

Entrepreneurial Financing



Financial Modeling

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Lecture 6

ENT 632

Entrepreneurial Financing



- a) Identify the three main financial statements and how they are linked.
- b) Explain the notion of statement integration, beginning with an overview of the cash conversion process.
- c) Identify how working capital policy choices act in an integrated fashion to affect cash needs.
- d) Describe several standard sources of information and demonstrate their use for developing forecast assumptions.

Introduction

- Once a revenue forecast is completed, it can be used as a baseline for developing **pro forma financial statements**.
- Ultimately, we are concerned with forecasting cash flows from operations.
- **Operating cash flow is a key factor in determining a venture's financing needs.**
- Cash flow available to investors is central to valuation.
- To project cash flows, we **first forecast** the income statement and balance sheet and then use those statements (and period-to-period changes in the statements) to develop the pro forma statement of cash flows.
- **For a new venture, we confront the same issue here as we did in forecasting revenue:** that of estimating income statement and balance sheet relationships for a company that has no operating history.
- Here again, it is useful to rely on data from comparable public and/or private companies.
- However, the yardsticks and dimensions of comparability that are most useful for projecting income statement and balance sheet relationships **are not** necessarily those that are most useful for projecting revenue.

Our main objective in this chapter is to illustrate how to build and integrate financial statements into a model that can be used in cash needs assessment and valuation.

- There are **two** aspects to this;
 - 1) the first is developing the assumptions that drive the financial model, and
 - 2) the second is the process of building and integrating the financial statements, including the interactions among them.

Introduction

- If the financial statements in a model are properly integrated, the full impact of changing any assumption will be reflected automatically and consistently in all of the statements and all of the forecast periods.
- This makes it easier to perform sensitivity analysis and is necessary for incorporating uncertainty with simulation.
- We begin with an overview of the three main financial statements and how they are linked.
- With this background, we develop the notion of statement integration, beginning with an overview of the cash conversion process.
- Next, we provide an example of how working capital policy choices act in an integrated fashion to affect cash needs.
- We then describe several standard sources of information and demonstrate their use for developing forecast assumptions.

1. An Overview Of Financial Statements

- **Pro forma financial statements** used for business forecasting of a new venture can be simple, but they require enough detail to capture the important activities of the enterprise.
- They are focused on the assumptions and financial statement items most important to the venture.
- The model *for a new gaming software venture* might incorporate development time and cost of bringing a viable product to market.
- *For a coffee retailer*, cost of goods sold and inventory may be the most important factors to model carefully.
- **The first step in building an integrated model is to identify the critical assumptions.**
- This list determines the accounts and line items that need to be incorporated into the model.
- **In an integrated model, changes to any assumption will immediately update all three financial statements**—the income statement, balance sheet, and cash flow statement—through the formulas and links in the spreadsheet.
- The **Income statement** (also called a profit and loss [**P&L**] statement or statement of operations) describes revenues and expenses over a period of time, such as a quarter or a fiscal year.
- It answers the question of whether the business is profitable.
- The **balance sheet** (also called the statement of financial position) presents a picture at a point in time of what the firm owns (assets), how much it owes (liabilities), and what is left for shareholders (equity, owner's equity, or net worth).
- Once we have created the pro forma income statement and balance sheet, the **cash flow statement** is a simple derivation.

The Income Statement

- For the income statement, a general form sufficient for many purposes is shown in Table 8.1.
- The line items in the pro forma income statement depend on the type of business.
- In this simplified statement, **cost of goods sold (COGS)** includes the costs of raw materials and expenses associated with manufacturing the product.
- **A retailer or wholesaler** would show COGS as the acquisition cost of the products they resell.
- **For a service company**, COGS is the labor and machinery cost associated with providing the service.
- **Operating expenses** are other expenses related to the productive activities of the venture.
- These can include selling, general, and administrative (SG&A) expenses, R&D, overhead expenses, lease expenses, depreciation expenses, and similar items.
- Sometimes it is useful to include more detail on specific operating expenses that are central to success, especially if their inclusion makes forecasting easier, more reliable, and more convincing.
- In particular, **noncash expenses**, such as depreciation, are useful to break out because explicit listing can facilitate construction of the cash flow statement.

