

## Frameworks for Valuation

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In Part One, we built a conceptual framework to show what drives the creation of value. A company's value stems from its ability to earn a healthy return on invested capital (ROIC) and its ability to grow. Healthy rates of return and growth produce high cash flows, the ultimate source of value.

Part Two offers a step-by-step guide for analyzing and valuing a company in practice, including technical details for properly measuring and interpreting the drivers of value. Among the many ways to value a company (see Exhibit 8.1 for an overview), we focus particularly on two: enterprise discounted cash flow (DCF) and discounted economic profit. When applied correctly, both valuation methods yield the same results; however, each model has certain benefits in practice. Enterprise DCF remains a favorite of practitioners and academics because it relies solely on the flow of cash in and out of the company, rather than on accounting-based earnings. The discounted economic-profit valuation model can be quite insightful because of its close link to economic theory and competitive strategy. Economic profit highlights whether a company is earning its cost of capital and quantifies the amount of value created each year. Given that the two methods yield identical results and have different but complementary benefits, we recommend creating *both* enterprise DCF and economic-profit models when valuing a company.

Both the enterprise DCF and economic-profit models discount future cash flow streams at the weighted average cost of capital (WACC). WACC-based models work best when a company maintains a relatively stable debt-to-value ratio. If a company's debt-to-value ratio is expected to change, WACC-based models can still yield accurate results but are more difficult to apply. In such cases, we recommend an alternative to WACC-based models: adjusted present value (APV). APV discounts the same cash flows as the enterprise DCF model, but uses the unlevered cost of equity as the discount rate (without the tax benefit of debt). It then separately values the cash flow tax benefits of debt and adds them to determine the total enterprise value. When done properly, the APV model results in the same value as the enterprise DCF value.

EXHIBIT 8.1 Frameworks for DCF-Based Valuation

Model	Measure	Discount factor	Assessment
Enterprise discounted cash flow	Free cash flow	Weighted average cost of capital	Works best for projects, business units, and companies that manage their capital structure to a target level.
Discounted economic profit	Economic profit	Weighted average cost of capital	Explicitly highlights when a company creates value.
Adjusted present value	Free cash flow	Unlevered cost of equity	Highlights changing capital structure more easily than WACC-based models.
Capital cash flow	Capital cash flow	Unlevered cost of equity	Compresses free cash flow and the interest tax shield in one number, making it difficult to compare operating performance among companies and over time.
Equity cash flow	Cash flow to equity	Levered cost of equity	Difficult to implement correctly because capital structure is embedded within the cash flow. Best used when valuing financial institutions.

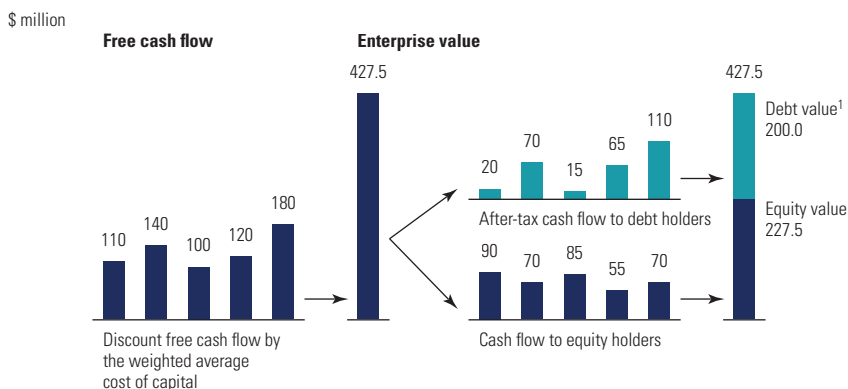
The chapter also includes a discussion of capital cash flow and equity cash flow valuation models. Properly implemented, these models will yield the same results as enterprise DCF. Given that they mix together operating performance and capital structure in cash flow, however, implementation errors can occur more easily. For this reason, we avoid capital cash flow and equity cash flow valuation models, except when valuing banks and other financial institutions, where capital structure is an inextricable part of operations (for how to value banks, see Chapter 34).

