

economy. We assume  $L$  is large relative to  $n$ , so that the economy consists of a large number of production chains.

Within each production chain, there is a downstream firm, labeled as firm 1, that sells the final output. The other firms produce intermediate inputs in the production of the final good. Firm  $n$  supplies its output to firm  $n - 1$ , who in turn supplies output to  $n - 2$ , and so on. Each step of the production process takes one unit of time, where time is indexed by  $t \in \{0, 1, 2, \dots\}$ .

Although each step of the production process is identified with a firm, this is for narrative purposes only. Our model is silent on where the boundary of the firm lies along the chain. Some of the consecutive production stages could lie within the same firm, while some consecutive stages could be in different firms. If the production chain lies within the firm, claims on intermediate goods will show up on a firm's balance sheet as inventories. If the production chain lies across firms, then they show up as accounts receivable. What matters for us is the *aggregate* financing need, rather than the allocation of financing into inventories and accounts receivable.

The wage rate is  $w$  per period and wage cost cannot be deferred and must be paid immediately. Labor is provided inelastically, so that total labor supply is fixed at  $L$ . There is no physical capital. The cashflow to the chain is given in the table below.

		Firms					cumulative
		1	2	$\dots$	$n - 1$	$n$	cashflow
date $t$	1					$-w$	$-w$
	2				$-w$	$-w$	$-3w$
	$\vdots$			$\dots$	$-w$	$-w$	$\vdots$
	$n - 1$		$-w$	$\dots$	$-w$	$-w$	$\vdots$
	$n$	$-w$	$-w$	$\dots$	$-w$	$-w$	$-\frac{1}{2}n(n + 1)w$
	$n + 1$	$y(n) - w$	$-w$	$\dots$	$-w$	$-w$	
	$\vdots$	$\vdots$	$\vdots$		$\vdots$	$\vdots$	