

## Case 3 Valuing Facebook



The initial public offering of 15% of the equity of Facebook, Inc. on May 18 was one of the few events that pierced the overall gloom of the financial markets during the spring of 2012. With over 900 million members at the time of its IPO, Facebook was the most successful of the Web 2.0 start-ups.<sup>1</sup> It was widely recognized for having pioneered a social revolution. It was also seen to offer one of the greatest business opportunities of the 21st century as it sought to monetize its vast treasure trove of information on its huge base of users and their social interactions.

The lead up to Facebook's IPO was accompanied by a fervent debate as to what Facebook was worth. In its revised prospectus, Facebook indicated that its "initial public offering price will be between \$28 and \$35 per share." On May 15, just three days before trading in Facebook shares was to begin on the NASDAQ, the issuing price for the shares was raised to between \$34 and \$38. Was Facebook a "once in a lifetime opportunity"<sup>2</sup> or was it "muppet bait"?<sup>3</sup>

### Valuation Methodologies

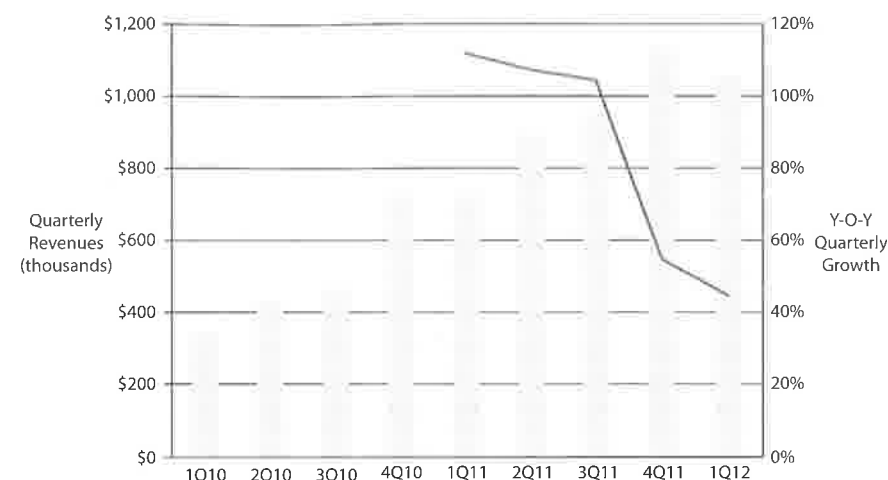
Attempts to value Facebook followed one of two major approaches: the use of comparables and discounted cash flow (DCF) estimates. Facebook used both these approaches in assessing the value of its shares.

### Valuations Based on Comparables

The simplest and most widely used means of valuing the equity of an unlisted company is to use "comparables." This involves, first, identifying publicly traded companies that are similar to the unlisted company; second, calculating valuation ratios for these public companies; and, third, applying these valuation ratios to the earnings, revenues, or net assets of the unlisted company. Facebook described this approach as the "Guideline Public Company Method," or "GPCM."

GPCM assumes that businesses operating in the same industry will share similar characteristics and that the subject business's value will correlate to those characteristics. Therefore, a comparison of the subject business to similar businesses whose financial information and public market value are available may provide a reasonable basis to estimate the subject business's value. The GPCM provides an estimate of value using multiples derived from the stock prices of publicly traded companies. In selecting guideline public companies for this analysis, we focused primarily on

**FIGURE 1** Facebook's quarterly revenues and growth rate of revenues



**Source:** Derived from Facebook, Inc. Amendment No. 5 to Form S1 Registration Statement, US Securities and Exchange Commission, Washington, D.C. 20549, May 3, 2012

quantitative considerations, such as financial performance and other quantifiable data, as well as qualitative considerations, such as industry and economic drivers.<sup>4</sup>

Most estimates of Facebook's market value were based upon applying to Facebook's projected earnings the same price earnings (P/E) ratios that the stock market use to value other rapidly growing technology and e-commerce companies. Henry Blodget of the online magazine *Business Insider* compared Facebook with tech giants Google and Apple on the basis of price/earnings ratios. On projected 2013 earnings per share for Facebook, which ranged from \$0.40 to \$1, a launch price of \$38 would imply a P/E ratio of between 38 and 95; by comparison, Google's 2013 P/E ratio was 12 and Apple's 10.