## ENTERPRISE DISCOUNTED CASH FLOW MODEL

The enterprise DCF model discounts free cash flow, meaning the cash flow available to all investors—equity holders, debt holders, and any other nonequity investors—at the weighted average cost of capital, meaning the blended cost of capital for all investor capital. The debt and other nonequity claims on cash flow are subtracted from enterprise value to determine equity value.<sup>1</sup> Equity valuation models, in contrast, value directly the equity holders' cash flows. Exhibit 8.2 demonstrates the relationship between enterprise value and equity value. For this company, equity holders' value can be calculated

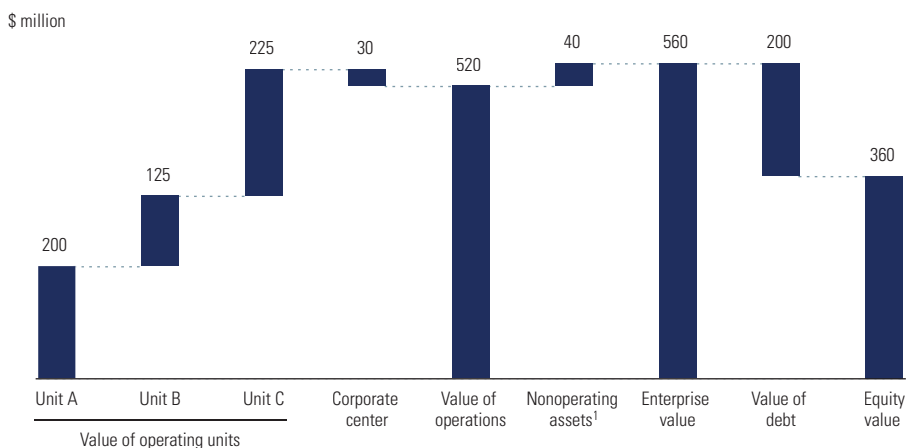
<sup>1</sup>Throughout this chapter, we refer to debt and other nonequity claims. Other nonequity claims arise when stakeholders have a claim against the company's future cash flow but do not hold traditional interest-bearing debt or common equity. Nonequity claims include debt equivalents (e.g., operating leases and unfunded pension liabilities) and hybrid securities (e.g., convertible debt and employee options).

EXHIBIT 8.2 Enterprise Valuation of a Single-Business Company



<sup>1</sup> Debt value equals discounted after-tax cash flow to debt holders plus the present value of interest tax shield.

EXHIBIT 8.3 Enterprise Valuation of a Multibusiness Company



<sup>1</sup> Including excess cash and marketable securities.

either directly at \$227.5 million or by estimating enterprise value (\$427.5 million) and subtracting debt (\$200.0 million).

The enterprise DCF method is especially useful when applied to a multibusiness company. As shown in Exhibit 8.3, the enterprise value equals the summed value of the individual operating units less the present value of the corporate-center costs, plus the value of nonoperating assets.<sup>2</sup> You can use the

<sup>2</sup> Many investment professionals define enterprise value as interest-bearing debt plus the market value of equity minus excess cash, whereas we define enterprise value as the value of operations plus nonoperating assets. The investment professional's definition of enterprise value more closely resembles our

enterprise DCF model to value individual projects, business units, and even the entire company with a consistent methodology.

Valuing a company's equity using enterprise DCF is a four-part process:

1. Value the company's operations by discounting free cash flow at the weighted average cost of capital.
2. Identify and value nonoperating assets, such as excess cash and marketable securities, nonconsolidated subsidiaries, and other assets not included in free cash flow. Summing the value of operations and nonoperating assets gives gross enterprise value.
3. Identify and value all debt and other nonequity claims against the enterprise value. Debt and other nonequity claims include fixed-rate and floating-rate debt, debt equivalents such as unfunded pension liabilities and restructuring provisions, employee options, preferred stock, and others that are discussed in Chapter 14.
4. Subtract the value of debt and other nonequity claims from enterprise value to determine the value of common equity. To estimate value per share, divide equity value by the number of current shares outstanding.

Exhibit 8.4 presents the results of an enterprise DCF valuation for United Parcel Service (UPS), the global delivery company. UPS is used throughout the chapter to compare valuation methods. We start by discounting each year's projected free cash flow by the company's weighted average cost of capital.<sup>3</sup> Next, sum the present values of all the annual cash flows to determine the present value of operations. For simplicity, the first year's projected cash flow is discounted by one full year, the second by two full years, and so on. Since cash flows are generated throughout the year, however, and not as a lump sum, discounting in full-year increments sets the discount factor too low. Therefore, adjust the present value upward by half a year.<sup>4</sup> The resulting value of operations for UPS is \$117.8 billion.