The Income Statement (*Cont.*)

- Earnings before interest, taxes, and noncash expenses like depreciation and amortization (**EBITDA**) is not generally separately reported in the income statement.
- **EBITDA** is a measure of the short-run cash flow that would be available for such things as debt service, taxes, and new investment.
- **Depreciation and amortization expenses** depend on asset investment decisions that were made in earlier periods and are reflected in the balance sheet.
- **Operating profit (EBIT)** is a core measure of performance, as it is calculated before interest and tax expenses, two items that are usually outside the control of operating managers.
- For a business that is in steady state, it is also a measure of cash flow available to all investors and for taxes.

The income Statement (*cont.*)

- The next deduction, **interest expense**, is a result of the financing decision that is reflected in the balance sheet.
- Sometimes, in developing the pro forma forecast, it is convenient to build the model so that surplus cash is assumed to be retained in the venture.
- If so, it is appropriate to assume that the surplus cash is invested to earn a risk-free rate of interest and is reported as interest income.
- Income tax expense is determined by the profitability of the venture and prevailing tax rules.
- When developing the pro forma income statement, it is important to consider the impact of fixed and variable costs.
- **Fixed expenses** will not change with increases or decreases in revenue (over some range), which introduces the concept of operating leverage.
- **Operating leverage** describes the relationship between percentage revenue growth and percentage profitability growth.
- **Firms with a larger proportion of fixed expenses have higher operating leverage and will see profits increase (decrease) faster as revenue goes up (down).**
- However, overly simplistic classification of expenses as either fixed or variable can yield incorrect results.
- It is a good idea to study actual expense levels of businesses of different sizes.
- You may find that your intuition about fixed and variable expenses is not supported by the evidence.
- Few expenses are truly fixed, and others may vary more than proportionately with revenue.
- Consequently, assuming that variable expenses will change in proportion to revenue and that fixed expenses will not change at all can overstate the profit potential associated with revenue growth.

TABLE 8.1 Income statement (year ended 12/31/2018)

Revenue
– <u>Cost of goods sold (COGS)</u>
Gross profit
– <u>Operating expenses (cash)</u>
Earnings before interest, taxes, and noncash expenses (EBITDA)
– <u>Operating expenses (noncash)</u>
Operating profit (EBIT)
– <u>Interest expense (net of any interest income)</u>
Earnings before tax (EBT)
– <u>Income tax</u>
Net income (NI)

NOTE: *Operating expenses includes both cash and noncash expenses like depreciation and amortization. Normally, these are not reported separately. They are separated here to show the distinction between EBIT and EBITDA.*

Balance Sheet

- The balance sheet depicts the venture's financial position at a point in time, such as at the end of a fiscal year.
- **The left side** reports what the company owns—its assets.
- **The right side** reflects how the ownership is financed—liabilities and equity.
- In the modeling, it will be more convenient for us to stack the balance sheet information vertically—assets first, then liabilities, then equity.
- This will enable us to keep all of the accounting numbers for a given period in a single spreadsheet column.
- A general form of a balance sheet sufficient for many purposes is shown in Table 8.2.
- **Asset accounts** are presented in order of declining liquidity, starting with cash.
- **Accounts receivable (AR)** and **inventory** are both current assets and components of working capital.
- The **fixed asset account** represents the **property, plant, and equipment (PP&E)** of the venture and is the basis for computing depreciation expense on the income statement.
- **For a capital-intensive manufacturing business, PP&E might be the largest balance sheet line item.**

Balance Sheet (cont.)

- **Liabilities**, or what the firm owes, are ordered by the closest date of maturity.
- Current liabilities, such as accounts payable (AP) and wages payable, are considered working capital items and are tied to the venture's day-to-day operations.
- **Other liabilities** are incurred by raising debt capital (notes payable, long-term debt).
- Many technology ventures receive annual payments for services they are expected to deliver in the future over time, giving rise to a deferred revenue account, which is another current liability.
- **Explicit borrowing or leasing** can also create a current liability such as a note payable or the current portion of long-term debt.
- An important distinction is that liabilities that arise from financing activities usually carry explicit interest payments while other working capital liabilities usually do not.
- Long-term debt and other funded debt such as notes payable drive the interest expense calculation in the income statement.
- **For many entrepreneurial firms, long-term debt may consist of debt that is convertible to equity.**

Balance Sheet (cont.)

