preference discount rate pins down the risk-free rate r. Less productive households can also buy physical capital. At a price of $\underline{q} \equiv \underline{a}/(r+\underline{\delta})$ the households would be willing to buy physical capital even if they have to hold the capital forever. This provides a lower bound for q. Even for higher prices households are willing to hold capital since they speculate hoping that they can sell it back at a higher price after the economy recovers. Formally, the expected return from holding capital for them is $a/q_t - \underline{\delta} + \mu_t^q + \sigma\sigma_t^q$, which has to equal the risk-free rate r for states in which households hold physical capital.

Experts' optimization problem is more complicated. They have to decide, how much capital k_t to purchase on the market for capital goods at a price q_t, how much to invest $\iota_t k_t$ (i.e. at what rate to convert consumption goods into capital goods) and how much debt and outside equity to issue and when to consume dc_t.

Determining the optimal investment rate is a static problem of maximizing $k_t q_t \Phi(\iota_t) - k_t \iota_t$ in each period and is simply given by marginal Tobin's q,

$$q_t = 1/\Phi'(\iota_t).$$

Unlike in KM97, in BruSan10 experts can also issue equity up to a limit. Specifically, experts have to hold a fraction $\varphi_t \geq \tilde{\varphi}$ of capital risk ("skin in the game constraint"), but can unload the rest to less productive households through equity issuance. Note that equity can only be contracted upon the value $k_t q_t$ (and not on efficiency units k_t).[11] In equilibrium, experts always find it optimal to sell off as much risk as possible by issuing equity up to the limit $\tilde{\varphi}$.

In addition they raise funds by issuing debt claims. In contrast to KM97, experts in BruSan10 do not face any exogenous debt constraint. They decide endogenously how much debt to issue. Overall, they face the following tradeoff: greater leverage leads to both higher profit and greater risk. Even though experts are risk-neutral, they exhibit risk-averse behavior (in aggregate) because their investment opportunities are time-varying. Taking on greater risk leads experts to suffer greater losses exactly in the events when they value funds the most – after negative shocks when the price q_t becomes depressed and profitable opportunities arise. That is the marginal value of an extra dollar for experts θ_t – the slope of their linear value function – negatively comoves with their wealth n_t. The negative comovement between θ_t and n_t leads to precautionary behavior by experts. It turns out that they are never at the constraint in equilibrium. Indeed, in the basline model of BruSan10 without jumps, experts reduce

[11]See DeMarzo and Sannikov (2006) for a related continuous time principle agent problem.