To this value, add nonoperating assets of \$4.3 billion (excess cash and other nonoperating assets) to estimate gross enterprise value of \$122.1 billion. To determine equity value, subtract the value of debt and other nonequity claims. UPS has \$10.9 billion in traditional debt, \$5.0 billion in after-tax unfunded pension obligations, \$5.8 billion in capitalized operating leases, and a small

definition of the value of operations for companies without other nonoperating assets (e.g., nonconsolidated subsidiaries) and debt equivalents (e.g., unfunded pension liabilities).

<sup>3</sup>To generate identical results across valuation methods, we have not adjusted figures for rounding error. Rounding errors occur in most exhibits.

<sup>4</sup>A half-year adjustment is made to the present value for UPS because we assume cash flow is generated symmetrically around the midyear point. For companies dependent on year-end holidays, cash flows will be more heavily weighted toward the latter half of the year. In this case, the adjustment should be smaller. For UPS, fourth-quarter revenues are only 10 percent higher than other quarters, so we use a half-year adjustment.

EXHIBIT 8.4 UPS: Enterprise DCF Valuation

Forecast year	Free cash flow (FCF), \$ million	Discount factor, @ 8.0%	Present value of FCF, \$ million
2014	3,472	0.926	3,215
2015	4,108	0.857	3,522
2016	4,507	0.794	3,579
2017	4,892	0.735	3,596
2018	5,339	0.681	3,634
2019	5,748	0.630	3,623
2020	6,194	0.584	3,615
2021	6,678	0.541	3,609
2022	7,086	0.501	3,547
2023	7,523	0.463	3,486
Continuing value	168,231	0.463	77,967
Present value of cash flow			113,395
Midyear adjustment factor			1.039
Value of operations			117,840
Value of excess cash			4,136
Value of investments			148
Enterprise value			122,124
Less: Value of debt			(10,872)
Less: Value of after-tax unfunded retirement obligations			(5,042)
Less: Value of capitalized operating leases			(5,841)
Less: Value of noncontrolling interest			(14)
Equity value			100,355
Millions of shares outstanding (December 2013)			923
Equity value per share (\$)			109

amount of noncontrolling interests.<sup>5</sup> Divide the resulting equity value of \$100.4 billion by the number of shares outstanding (923 million) to estimate a per-share value of \$109. During the middle part of 2014, when we performed this valuation, UPS's stock traded between \$95 and \$105 per share, well within a reasonable range of the DCF valuation (reasonable changes in forecast assumptions or WACC estimates can easily move a company's value by up to 15 percent).

Although this chapter presents the enterprise DCF valuation sequentially, valuation is an iterative process. To value operations, first reorganize the company's financial statements to separate operating items from nonoperating items and capital structure. Then analyze the company's historical performance; define and project free cash flow over the short, medium, and long

<sup>5</sup>A noncontrolling interest arises when an outside investor owns a minority share of a subsidiary. Since this outside investor has a partial claim on cash flows, the claim's value must be deducted from enterprise value to compute equity value.

run; and discount the projected free cash flows at the weighted average cost of capital.

### Valuing Operations

The value of operations equals the discounted value of future free cash flow. Free cash flow equals the cash flow generated by the company's operations, less any reinvestment back into the business. As defined at the beginning of this section, free cash flow is the cash flow available to all investors—equity holders, debt holders, and any other nonequity investors—so it is independent of capital structure. Consistent with this definition, free cash flow must be discounted using the weighted average cost of capital, because the WACC represents rates of return required by the company's debt and equity holders blended together. It is the company's opportunity cost of funds.

**Reorganizing the financial statements** A robust valuation model requires a clear account of financial performance. Although ROIC and free cash flow (FCF) are critical to the valuation process, they cannot be computed directly from a company's reported financial statements, which mix operating performance, nonoperating performance, and capital structure. Therefore, to calculate ROIC and FCF, first reorganize the accounting financial statements into new statements that separate operating items, nonoperating items, and capital structure.