So, what factors might justify a higher P/E for Facebook than for Google or Apple? The obvious one was superior earnings growth. The key problem here, noted Blodget, was that Facebook's revenue growth was slowing (Figure 1). The effect on Facebook's earnings would be reinforced by the difficulty in maintaining its 50% operating margin: "Facebook's next 2 billion users will be a lot less valuable monetarily than the first 1 billion. The world's richest people are already on Facebook. And those are the people advertisers want to reach," noted Blodget. Taking these factors into account and assuming 2013 earnings per share of \$0.80, Blodget suggested that "a fair price for Facebook might be between \$16-\$24."<sup>5</sup>

SeekingAlpha also compared P/E ratios and growth rates of earnings per share. The results are shown in Table 1.

Looking ahead to 2013, SeekingAlpha came up with almost identical forward-looking P/E ratios as Henry Blodget. The difference was the inclusion of LinkedIn: it had a P/E ratio (based on estimated 2013 earnings) of 83—a significant premium over Facebook.

SeekingAlpha also compared the companies' cash per share (from the pro forma balance sheet) and operating cash flow per share (Table 2).

SeekingAlpha concluded by noting: "Facebook is much cheaper than LinkedIn, its closest peer, and yet its growth, both historical and projected, is slower than that of LinkedIn. The company is more expensive than either Apple or Google, yet went

**TABLE 1** Facebook and its peers: Earnings per share

| Company  | Trailing P/E ratio | Earnings per share |         |          |          |          |                       |
|----------|--------------------|--------------------|---------|----------|----------|----------|-----------------------|
|          |                    | 2011               | 2010    | 2009     | 2008     | 2007     | CAGR <sup>a</sup> (%) |
| Facebook | 89 <sup>b</sup>    | \$0.46             | \$0.28  | \$0.10   | (\$0.06) | (\$0.16) | 66.31 <sup>c</sup>    |
| LinkedIn | 660                | \$0.11             | \$0.07  | (\$0.10) | (\$0.11) | \$0.00   | 105.13 <sup>d</sup>   |
| Google   | 18                 | \$29.76            | \$26.31 | \$20.41  | \$13.31  | \$13.29  | 17.50                 |
| Apple    | 16                 | \$27.68            | \$15.15 | \$9.08   | \$6.78   | \$3.93   | 47.76                 |

**Notes:**<sup>a</sup>Cumulative average annual growth rate.<sup>b</sup>Assuming an IPO price of \$38.<sup>c</sup>Three-year only (CAGR not calculable where earnings negative).<sup>d</sup>Based on growth in net income, not earnings per share.**Source:** <http://seekingalpha.com/article/603341-valuing-facebook-against-its-peers-can-a-case-be-made-for-the-stock>.**TABLE 2** Facebook and its peers: Cash and cash flow per share

|                               | Facebook | LinkedIn | Google  | Apple    |
|-------------------------------|----------|----------|---------|----------|
| Cash per Share                | \$4.85   | \$5.57   | \$94.99 | \$116.60 |
| Price/Cash Ratio              | 7.88     | 17.78    | 6.32    | 4.55     |
| Operating Cash Flow Per Share | \$0.76   | \$1.52   | \$45.69 | \$56.16  |
| Price/Operating Cash Flow     | 50.30    | 65.15    | 13.14   | 9.44     |

**Note:**

The price/cash and price/operating cash flow ratios for Facebook assume an IPO price of \$38.

**Source:** <http://seekingalpha.com/article/603341-valuing-facebook-against-its-peers-can-a-case-be-made-for-the-stock>.

public at a lower P/E ratio than both Apple and Google. . . Would we recommend Facebook shares to readers? The answer is a very qualified yes.”

## DCF Valuation

The Facebook prospectus describes the “Discounted Cash Flow Method,” or “DCF,” as follows:

DCF involves estimating the future cash flows of a business for a certain discrete period and discounting such cash flows to present value. If the cash flows are expected to continue beyond the discrete time period, then a terminal value of the business is estimated and discounted to present value. The discount rate reflects the risks inherent in the cash flows and the market rates of return available from alternative investments of similar type and quality as of the valuation date.<sup>6</sup>

This approach was used by the *Financial Times*’ Lex column. Its valuation model estimated Facebook’s free cash flows to 2018, then calculated the company’s “terminal value” at the end of 2018.

