ⇐ Thus, we can see that the equity premium will be larger when there is a large uncertainty when it comes to the long-term development of equity returns / growth in dividends.

Risk will be high / large ⇐

Bansal and Yaron states: $\gamma > \delta$. This means that the investor prefer early resolution of uncertainty. This matters because unexpected changes in the long-term development of the ~~rates of~~ growth rate of dividends tend to cast long shadows.

$\delta < 1$: this makes the substitution effect larger than the wealth effect. This means that in the case of higher returns, where the investor could consume more – he/she chooses to invest more to take advantage of the high returns (this is not rational).

(Actually, Bansal and Yaron don't assume that dividends equals consumption. They really assume that dividends reaction is ϕ times higher to persistent shocks compared to consumption. Then $(1-\delta)$ will be replaced by $(\phi - \delta)$ which give f.ex. $\delta < 3$ – which is much more rational.)

Conclusion: the empirically large magnitude of the equity premium can best be described by Bansal and Yarons' solution: that long-run uncertainty when it comes to the development of growth rate in dividends makes equity investing very risky. But, the equity premium puzzle has not an absolute solution ~~so far~~. Even thought, Bansal and Yaron has come up with the best solution so far.

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QUESTION 4 branche = bransje

a) Idosyncratic risk can be diversified away - because its the ~~specific~~ risk for a specific branche in the economy. This risk can be eliminated with buying assets in different branches, so that the downturns in some branches will be covered by a upturn in other branches - who reacts differently to a specific shock.

Idosyncratic risk = branche-spesific risk
↓
investment risk which can be removed with diversification

Aggregate risk is a market risk that is determined by different states in the economy. In GSV this is the risk ~~for~~ the share of successful intermediaries, and the states of the economy is as follows: good, downturn, recession $w \in \{g, d, r\}$ where $\pi_g > \pi_d > \pi_r$

The aggregate risk cannot be diversified away - because it is the risk connected to the whole economy as a whole.

b) Securitization is a term used to describe the process where intermediaries sell their loan assets in form of securities to investors. When selling the loan assets, the intermediaries will have resources to invest on their own, making it possible to expand their offer ~~of~~ investment opportunities for their clients. Resources from securitization can be used to invest ~~[illegible]~~ ~~[illegible]~~ in projects that can give the intermediaries a profit which further raises the amount of projects they can offer to their clients. Securitization is a way of ~~[illegible]~~ ~~[illegible]~~ spreading risk in such way that risk is taken over by others more equipped to carry it.

The intermediaries clients demand riskless investments - which ensures them a "riskless" profit. In order to offer riskless investments

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~~opportuni~~

for the clients, the intermediaries need to spread their risk. This is done by selling loan assets. When selling the loan assets, the intermediaries will get resources which they further can use to invest money. Intermediaries cannot securitize more than they invest, but they need to make sure that ~~they raises enough~~ their investments yield a return high enough to repay investors (who deposits money with the intermediaries - with the promisment of a rate of return of R in return).

The clients demand riskless investments. Intermediaries need to sell loan assets in order to meet this demand. When intermediaries securitize, they will ~~spread~~ sell risk to others better equipped to hold it - which in turn can "pay off". Anyhow, this allocation of risk does that intermediaries can offer more investment opportunities their clients want/demand.

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c) Secoritization is a way of allocating risk to agents who can bear the risk better than the intermediaries themselves.

In a microeconomic perspective, secoritization is a great way to allocate risk in order to ensure the households demand for riskless assets. Macroeconomically, secoritization is also seen as a great way to reduce risk. However, secoritization will only be a good "tool" for reducing risk if all the agents have rational expectations of the probabilities of different states of the economy. If for example, tail risk is ignored, all intermediaries could go bankrupt if secoritization is complete.

are met

Secoritization not only incentives the intermediaries to sell loan assets, it also incentives them to buy loan assets financed by other intermediaries. This could lead to a state where all intermediaries hold eachother's loan assets - which will make them exposed to everyone's risk. In this way, secoritization worsens the systematic risk - and makes the system fragile to misjudgement of the states of the economy - ~~[illegible]~~ which in turn can make the whole system collapse. The system will collapse when all hold the risk of everyone (= ~~[illegible]~~ everyone shares the risk) and a recession-state occurs if they hadn't anticipated it. ~~This means that~~

~~So~~ Although secoritization is a great way of allocating risk, it will also worsen the systematic risk - which in turn will make the system vulnrable to the risk of collapse.

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d) GSV - securitization

Two agents: households and intermediaries. Households ($n=1$) have an endowment of W that they want to invest. They invest indirectly by depositing their endowment with the intermediaries.