This reorganization leads to two new terms: invested capital and net operating profit less adjusted taxes (NOPLAT). Invested capital represents the investor capital required to fund operations, without distinguishing how the capital is financed. NOPLAT represents the total after-tax operating income generated by the company's invested capital, available to all investors.

Exhibit 8.5 presents the historical NOPLAT and invested capital for UPS and one of its direct competitors, FedEx. To calculate ROIC, divide NOPLAT by average invested capital. In 2013, UPS's return on invested capital equaled 16.9 percent (based on a two-year average of invested capital), double its weighted average cost of capital of 8.0 percent.<sup>6</sup>

Next, use the reorganized financial statements to calculate free cash flow, which will be the basis for our valuation. Defined in a manner consistent with ROIC, free cash flow is derived directly from NOPLAT and the change in invested capital. Unlike the accounting statement of cash flows (provided in the company's annual report), free cash flow is independent of nonoperating items and capital structure.

Exhibit 8.6 presents historical free cash flow for both UPS and FedEx. As seen in the exhibit, UPS generated \$3.9 billion in free cash flow in 2013,

<sup>6</sup>Chapter 9 details why it is important to measure ROIC both with and without goodwill and acquired intangibles.

EXHIBIT 8.5 UPS and FedEx: Historical ROIC Analysis

\$ million

	UPS			FedEx		
	2011	2012	2013	2011	2012	2013
Revenues	53,105	54,127	55,438	42,680	44,287	45,567
Compensation and benefits <sup>1</sup>	(26,908)	(27,581)	(28,941)	(16,133)	(16,547)	(16,688)
Purchased transportation	(7,232)	(7,354)	(7,486)	(6,335)	(7,272)	(8,011)
Fuel	(4,046)	(4,090)	(4,027)	(4,956)	(4,746)	(4,557)
Depreciation	(1,554)	(1,614)	(1,682)	(2,095)	(2,359)	(2,564)
Amortization, capitalized software	(206)	(216)	(165)	–	–	–
Other expenses <sup>2</sup>	(6,151)	(6,147)	(6,164)	(8,751)	(9,109)	(9,300)
Operating EBITA	7,008	7,125	6,973	4,410	4,254	4,447
Operating cash taxes	(2,155)	(2,238)	(2,289)	(725)	(1,297)	(1,540)
NOPLAT	4,853	4,887	4,684	3,685	2,957	2,907
Invested capital						
Operating working capital	2,119	1,719	1,648	1,577	1,211	1,853
Property, plant, and equipment, net	17,621	17,894	17,961	17,248	18,484	19,550
Capitalized operating leases	5,684	5,428	5,841	20,688	22,195	23,427
Intangible assets, capitalized software	388	415	523	–	–	–
Other operating assets, net of liabilities	(1,060)	(948)	(984)	(705)	(903)	(1,031)
Invested capital (excluding goodwill) <sup>3</sup>	24,752	24,508	24,989	38,808	40,987	43,799
Goodwill and acquired intangibles, less tax gross-up	2,225	2,295	2,349	2,408	2,800	2,826
Cumulative amortization and impairment	636	655	667	2,026	2,043	2,057
Invested capital (including goodwill) <sup>3</sup>	27,614	27,458	28,004	43,242	45,830	48,682
Return on invested capital, %						
ROIC excluding goodwill (average) <sup>3</sup>	19.9	19.8	18.9	9.8	7.4	6.9
ROIC including goodwill (average) <sup>3</sup>	17.8	17.7	16.9	8.8	6.6	6.2

<sup>1</sup> Compensation and benefits, excluding severance, other restructuring charges, and pension adjustments.

<sup>2</sup> Other expenses, excluding gains (losses) on asset sales, operating lease interest, and deferred gains on sale/leaseback transactions.

<sup>3</sup> Goodwill includes goodwill and acquired intangibles, cumulative amortization and impairments, less tax gross-up related to amortization.

versus close to zero free cash flow for FedEx, which reinvested a much greater percentage of its profits back into the business.

**Analyzing historical performance** Once the company’s financial statements are reorganized, analyze the company’s historical financial performance. By thoroughly analyzing the past, we can understand whether the company has created value, how fast it has grown, and how it compares with its competitors. A good analysis will focus on the key drivers of value: return on invested capital, revenue growth, and free cash flow. Understanding how these drivers behaved in the past will help you make more reliable estimates of future cash flow.