Free cash flow estimation followed these steps:

1. Estimate revenues for 2012–2018 by making assumptions about Facebook’s annual rate of revenue growth in each year. (Lex’s assumption was that revenue growth would decelerate during 2012–2018.)
2. Estimate operating cash flow. EBITDA (earnings before interest, tax, depreciation, and amortization) can be used as a proxy for operating cash flow. This can be derived from sales revenue by assuming an EBITDA/sales ratio for each year. (Lex’s assumption was that Facebook’s EBITDA/sales ratio would continue at its 2011 level of 50%.)
3. Estimate capital expenditure (capex) by assuming a capex/sales ratio for each year between 2012 and 2018. (Lex assumed that Facebook’s capex/sales ratio would remain high during 2012 before declining sharply.)
4. Free cash flow is roughly equal to EBITDA minus capex.
5. After 2018, Facebook’s free cash flows can be assumed to grow at a constant rate into perpetuity (on the assumption that social networking continues as a viable business or that Facebook is capable of evolving its business into something different).

To value Facebook, free cash flows need to be discounted at the cost of equity capital, which it estimated using the capital asset pricing model (CAPM) formula:

$$\text{Cost of equity capital} = R_f + \beta(E_{RP})$$

where

$R_f$  is the risk free rate of interest

$\beta$  is the security’s beta coefficient (a measure of systematic risk)

$E_{RP}$  is the equity risk premium (the rate of return in excess of the risk-free rate that investors require in order to hold the market portfolio of equities).

Calculating DCF value then used the following formula:

$$DCF = \frac{C_{12}}{(1+r)} + \frac{C_{13}}{(1+r)^2} + \frac{C_{14}}{(1+r)^3} + \frac{C_{15}}{(1+r)^4} + \frac{C_{16}}{(1+r)^5} + \frac{C_{17}}{(1+r)^6} + \frac{C_{18}}{(1+r)^7} + \frac{H}{(1+r)^7}$$

where  $C_{12}$  to  $C_{18}$  is the free cash flow in each year from 2012 to 2018, and  $r$  is the cost of equity capital.

The horizon value at the end of 2018 was calculated by assuming that Facebook’s free cash flow continues to grow at a constant rate, in which case the 2018 horizon value is given by the following formula:

$$H = \frac{C_{18}}{(r-g)}$$

where  $C_{18}$  is the cash flow in 2018,  $r$  is the cost of equity capital, and  $g$  is the terminal growth rate.

**TABLE 3** Estimating Facebook's DCF value

|                                 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------------------------------|------|------|------|------|------|------|------|------|
| Sales growth (%)                | 88   | 70   | 60   | 50   | 40   | 30   | 20   | 10   |
| EBITDA ratio (%)                | 50   | 50   | 50   | 50   | 50   | 50   | 50   | 50   |
| Capex/sales ratio               | 30   | 30   | 20   | 10   | 5    | 5    | 5    | 5    |
| Cost of equity (%) <sup>a</sup> | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  |
| Terminal growth rate (%)        | —    | —    | —    | —    | —    | —    | —    | 3    |

**Note:**

<sup>a</sup>Assumes a 10-year Treasury rate of 2% (the risk-free rate of interest), a 5% equity risk premium, and a Facebook beta coefficient of 1.5.

**Source:** Lex in depth: Facebook, May 2, 2012, <http://www.ft.com/cms/s/2/8a21debe-944e-11e1-bb47-00144feab49a>.

[html#ixzz1wqhsO4Uw](http://html#ixzz1wqhsO4Uw). Reproduced by permission of *The Financial Times*.

Lex then asked, "What kind of assumptions would be required to reach a \$100 billion-plus valuation?" Table 3 shows the projections of sales, EBITDA and capex that Lex hypothesized.

Plugging in these numbers gave a company valuation of \$109 billion and a value per share of \$43.59. The unanswered question was: How realistic were these projections?

### What Will Determine Facebook's Future Profits?

Whichever valuation method was adopted, the critical issue was forecasting Facebook's future profits. In the case of the comparables approach, the key to deciding what P/E ratio to apply to Facebook's earnings per share was the likely growth of earnings per share into the future. In the case of DCF valuation, while reasonable predictions could be made concerning Facebook's cost of equity capital and its capex requirements, the greatest uncertainties concerned its ability to generate strong profit growth over the medium and long term.