- **Equity** represents the shareholders' position and is made up of two or three main components.
- **Entrepreneurial ventures often issue preferred stock to early investors, which stock is convertible to common under certain conditions.**
- **Preferred stock plus common stock** is the cumulative amount investors paid for the venture's stock when it was sold by the company.
- The other component of equity is **retained earnings**; the retained earnings balance is the accumulated profit (or loss) of the venture from its inception to the date of the balance sheet, less any dividends the firm has paid.
- The retained earnings account **does not** indicate money available to shareholders.
- Over any given period, retained earnings will increase by the net income for the period and be reduced by dividends paid to shareholders.
- The result of the income statement is **net income**, or the "bottom line."

TABLE 8.2 Balance sheet (year ended 12/31/2018)

Assets	Liabilities and Equity
Current assets	Current liabilities
Cash and cash equivalents	Accounts payable (AP)
Accounts receivable (AR)	Wages payable
Inventory	Deferred revenue
Other current assets	Notes payable
Total current assets	Other current liabilities
	Total current liabilities
Fixed assets (PP&E)	Equity
Gross fixed assets	Preferred stock
Less: accumulated depreciation	Common stock
Net fixed assets	Retained earnings
Intangible assets	Total equity
Total assets	Total liabilities and equity

NOTE: Other current liabilities include current portion of long-term debt and capital leases. Long-term debt includes debt convertible to equity.

Cash Flow Statement

- Net income is not cash flow.
- To determine financing needs and as a basis for valuation, we need to calculate **cash flow**.
- The cash flow statement connects the income statement and balance sheet changes but also takes account of noncash expenses, new investments, and new financing transactions.
- We use the “indirect” method to prepare the pro forma cash flow statement.
- This approach is mechanically straightforward and requires only the income statement and the beginning and ending balance sheets for the period.
- A general format for the cash flow statement is shown in Table 8.3.
- The cash flow statement is organized into three categories:
 - operating cash flow,
 - investing cash flow, and
 - financing cash flow.

Cash Flow Statement (*cont.*)

- The entry “(Increase) decrease” denotes whether the change in the balance sheet account represents a negative or positive cash flow.
- Increases in noncash assets like A/R and investments in fixed assets are uses of cash (**outflows**), while decreases are sources of cash (**inflows**).
- For liabilities and equity, increases are sources of cash, while decreases are uses.
- For example, because inventory must be purchased, an increase in inventory is a use of cash. Analogously, when subscriptions are paid in advance, an increase in deferred revenue is a source of cash.
- The total of operating cash flow, investing cash flow, and financing cash flow is net cash flow for the period.
- In forecasting, adding net cash flow to the beginning cash balance tells us how much cash (or cash and equivalents) the firm is expected to have on hand at period end.

TABLE 8.3 Cash flow statement (year ended 12/31/2018)

Net income	}	Operating cash flow
+ Depreciation and amortization		
+ (Increase) decrease in AR		
+ (Increase) decrease in inventory		
+ Increase (decrease) in AP, wages payable, etc.		
+ Increase (decrease) in deferred revenue	}	Investing cash flow
Operating cash flow		
+ Proceeds from sale of fixed assets		
- Gross investments in fixed assets	}	Financing cash flow
Cash flow from operations and investing		
+ Increase (decrease) in notes payable		
+ Increase (decrease) in long-term debt		
+ Increase (decrease) in common stock		
- Dividends paid		
Net cash flow		
+ Beginning cash and cash equivalents		
Ending cash and cash equivalents		

NOTE: Free cash flow (FCF) is a non-GAAP financial performance measure, calculated as operating cash flow minus capital expenditures. FCF represents the cash that a company is able to generate from operations after making investments required to maintain or expand its asset base. If FCF is negative, the company must obtain additional financing to pursue desired investments. If FCF is positive, funds can be used to redeem debt early or can be distributed to equity investors.