Exhibit 8.7 presents a 10-year summary of UPS’s pretax operating margin and its components, a critical driver of return on invested capital. This analysis points to a number of trends, including a slight decline in compensation

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EXHIBIT 8.6 **UPS and FedEx: Free Cash Flow Calculation**

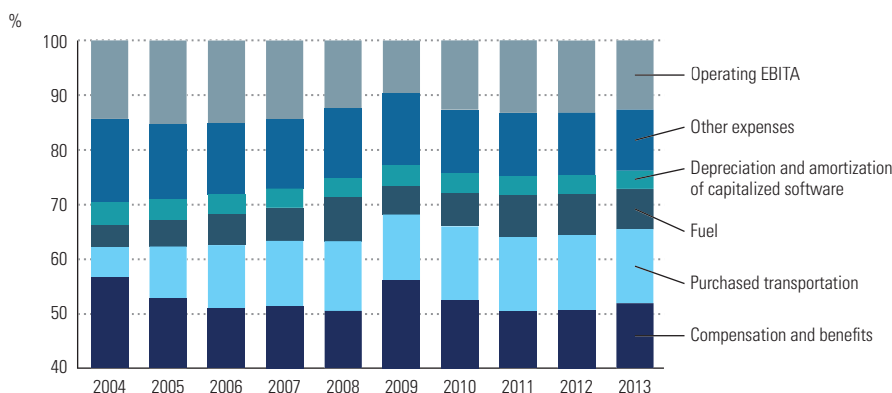
	UPS			FedEx		
	2011	2012	2013	2011	2012	2013
\$ million						
NOPLAT	4,853	4,887	4,684	3,685	2,957	2,907
Depreciation	1,554	1,614	1,682	2,095	2,359	2,564
Amortization of capitalized software	206	216	165	—	—	—
Gross cash flow	6,613	6,717	6,531	5,780	5,316	5,471
Decrease (increase) in operating working capital	92	401	71	(308)	366	(643)
Capital expenditures, net of disposals	(1,788)	(1,887)	(1,749)	(3,800)	(3,595)	(3,630)
Investments in capitalized operating leases	(39)	255	(412)	(694)	(1,507)	(1,232)
Investments in capitalized software	(229)	(243)	(273)	—	—	—
Investments in goodwill and acquired intangibles	(11)	(88)	(66)	(70)	(409)	(40)
Decrease (increase) in other operating assets, net of liabilities	(470)	(112)	36	(12)	1,981	28
Foreign-currency translation	(92)	294	(260)	(95)	41	(25)
Gross investment	(2,538)	(1,380)	(2,654)	(4,979)	(4,906)	(5,441)
Free cash flow	4,075	5,337	3,877	802	409	30
Nonoperating income (expenses)	357	(387)	301	382	(16)	484
Decrease (increase) in excess cash	(129)	(3,629)	2,698	(447)	(2,042)	2,035
Decrease (increase) in other nonoperating assets	458	271	53	—	—	—
Nonoperating cash flow	686	(3,745)	3,052	(65)	(2,058)	2,519
Cash flow available to investors	4,761	1,592	6,930	737	(1,649)	2,548
<b>Reconciliation of cash flow available to investors</b>						
Interest expense	348	393	380	52	82	160
Operating lease interest expense	272	233	264	1,126	1,017	1,132
Decrease (increase) in debt	(282)	(1,742)	1,998	18	(1,323)	(1,747)
Decrease (increase) in capitalized operating leases	(39)	255	(412)	(694)	(1,507)	(1,232)
Pension and postretirement benefits, net cash out (in) <sup>1</sup>	187	(479)	(811)	113	59	(109)
Flows to debt holders	486	(1,339)	1,419	615	(1,672)	(1,796)
Cash dividends	2,086	2,243	2,367	164	176	187
Repurchased (issued) shares	2,194	695	3,078	(42)	(153)	4,157
Decrease (increase) in noncontrolling interests	(5)	(7)	66	—	—	—
Flows to equity holders	4,275	2,931	5,511	122	23	4,344
Cash flow available to investors	4,761	1,592	6,930	737	(1,649)	2,548

<sup>1</sup> Change in pension and postretirement benefits is detailed in Exhibit 8.16.