Facebook's long-term profit performance would depend upon its ability to compete in two markets. First, its continuing ability to dominate the market for social networking and to ensure that its platform would remain a leading portal for access to a range of online experiences for users. Second, its ability to compete with a wide range of other media providers to obtain a growing share of advertising revenues.

### Facebook and the Social Networking Business

Facebook's website went live on February 4, 2004 as a directory for undergraduate students at Harvard University and quickly extended, first to other colleges and then more widely. It was not the first social networking website. Early entrants were SixDegrees.com in 1997, Makeoutclub and Friends Reunited in 2000, and Hub Culture and Friendster in 2002. In May 2003, LinkedIn was launched, followed by MySpace (August 2003) and Orkut (launched by Google in January 2004). During 2007, Facebook overtook MySpace (acquired by News Corp. in 2005) as the world's leading social networking site in terms of number of members and number of visits.

Once it had established market leadership, Facebook's subsequent growth was propelled by two factors. First, network effects: users were drawn to the site where most of their friends were already members. Second, Facebook's rapid addition of new services, such as instant messaging, "Virtual Gifts," "Social Bookmarking," and "Facebook Connect." In May 2007, Facebook launched F8, a platform for developers to build applications to run on the Facebook site. The result was a massive expansion of Facebook applications.

Looking ahead, Facebook's dominant position in social networking (except in a few countries) offers it tremendous resilience against newcomers. However, as it expands its range of services it increasingly comes into competition with other suppliers of online services such as Google, Apple, and Twitter. As a platform it also benefits from network effects: developers will target their best applications at the biggest platforms.

But will Facebook retain, let alone increase, its appeal to users? The *Financial Times* pointed to some key risks:

Many of the connections users have formed could cease to be of interest. The network starts to carry more noise than information. People look for something more interesting. Social networks have inherent stabilizers as they grow but may also have a big destabilizer: boredom.

This problem is compounded, it seems likely, by the ever-increasing probability that your mother (or father or teacher) is on Facebook. That is, as user numbers increase, it becomes less cool. The company would argue it does not need to be cool. Once its user base reaches a certain size, it becomes irreplaceable. Should Facebook attain a stable monopoly on social networking, it would be easy to dream of a time when searching for information, reading news, watching television, writing a document or talking on the telephone are activities conducted on the Facebook platform or given a social dimension imported from and controlled by Facebook. It is this picture that makes some analysts think the company could be worth \$100bn or more. Certainly, the potential revenue pool is enormous.

But users may not stay loyal for ever. True, all the data that make up a user's identity – comments, pictures, likes, connections with friends – are in effect owned by, and trapped on, Facebook. The company has carefully made it costly to leave. The question is whether the costs are high enough to prevent flitting among the networks and tools that have not been invented yet. It is hard to quit using Microsoft's software or Google's search engine, not just because of network effects but also because almost everyone needs to do things those tools make possible. Competitors are more expensive or not as good. Facebook simply is not essential to life or work in the same way.<sup>7</sup>

### Facebook's Advertising Pull

To generate revenue, Facebook must convert its 900-million user base and huge volume of daily visits into a vehicle for advertising. In competing for online advertising revenues, Facebook competes with almost every other website that offers free online services to drive advertising revenues. However, Facebook's competitive advantage in attracting advertising is not only that it is one of the world's two-most-visited websites (along with Google): it is the potential it offers advertisers to target their advertising according to user interests and needs.

Facebook pointed to four unique advantages it was able to offer advertisers. The first was *reach*—the huge audience that accessed Facebook:

For example, a movie studio seeking to increase awareness of an upcoming film release can reach a broad audience of Facebook users on the day or week before the film's opening. By advertising the release of *Transformers: Dark of the Moon* on Facebook, Paramount Studios reached 65 million users in the United States in a single day.<sup>8</sup>

The second was *relevance*—the ability to target a relevant and appropriate audience for an ad:

CM Photographics, a wedding photography business based in Minneapolis, Minnesota, used Facebook ads to reach the users it cared most about: women aged 24 to 30 living near Minneapolis who shared their relationship status on Facebook as “engaged.” In 2011, CM Photographics generated a significant increase in revenue after spending \$1,544 to purchase advertising on Facebook.<sup>9</sup>