2. Working Capital, Growth, and Financial Needs

- To introduce the concept of financial statement integration, we begin with how the working capital policies of a growing venture affect its financial needs.
- The most important components of working capital usually are **inventory** (raw materials and finished goods), A/R, A/P, and cash.
- Normally, because of the cash flow cycle, a relationship exists between sales and the levels of the various working capital accounts.
- **A business that sells from inventory must have enough on hand to fill orders as they arrive.**
- Because timing of demand is not perfectly predictable and there is often an inventory “pipeline,” the business normally will carry enough inventory to supply expected demand for several days, weeks, or even months.

8.2 Working Capital, Growth, And Financial Needs (*cont.*)

- **Purchases of inventory**, either finished goods for resale or raw materials, are often made on credit in the form of A/P.
- Purchasing on credit reduces the need for cash, since payment is deferred.
- Conversely, if the business **sells on credit**, the balance of A/R will be driven by the terms it offers to credit customers, the extent of credit sales, and how quickly receivables are collected.
- **Offering customers**, the option to delay payment requires additional cash; the business is deferring collection of payment but has already incurred the cost of goods.
- **Offering credit** also means facing the reality of customer defaults.
- Some working capital transactions generate financing that is referred to as “**spontaneous**” in the sense that it arises naturally through the normal business practices of the venture.

- Since its inception, Amazon.com, has taken advantage of the unique working capital characteristics inherent in its business model.
- At year end 2000, when Amazon was still focused on book distribution, its A/R balance was equivalent to 3.9 days of sales and its inventory was equivalent to 30.3 days of cost of goods sold.
- The company's combined investment in those two accounts was \$204.2 million, which had to be financed in some way.
- Amazon was also taking advantage of the long payment terms that normally are offered by book publishers.
- These terms were originally offered to encourage brick-and-mortar book sellers to stock large and diverse inventories for customers to peruse and were an industry convention long before Amazon .com existed.
- At the end of 2000, Amazon's A/P balance stood at 84.1 days of cost of sales, or \$485.4 million.
- This was far more than was needed to finance the A/R and inventory balances.
- The contribution of these accounts to net working capital was negative \$281.2 million.
- This negative contribution to net working capital functions as spontaneous financing that Amazon could use to fund its operations.

8.2 Working Capital, Growth, and Financial Needs (*cont.*)

- **Spontaneous financing** is financing that comes about through the ongoing operations and growth of the firm and supplants the need for formally raising cash flows through explicit financing activities.
- We can define the level of **spontaneous financing** as the excess of current nonfinancial liabilities over current nonfinancial assets other than the level of cash required for operating the enterprise.
- **Many highly successful ventures have, like Amazon, relied heavily on spontaneous financing.**
- For example, at the time of its IPO, salesforce.com had nonfinancial current liabilities totaling \$73.3 million and noncash current assets totaling \$14.0 million, resulting in spontaneous financing of \$59.4 million.
- The main contributor to this total was \$52.3 million in deferred revenue.
- Salesforce is a customer relationship management (CRM) cloud-based platform that offers subscription-based applications for sales, service, and marketing.
- These prepaid subscriptions are a current liability—deferred revenue—and hence are a source of funds similarly to A/P. Other examples of companies with important deferred revenue include Zendesk, Dropbox, and Box.
- The extent of spontaneous financing can be affected in deliberate ways by changing working capital practices.
- A business can deliberately change its reliance on accounts and wages payable as financing sources by changing the rate at which it pays for its inventory and wages.
- In a competitive industry, however, normal practices are guided by competitive pressure, and it can be difficult to gain a sustainable advantage by manipulating working capital practices.

Working Capital Financing

Net working capital is the difference between the sum of the current asset categories of working capital and the spontaneous current liabilities.