Households are infinitely risk averse, they only care about the worst outcome = get the highest return in worst aggregate state

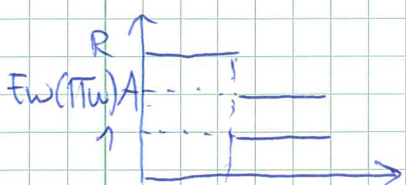
The intermediaries are professional investors who holds an endowment of W_{int}. The intermediaries raise funds by:
1) collect D units of endowment from household with a promise of a return of r in return
2) securitize: sell S_H/S_L units of riskless/risky projects to the price of P_H/P_L

The intermediaries use their equity, W_{int} and the resources raised to invest I_H/I_L units into riskless/risky projects and to buy T_H/T_L units of other intermediaries.

fixed supply
$I_H = 1$

Investment opportunities
- High-quality projects (I_H) → return $= R$
- Low-quality projects (I_L)
  return $\begin{cases} A_{SL} & \text{with a probability } \pi_w \\ 0 & \text{with a probability } (1-\pi_w) \end{cases}$

π_w and $(1-\pi_w)$ can be thought of as the shares of successful and unsuccessfull intermediaries, respectively. Aggregate risk governs the share of successful intermediaries:
$w \in \{g, d, r\}$ $\pi_g > \pi_d > \pi_r$



The cash flow for the intermediaries:

$F = rD + W_{int}$

F: funding; rD: deposits from households; W_{int}: equity

$$H = \underbrace{R(I_H + T_H - S_H)}_{\text{gross rate of return on high-quality investments}} + \underbrace{p_H(S_H - T_H)}_{\text{net return on purchases}}$$

H: Return on high-quality investments

$$L = \underbrace{E_\omega(\pi_\omega)A(I_L - S_L)}_{\text{return on low-quality project with both aggregate and idosyncratic risk}} + \underbrace{E_\omega(\pi_\omega)AS_L}_{\text{projects with only aggregate risk}} + \underbrace{p_L(S_L - T_L)}_{\text{net riskless return of purchase in risky projects}}$$

L: Return on low-quality projects

$$P = \underbrace{I_H + I_L}_{\text{investment}} + \underbrace{rD}_{\text{repayment}}$$

P: outflow

Net expected cash flow:

$$NEC = F + H + L - P$$

The intermediaries maximize this mtp. market risk and these constraints:

(1) FUNDING CONSTRAINT:
$$rD + W_{int} > I_H + I_L + p_H(S_H - T_H) + p_L(S_L - T_L)$$

Funding needs to cover investments and purchases

(2) RISKLESS DEBT CONSTRAINT
$$rD < R(I_H + T_H - S_H) + \pi_r A S_L$$

Need to be able to pay the households what's promised

(3) FEASABILITY CONSTRAINT
$$S_H < I_H \quad S_L < I_L$$

Can't securitize more than they invest

In equilibrium

1) No need to securitize high-quality projects: $S_H = T_H = 0$
2) Intermediaries trade securities only among themselves. Thus, $T_L = S_L$
3) If (2) constraint is binding, the intermediaries need to securitize so that they can meet the demand for riskless deposits from the households
4) If (2) constraint is not binding – no need to securitize, because the demands from households will not be high enough. So, the intermediaries have enough resources to meet the demand ~~of~~ ~~????~~ from households, without the need to sell off loanassets

The intermediaries are risk-neutral, so they don't securitize to reduce risk. They only care about return

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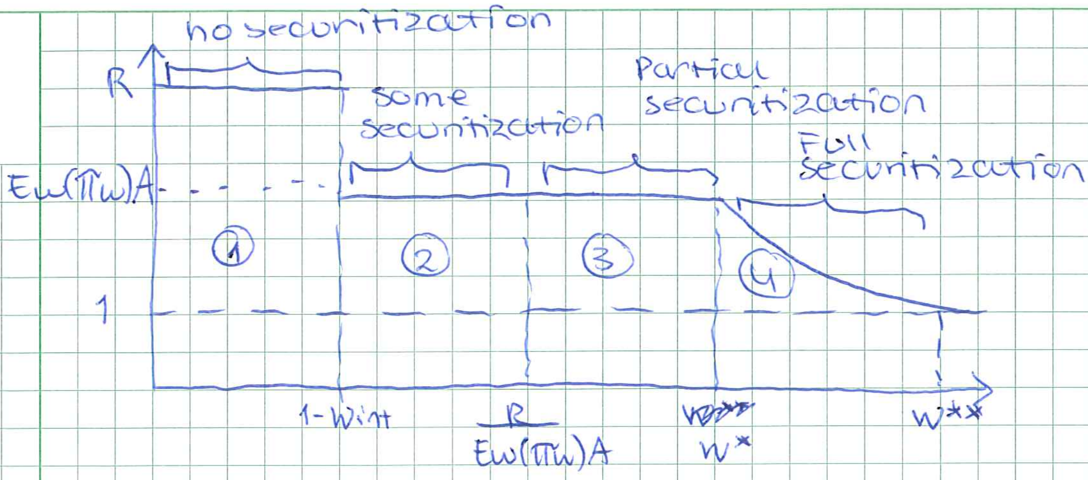