and benefits (as a percentage of revenue), higher purchased transportation, and nearly double the fuel costs. In aggregate, these trends led to a lower operating margin, which has recently stabilized near 13 percent. Similar to many transportation-related companies, UPS reported lower compensation and benefits during the mid-2000s, but the majority of the decline occurred during the acquisition of Menlo Worldwide Forwarding and Overnight, making a clean like-to-like comparison challenging. Purchased transportation has increased as UPS relies on third-party carriers to transport its packages outside the United



EXHIBIT 8.7 UPS: Operating Margin Analysis



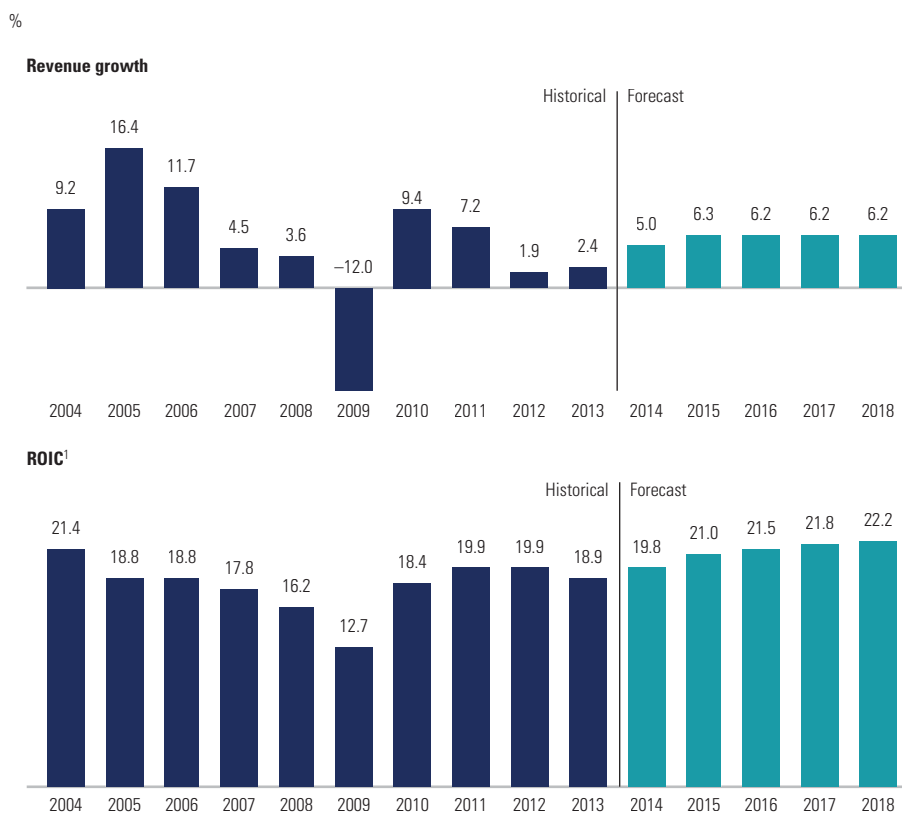
States. Finally, fuel costs increased as a percentage of sales over the decade, as UPS was unable to pass the rise in oil prices to its customers.

**Projecting revenue growth, ROIC, and free cash flow** The next task in building an enterprise DCF valuation is to project revenue growth, return on invested capital, and free cash flow. Exhibit 8.8 graphs historical and projected revenue growth and ROIC for UPS, using analyst forecasts as the basis for projections. As the graphs demonstrate, the company’s revenue growth dropped to the low single digits during 2012 and 2013 as the company’s international shipping business stalled. As international growth rates return to historical levels, the analyst community believes growth will rise slightly and stabilize near 5 percent. The analyst community also predicts a continuation of margin expansion, reflecting a general trend upward from the lows experienced during the financial crisis of 2008.

Projections for revenue, margin, and invested capital lead to a corresponding projection of free cash flow. Exhibit 8.9 shows a summarized free-cash-flow calculation for UPS.<sup>7</sup> Note how the projection of cash flow is lower than historical levels. In 2012, UPS generated higher-than-usual cash flow as it drew down working capital and relied on fewer leased assets. The company also used a smaller proportion of property, plant, and equipment (as a percentage of sales). Going forward, we hold the percentage constant, leading to higher capital expenditures, and consequently lower free cash flow.