- If the balance is **positive** (current assets exceed current liabilities), the difference constitutes a net investment in working capital and the resulting cash deficit must be financed in some way.
- If the balance is **negative**, as in the salesforce.com example, then not only are the firm's operations self-financing but they also generate cash that is available to finance other investments or cover other expenses.
- **For most businesses, however, the net working capital balance is positive and additional financing is required.**
- **The larger and faster the firm grows, the more financing it requires for net working capital.**

Working Capital Policy

- A company's working capital position is the result of several policy choices.
- Some are easily recognizable as aspects of working capital policy, whereas others are not.
- Furthermore, as we explain, the effects of individual policy choices are interdependent in ways that are not emphasized in the figure.

Pricing Policy.

- Pricing policy is a generic descriptor of decisions related to product positioning, pricing, and marketing. Collectively, these decisions determine the expected sales volume.
- We emphasize pricing in the figure because the effective price (along with quantity of sales) is influenced by credit policy.
- If, for example, a venture sells on terms that include a discount for prompt payment, then the price used in the calculation should be the average expected price net of anticipated trade discounts and collection losses.
- With cash sales, the price is not discounted and there is no risk that a buyer will default.
- On the other hand, the quantity of sales is likely to be higher if the venture offers credit.

Credit Policy.

- Given that **credit policy** influences the effective average price and quantity of sales, how does a business establish an appropriate policy? Because selling on credit gives rise to A/R, Figure 8.1 suggests that a policy of selling only on cash terms would reduce the amount required to finance net working capital.
- But since selling only for cash could result in lower sales, simply minimizing the need for financing is usually not consistent with maximizing value.
- It could make sense to evaluate the effect of some alternative credit policies on profitability and value:**
 - If you were to sell only for cash, what would be the likely effect on sales?
 - If you were to accept credit cards, how much would unit sales be expected to increase and what would be the expected effect on average net price?
 - Credit card sales are quickly converted to cash, so the A/R period would be very short.
 - The credit provider also discounts the payments to the vendor as a fee for providing credit.
- As a practical matter, **new and small businesses often have limited ability to determine their own credit policies.**
- Smaller and less well-established businesses are more likely than others to offer terms that include delayed payment.**
- Customers may demand opportunities to verify the quality of the seller's product before they pay.
- Also, although trade credit terms vary greatly across industries, they tend to be similar within an industry.
- Thus, in an industry where offering credit is common, a new or small business generally must offer terms consistent with the general practice.
- In an industry where cash payment is common, a new or small business still may find it important to offer credit as a means of initially attracting customers and signaling product quality.

Purchasing and inventory policies.

- **Purchasing policy** relates to choices that affect cost of materials.
- Choices of materials and negotiations with suppliers affect the cost of materials per unit produced.
- **Inventory policy** relates to the average number of days of inventory the business seeks to maintain in raw materials and in finished goods.
- **Inventory policy** affects average cost of goods indirectly, because maintaining a large average inventory may enable the business to take advantage of purchase quantity discounts.
- This benefit is offset by the costs of holding inventory, including storage, spoilage, and obsolescence.
- Purchasing and inventory policies interact with sales quantity to determine the cost of goods and represent another link between the balance sheet and income statement.

Payables Policy.

- Payables policy **concerns the ability to defer payment for materials as a means of financing.**
- Vendors generally require cash payment, especially for a new business with no track record of paying suppliers or offer credit terms either with or without a discount for prompt payment.
- Normally, a purchaser would choose to delay payment, provided that doing so did not affect the effective price. The policy decision is whether to take advantage of discounts for prompt payment.
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- Doing so reduces the effective cost of materials, as suggested by the feedback loop in Figure 8.1, but also reduces the A/P balance, giving rise to a need for additional financing.
- Often, discounts for prompt payment are large enough that a business with access to other sources of financing would routinely choose to pay in time to get the discount.

Wage and Payroll Policies.

- **Wage policy** relates to decisions such as whether to offer a higher wage rate to motivate employees and limit turnover or pay a lower wage.
- Depending on the importance of experience on the job, motivation, availability of new employees, and similar considerations, average labor cost per unit of sales could be lower by either approach.
- The average labor and materials costs per unit of finished goods make up the direct cost of a unit.
- These costs interact with finished goods inventory policy to determine the value of finished goods inventory, which appears on the balance sheet.
- **Payroll policy** relates to the frequency and timing of payroll, relative to the timing of the actual work done by the employees.
- The balance of wages payable as a source of spontaneous financing is increased by paying in arrears and paying less frequently (e.g., biweekly instead of weekly).
- **Payroll policy affects wages indirectly.**
- Wage payments that are substantially in arrears may necessitate higher wage rates.
- Wage and payroll policies interact with sales quantity to determine the balance of wages payable.

