



Figure 1. Inventories of a firm with a three-stage production process. At date 3, the firm has three vintages of inventories, and older vintages have higher value reflecting greater inputs in the past.

reap efficiency gains in production versus the greater financing costs entailed in carrying larger current assets on the balance sheet.

There is, however, a twist to the time accounting of current assets, which makes the impact of the time dimension of production more potent than meets the eye. Consider Figure 1 which depicts the inventories of a firm with a three-stage production process. The firm undertakes the first production stage at date 1, sends the intermediate good to stage 2 in date 2. At date 3, the firm has three vintages of inventories. The oldest inventory (3 periods old) has the highest value reflecting greater inputs in the past. If the unit value of the inventory is of the same order as its age, then the total stock of inventories carried by the firm is increasing at the rate of the *square* of the length of its production chain. Thus, the time accounting of working capital is highly sensitive to the length of the chain, necessitating much greater incremental financing needs as production chains become longer. As such, financial conditions will impact the firm's corporate finance decisions more sensitively in periods when firms use long production chains.

Inventory investment is known to be highly procyclical, and accounts for a large proportion of the change in GDP over the business cycle. In their survey for the Handbook of Macroeconomics, Ramey and West (1999) show that over the nine post-war recessions in the United States up to 1991, the