<sup>7</sup>Free cash flow does not incorporate any financing-related cash flows such as interest expense or dividends. A good stress test for an enterprise valuation model is to change future interest rates or dividend payout ratios and observe free cash flow. Free-cash-flow forecasts should not change when you adjust the cost of debt or dividend policy.

EXHIBIT 8.8 UPS: Projected Revenue Growth and ROIC



<sup>1</sup> ROIC measured using two-year average invested capital excluding goodwill and acquired intangibles.

When building the forecast model, use judgment on how much detail to forecast at various points. Over the short run (the first few years), forecast each financial-statement line item, such as gross margin, selling expenses, accounts receivable, and inventory (see Chapter 11 for detail on how to forecast cash flows). This will allow you to capture visible trends in individual line items. Moving further out, individual line items become difficult to project, and a high level of detail can obscure the critical value drivers. Therefore, over the medium horizon (five to 10 years), focus on the company's key value drivers, such as operating margin, the operating tax rate, and capital efficiency. At some point, projecting even key drivers on a year-by-year basis becomes meaningless. To value cash flows beyond this point, use a continuing-value formula, often called the terminal value. Choosing an appropriate point of transition depends on the company and how it is changing over time. A company in predictable transition may require a long, detailed window, whereas a stable, mature company may require very little detail in your forecasts.

EXHIBIT 8.9 UPS: Projected Free Cash Flow

\$ million

	Historical			Forecast		
	2011	2012	2013	2014	2015	2016
NOPLAT	4,853	4,887	4,684	5,099	5,773	6,256
Depreciation	1,554	1,614	1,682	1,688	1,773	1,884
Amortization of capitalized software	206	216	165	208	218	232
Gross cash flow	6,613	6,717	6,531	6,995	7,764	8,372
Decrease (increase) in operating working capital	92	401	71	(82)	(109)	(113)
Capital expenditures, net of disposals	(1,788)	(1,887)	(1,749)	(2,586)	(2,958)	(3,121)
Investments in capitalized operating leases	(39)	255	(412)	(670)	(402)	(430)
Investments in capitalized software	(229)	(243)	(273)	(234)	(253)	(268)
Investments in goodwill and acquired intangibles	(11)	(88)	(66)	–	–	–
Decrease (increase) in other operating assets, net of liabilities	(470)	(112)	36	49	65	68
Foreign-currency translation	(92)	294	(260)	–	–	–
Gross investment	(2,538)	(1,380)	(2,654)	(3,523)	(3,656)	(3,865)
Free cash flow	4,075	5,337	3,877	3,472	4,108	4,507

**Estimating continuing value** At the point where predicting the individual key value drivers on a year-by-year basis becomes impractical, do not vary the individual drivers over time. Instead, use a perpetuity-based continuing value, such that:

$$\text{Value of Operations} = \frac{\text{PV of Free Cash Flow during Explicit Forecast Period}}{\text{WACC}} + \frac{\text{PV of Free Cash Flow after Explicit Forecast Period}}{\text{WACC}}$$

Although many continuing-value models exist, we prefer the key value driver formula presented in Chapter 2. The key value driver formula is superior to alternative methodologies because it is based on cash flow and links cash flow directly to growth and ROIC. The key value driver formula is expressed as follows:

$$\text{Continuing Value}_t = \frac{\text{NOPLAT}_{t+1} \left(1 - \frac{g}{\text{RONIC}}\right)}{\text{WACC} - g}$$

The formula requires a forecast of net operating profit less adjusted taxes (NOPLAT) in the year *following* the end of the explicit forecast period, the long-run forecast for return on new invested capital (RONIC), the weighted average cost of capital (WACC), and long-run growth (*g*) in NOPLAT.

Exhibit 8.10 presents an estimate for UPS’s continuing value. Based on a final-year estimate of NOPLAT (\$9.7 billion), return on new investment (22.4 percent), and a long-term growth rate of 3.0 percent, the continuing value is estimated at \$168.2 billion. This value is then discounted into today’s dollars and added to the value from the explicit forecast period to determine

## EXHIBIT 8.10 UPS: Continuing Value

\$ million

**Key inputs<sup>1</sup>**

Projected NOPLAT in 2024	9,700
NOPLAT growth rate in perpetuity ( $g$ )	3.0%
Return on new invested capital (RONIC)	22.4%
Weighted average cost of capital (WACC)	8.0%

$$\begin{aligned} \text{Continuing value}_t &= \frac{\text{NOPLAT}_{t+1} \left( 1 - \frac{g}{\text{RONIC}} \right)}{\text{WACC} - g} \\ &= 168,231 \end{aligned}$$

<sup>1</sup> Rounded inputs calculate to \$168,018 million, whereas this model uses unrounded data.