Evaluating Working Capital Policy Choices

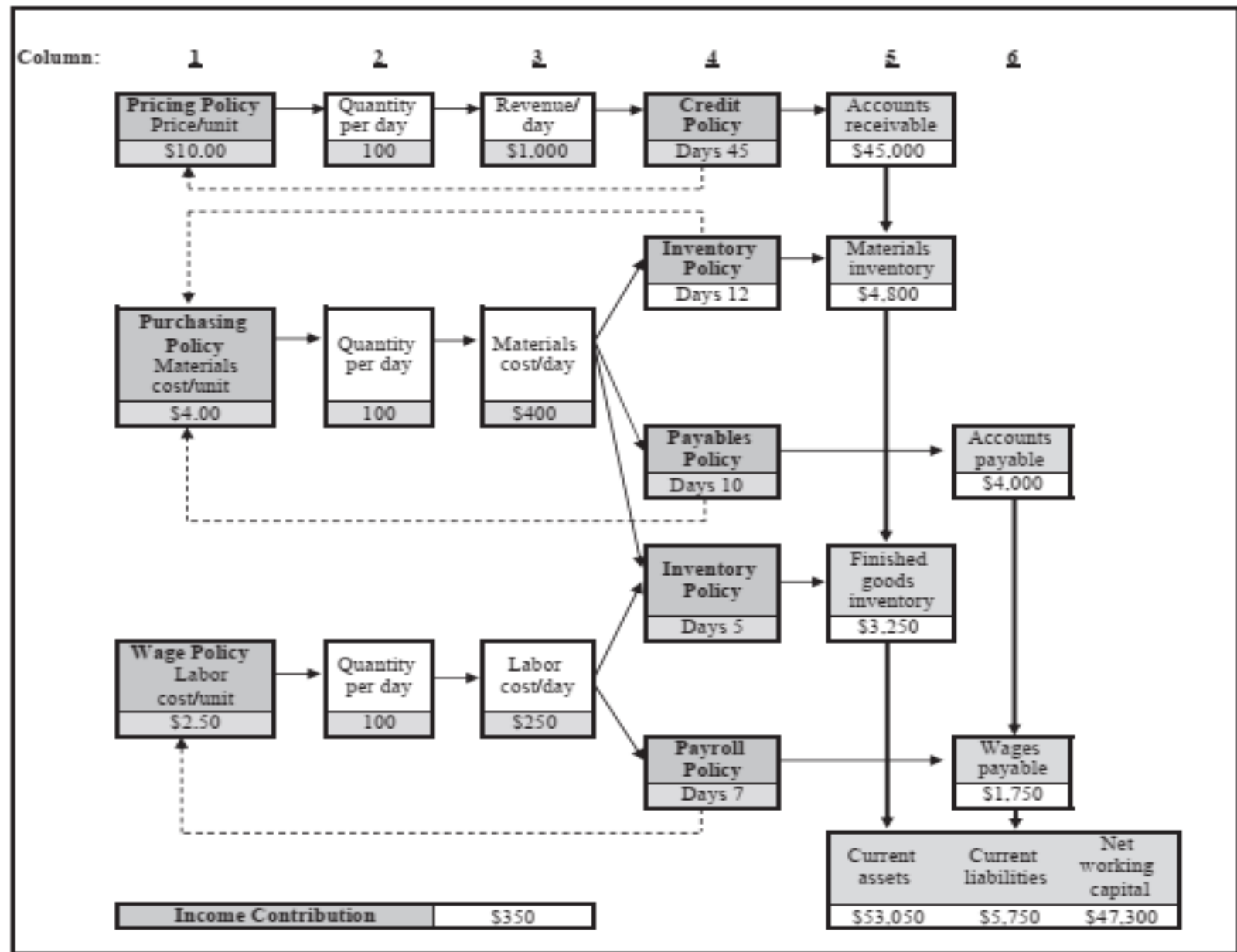
- For many ventures, the need for working capital places a significant demand on cash.
- **It is important to understand the working capital needs and to factor them into the pro forma financials and estimates of financial needs.**
- As shown in Figure 8.1, the elements of working capital policy are interrelated and impact many aspects of venture operations, making even small changes important.
- **Working capital policy choices can be evaluated in the same way as any other investment or financing decision.**
- A policy change that increases net working capital requires additional investment.
- Assuming that the change is expected to be permanent, Figure 8.1 can be used to determine the daily increase in profitability from the change.
- Annualizing the daily increase and dividing by the increase in net working capital is effectively an internal rate of return that can be compared to a reasonable estimate of cost of capital to assess the merits of the possible policy change.
- *For example, a change that increases profit per day by \$5 will increase it by \$1,825 per year (in perpetuity or as long as the policy remains in place).*
- *If the change would increase net working capital by \$20,000, the annual return on that additional investment would be 9.125%.*