The third was *social context*—the highlighting of a friend's connections with a particular brand. An example is Facebook's “Sponsored Stories” product:

When a user posts on Facebook that he or she has “checked in” to a Starbucks store, this checkin creates a story that can be shown in the friends' News Feeds. Although all of a user's friends may be eligible to view this checkin story, only a fraction of the user's friends will typically see it (based on factors such as when the user's friends check their News Feeds and our ranking of all the content that is available to show to each of the user's friends). Starbucks can purchase sponsored stories to significantly increase the reach, frequency of distribution, and prominence of this story to the user's friends.<sup>10</sup>

Finally, Facebook offered a superior medium for advertisements to *engage* with potential customers:

Many of our ad products offer new and innovative ways for our advertisers to interact with our users, such as ads that include polls, encourage comments, or invite users to an event. Additionally, any brand or business can have a presence on Facebook by creating a Facebook Page. Through Pages, we give brands the opportunity to form direct and ongoing relationships with their customers, with the potential to turn them into valuable advocates.<sup>11</sup>

Such targeting of advertising opened Facebook to two threats. One was the risk of alienating users, particularly if they increasingly viewed Facebook more as a device for commercial exploitation than as a facilitator for their social relationships; the other was the threat of regulation either on the basis of privacy concerns or antitrust legislation.

Finally, the growing shift of internet access to mobile devices was unfavorable to the display of advertisements because of the small screen size of most mobile devices.

The *Financial Times*' Lex reporters recommended paying particular attention to Facebook's growth in revenue per user: “The numbers do not look good. There is still double-digit growth but there is a clear pattern of deceleration. Revenue growth is coming more from adding users than from making ads work better.”<sup>12</sup>

## EXHIBIT 1

### Facebook: An Overview

Our mission is to make the world more open and connected. Facebook enables you to express yourself and connect with the world around you instantly and freely.

We build products that support our mission by creating utility for users, developers, and advertisers:

*Users.* We enable people who use Facebook to stay connected with their friends and family, to discover what is going on in the world around them, and to share and express what matters to them to the people they care about.

*Developers.* We enable developers to use the Facebook Platform to build applications (apps) and websites that integrate with Facebook to reach our global network of users and to build products that are more personalized, social, and engaging.

*Advertisers.* We enable advertisers to engage with more than 900 million monthly active users (MAUs) on

Facebook or subsets of our users based on information they have chosen to share with us such as their age, location, gender, or interests. We offer advertisers a unique combination of reach, relevance, social context, and engagement to enhance the value of their ads.

We generate substantially all of our revenue from advertising and from fees associated with our Payments infrastructure that enables users to purchase virtual and digital goods from our Platform developers. In 2011, we recorded revenue of \$3,711 million, operating income of \$1,756 million, and net income of \$1,000 million. In the first quarter of 2012, we recorded revenue of \$1,058 million, operating income of \$381 million, and net income of \$205 million. We were incorporated in July 2004 and are headquartered in Menlo Park, California.

| \$(million)                     | 2007  | 2008 | 2009 | 2010  | 2011  | Q1, 2011 | Q1, 2012 |
|---------------------------------|-------|------|------|-------|-------|----------|----------|
| <b>Operations data</b>          |       |      |      |       |       |          |          |
| Revenue                         | 153   | 272  | 777  | 1,974 | 3,711 | 731      | 1,058    |
| Cost of revenue                 | 41    | 124  | 223  | 493   | 860   | 167      | 277      |
| Marketing and sales cost        | 32    | 76   | 115  | 184   | 427   | 68       | 159      |
| R & D cost                      | 81    | 47   | 87   | 144   | 388   | 57       | 153      |
| General and administrative cost | 123   | 80   | 90   | 121   | 280   | 51       | 88       |
| Total costs                     | 277   | 327  | 515  | 942   | 1,955 | 343      | 677      |
| Income (loss) from operations   | (124) | (55) | 262  | 1,032 | 1,756 | 388      | 381      |