① $w < 1 - W_{int}$

$I_H = 1$

$I_L = 0$

$T_L = S_L = 0$

② $w < R/E_w(\pi_w)A$

$I_H = 1$

$I_L = w - W_{int} - 1$

$T_L = S_L > 0$

③ $w < w^*$

$I_H = 1$

$I_L > 1$

$T_L = S_L > 0$

④ ~~if~~ $w = w^*$

$I_H = 1$

$I_L = S_L = T_L = 1$

From this, we can see that if the demand of riskless investments from the households are large enough, the intermediaries would have to securitize all = full securitization. Full securitization makes the economic system fragile.

The pay-offs for the various agents

1) Households are promised to get:

$$rD = rW = \underbrace{RI_H}_{\text{return on safe projects}} + \underbrace{\pi_r A S_L}_{\text{return on risky, securitiezed projects}}$$

⇒ The household will get their promised payments

2) successfull intermediaries get:

~~[illegible]~~

$A(I_H - S_H) + (\pi_w - \pi_r) A S_L$

⇒ successfull intermediaries will make profit even in the worst aggregate state. While unsuccessful intermediarie are not so lucky in the worst aggregate state

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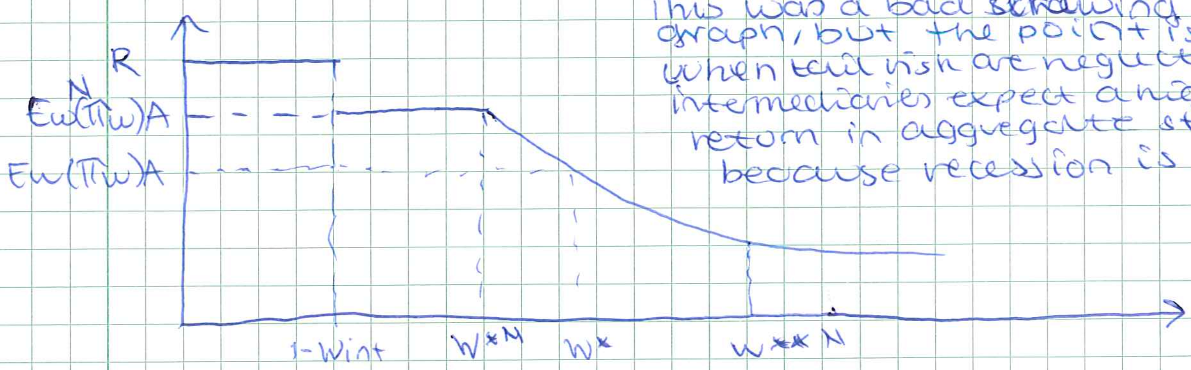
3) unsuccessful intermediaries
$(\Pi_w - \Pi_r)AS_L$

⇒ Unsuccessful intermediaries will only make profit in good and downturn, and break-even in recession

Let's look at the pay-offs when tail-risk are ignored. This means that the intermediaries don't consider the recession-state possible ~~to~~ happend, which in turn gives ~~them~~ them higher expectations:

$I_H^N > I_H \qquad r^N > r \qquad S_L^N > S_L$

They will thus securitize at a lower level of endowments:



This was a bad ~~drawing~~ drawing of the graph, but the point is: when tail risk are neglected, the intermediaries expect a higher return in aggregate states, because recession is ignored.

$W^{*N} < W^*$ start securitization at a lower level

~~W^{**N}~~

1) Households are promised to get $r^N D^N = R I_H^N + \Pi_d S_L^N$ but this is no longer guaranteed

2) successful intermediaries
$A(I_H^N - S_H^N) + \underbrace{(\Pi_w - \Pi_d)AS_L^N}_{\text{will be negative}}$ if $w=r$ and zero if $w=d$

will equal zero if securitization is complete

⇒ will go bankrupt if $I_H^N / S_H^N < 1 - \Pi_w - \Pi_d$

3) unsuccessful intermediaries
$(\Pi_w - \Pi_d)AS_L^N$

⇒ This will be positive if $w=g$, zero if $w=d$ and negative if $w=r$

⇒ If tail risk is ignored, all intermediaries could go bankrupt at the same time

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Svanemerket trykksak fra Skipnes Kommunikasjon Lisensnr. 241 731

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