Evaluating working capital policy choices (*cont.*)

- Conversely, a **reduction in net working capital is effectively a financing choice since it reduces the necessary investment to support the level of working capital.**
- If the action would reduce accounting profitability per day, that reduction can be annualized and compared to cost of capital to evaluate whether the change would be beneficial based on economic profit.
- If the cost of the reduction is below cost of capital, the change **is effectively a low-cost financing action.**
- **Working capital is only one example of why the integration of income statement, balance sheet, and cash flows is important.**
- Other important interdependencies are related to fixed assets and depreciation and to debt financing and interest and debt service.

FIGURE 8.1**Working capital policy template**

This figure is a template for assessing the impact of working capital policies on financial needs. It can be used to examine how working capital policies interact to determine the balances of current asset and current liability accounts. Net working capital is the excess of current assets over current liabilities and represents a funding need (or source) for the venture.



Summary

- Pro forma financial statements are important to any new venture and a key component in any entrepreneur's or investor's toolkit.
- Financial forecasting adds discipline to the way an entrepreneur or investor thinks about the venture.
- It provides estimates of future cash flows, which drive financing decisions and are important determinants of value.
- A forecast can also be important for convincing prospective investors of the merits of the project and can provide specific performance benchmarks around which financing and incentive contracts can be designed.
- **A well-constructed integrated financial model of a new venture accomplishes two things:**
 - *First*, it reflects the important aspects of the venture's business model in the three main financial statements: income statement, balance sheet, and cash flow statement.
 - *Second*, it provides reliable estimates of the venture's future cash flows.
- We use the venture's cash conversion cycle to better understand the important links between day-to-day operations and cash flow. The cash conversion cycle visually portrays how cash moves through the firm, as well as in and out of the firm from and to capital providers. Working capital policies are important determinants of a venture's operating cash flows. These include the granting of credit to customers, levels of inventory on hand, and the ability to generate spontaneous financing in the form of A/P.

- Preparing a credible and useful financial model requires well-researched and defensible assumptions.
- Yardsticks based on public or private companies and industry statistics can be used to develop benchmark performance metrics and to build the new venture's financial model.
- Public SEC documents, primarily 10-K and prospectus filings, are one source of information on comparable firms.
- The yardstick approach is straightforward to implement and can provide robust estimates of revenue growth, resource requirements, and industry practices related to working capital management.
- No new venture will perform exactly like the yardstick companies, however, and financial projections should also reflect the use of fundamental analysis to develop the schedule of assumptions.
- An integrated financial model might use assumptions developed using yardstick data and then validated with fundamental analysis or the converse.
- With a schedule of the key assumptions, spreadsheet modeling can be used to develop an integrated financial model for preparing pro forma financial forecasts.
- An integrated model features an income statement, a balance sheet, and a cash flow statement, all linked to one another and across time.
- An integrated financial model allows the entrepreneur or investor to conduct “what if” analysis and facilitates the use of simulation to assess the effects of uncertainty.
- Both scenario analysis and simulation analysis are valuable tools for assessing the prospects and potential future value of any new venture.



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