UPS's operating value. (Exhibit 8.4 discounts continuing value in 2023 back to 2014.)

Alternative methods and additional details for estimating continuing value are provided in Chapter 12.

**Discounting free cash flow at the weighted average cost of capital** To determine the present value of operations, discount each year's forecast of free cash flow for time and risk. When discounting any set of cash flows, make sure to define the cash flows and discount factor consistently. In an enterprise valuation, free cash flows are available to all investors. Consequently, the discount factor for free cash flow must represent the risk faced by all investors. The weighted average cost of capital (WACC) blends the rates of return required by debt holders ( $k_d$ ) and equity holders ( $k_e$ ). For a company financed solely with debt and equity, the WACC is defined as follows:

$$\text{WACC} = \frac{D}{D + E} k_d (1 - T_m) + \frac{E}{D + E} k_e$$

where debt ( $D$ ) and equity ( $E$ ) are measured using market values. Note how the cost of debt has been reduced by the marginal tax rate ( $T_m$ ). The reason for doing this is that the tax shield attributable to interest has been excluded from free cash flow. Since the interest tax shield (ITS) has value, it must be incorporated in the valuation. Enterprise DCF values the tax shield by reducing the weighted average cost of capital.

Why move interest tax shields from free cash flow to the cost of capital? By calculating free cash flow as if the company were financed entirely with equity, one can compare operating performance across companies and over time without regard to capital structure. By focusing solely on operations, it is possible to develop a clearer picture of historical performance, and this leads to better performance measurement and forecasting.

Although applying the weighted average cost of capital is intuitive and relatively straightforward, it has some drawbacks. If you discount all future cash flows with a constant cost of capital, as most analysts do, you are implicitly assuming the company keeps its capital structure constant at a target ratio of

EXHIBIT 8.11 UPS: Weighted Average Cost of Capital

%					
Source of capital	Proportion of total capital	Cost of capital	Marginal tax rate	After-tax cost of capital	Contribution to weighted average
Debt	15.0	4.9	37.1	3.1	0.5
Equity	85.0	8.9		8.9	7.5
WACC	100.0				8.0

debt to equity. But if a company plans, say, to increase its debt-to-value ratio, the current cost of capital will understate the expected tax shields. The WACC can be adjusted to accommodate a changing capital structure. However, the process is complicated, and in these situations, we recommend an alternative method such as adjusted present value (APV).

The weighted average cost of capital for UPS is presented in Exhibit 8.11. UPS's 8.0 percent WACC is based on a cost of equity of 8.9 percent, pretax cost of debt of 4.9 percent, and a 15 percent/85 percent split between debt and equity.

### Identifying and Valuing Nonoperating Assets

Many companies own assets that have value but whose cash flows are not part of the operations of the business and are not included in accounting revenue or operating profit. As a result, the cash generated by these assets is not part of free cash flow and must be valued separately.

For example, consider equity investments, known outside the United States as nonconsolidated subsidiaries. When a company owns a small minority stake in another company, it will not record the company's revenue or costs as part of its own. Instead, the company will record only its proportion of the other company's net income as a separate line item.<sup>8</sup> Including net income from nonconsolidated subsidiaries as part of the parent's operating profit will distort margins, since only the subsidiaries' profit is recognized and not the corresponding revenues. Consequently, nonconsolidated subsidiaries are best analyzed and valued separately. Other nonoperating assets include excess cash, tradable securities, and customer-financing business units. A detailed process for identifying and valuing nonoperating assets appears in Chapter 14.

<sup>8</sup>For stakes between 20 percent and 50 percent, the parent company will recognize its proportion of the subsidiary's income. A parent that owns less than a 20 percent stake in another company records only dividends paid as part of its own income. This makes valuation of stakes less than 20 percent extremely challenging.