|  |       |      |       |       |       |       |       |
|--|-------|------|-------|-------|-------|-------|-------|
| Interest and other income (expense), net   | (11)  | (1)  | (8)   | (24)  | (61)  | 10    | 1     |
| Income (loss) before income taxes  | (135) | (56) | 254   | 1,008 | 1,695 | 398   | 382   |
| Provision for income taxes   | 3     | —    | 25    | 402   | 695   | 165   | 177   |
| Net income (loss)  | (138) | (56) | 229   | 606   | 1,000 | 233   | 205   |
| <b>Calculation of free cash flow</b>   |       |      |       |       |       |       |       |
| Net cash from operating activities   | 11    | 8    | 155   | 698   | 1,549 | 345   | 441   |
| Purchases of property and equipment  | (55)  | (70) | (33)  | (293) | (606) | (153) | (453) |
| Property and equipment acquired under capital leases   | (11)  | (26) | (56)  | (217) | (473) | (211) | (38)  |
| Free cash flow   | (55)  | (88) | 66    | 188   | 470   | (19)  | (50)  |
| <b>Balance sheet items</b>   |       |      |       |       |       |       |       |
| Cash and marketable securities   | 305   | 297  | 633   | 1,785 | 3,908 | —     | 3,910 |
| Working capital  | 250   | 279  | 703   | 1,857 | 3,705 | —     | 3,655 |
| Property and equipment   | 82    | 131  | 148   | 574   | 1,475 | —     | 1,855 |
| Total assets   | 448   | 505  | 1,109 | 2,990 | 6,331 | —     | 6,859 |
| Total liabilities  | 174   | 170  | 241   | 828   | 1,432 | —     | 1,587 |
| Stockholders' equity   | 273   | 335  | 868   | 2,162 | 4,899 | —     | 5,272 |
| <b>Note:</b><br>Figures in parentheses denote a loss.<br><b>Source:</b> Facebook, Inc. Amendment No. 5 to Form S1 Registration Statement, US Securities and Exchange Commission, Washington, D.C. 20549, May 3, 2012, p. 43. |       |      |       |       |       |       |       |

## Notes

1. Web 2.0 refers to the development of the World Wide Web as an interactive, collaborative medium.
2. "The High Cost of Lost Opportunity," <http://maximiz-socialmedia.com/social-media-agency-the-high-cost-of-lost-opportunity>, accessed June 5, 2012.
3. Henry Blodget, "Facebook is 'Muppet Bait,'" [http://articles.businessinsider.com/2012-05-10/news/31648770\\_1\\_mark-zuckerberg-facebook-cnbc](http://articles.businessinsider.com/2012-05-10/news/31648770_1_mark-zuckerberg-facebook-cnbc), accessed September 4, 2012.
4. Facebook, Inc. Amendment No. 5 to Form S1 Registration Statement, US Securities and Exchange Commission, Washington, DC 20549, May 3, 2012, p. 76.
5. Henry Blodget, "Well, Now That Everyone Has Sobered Up, Let's Figure Out What Facebook Is Actually Worth. . ." Business Insider, May 21, 2012, <http://www.businessinsider.com/what-is-facebook-worth-2012-5>, accessed September 4, 2012.
6. Facebook, Inc. Amendment No. 5 to Form S1 Registration Statement, US Securities and Exchange Commission, Washington, DC 20549, May 3, 2012, p. 76.
7. "Lex in depth: Facebook," May 2, 2012, <http://www.ft.com/cms/s/2/8a21debe-944e-11e1-bb47-00144feab49a.html#ixzz1wqhsO4Uw>, accessed September 11, 2012.
8. Facebook, Inc. Amendment No. 5 to Form S1 Registration Statement, US Securities and Exchange Commission, Washington, DC 20549, May 3, 2012, p. 88.
9. Facebook, Inc. Amendment No. 5 to Form S1 Registration Statement, US Securities and Exchange Commission, Washington, DC 20549, May 3, 2012, p. 89.
10. Facebook, Inc. Amendment No. 5 to Form S1 Registration Statement, US Securities and Exchange Commission, Washington, DC 20549, May 3, 2012, p. 90.
11. Facebook, Inc. Amendment No. 5 to Form S1 Registration Statement, US Securities and Exchange Commission, Washington, DC 20549, May 3, 2012, p. 90.
12. "Lex in depth: Facebook," May 2, 2012, <http://www.ft.com/cms/s/2/8a21debe-944e-11e1-bb47-00144feab49a.html#ixzz1wqhsO4Uw>, accessed September 11, 2012.



A video clip relating to this case is available in your interactive e-book at [www.wileyopenpage.com](http://www.wileyopenpage.com)