HILTON HOTELS CORP Form 424B3 September 16, 2003

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Prospectus Supplement No. 1 dated September 16, 2003 (To Prospectus dated August 20, 2003)

HILTON HOTELS CORPORATION

\$575,000,000

3.375% Convertible Senior Notes due 2023

This prospectus supplement supplements the prospectus dated August 20, 2003 (the "Prospectus") of Hilton Hotels Corporation, relating to the resale by holders of our 3.375% Senior Convertible Notes due 2023 (the "Notes") and the shares of our common stock issuable upon conversion of the Notes.

This prospectus supplement should be read in conjunction with the Prospectus. This prospectus supplement is not complete without, and may not be delivered or utilized except in connection with, the Prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of the Prospectus or this prospectus supplement. Any representation to the contrary is a criminal offense.

The following table sets forth certain information, as of September 15, 2003 with respect to the principal amount of Notes beneficially owned and the number of shares of common stock issuable upon conversion of those Notes that may be offered from time to time under the Prospectus by the selling securityholders named in the table. This information is based on information provided by or on behalf of the selling securityholders. The selling securityholders may offer all, a portion or none of the Notes or common stock issuable upon conversion of the Notes. Because the selling securityholders may offer all or a portion of the Notes or common stock, we cannot estimate the amount of the Notes or the common stock that will be held by the selling securityholders upon termination of any of these sales. In addition, selling securityholders identified below may have sold, transferred or otherwise disposed of all or a portion of their Notes since the date on which they provided the information regarding their Notes in transactions exempt from the registration requirements of the Securities Act. The percentage of Notes outstanding beneficially owned by each selling securityholder is based on \$575,000,000 aggregate principal amount of Notes outstanding. The number of shares of common stock owned prior to the offering does not include shares of common stock issuable upon conversion of the Notes. The number of shares of common stock issuable upon conversion of the Notes is based on an initial conversion price of \$22.50 per share. This conversion rate is subject to adjustment as described under "Description of the Notes Conversion Rate Adjustments" in the Prospectus. Accordingly, the number of conversion shares may increase or decrease from time to time. Unless set forth below, to our knowledge none of the selling securityholders has had a material relationship with us or any of our affiliates within the past three years.

The Prospectus is hereby supplemented as follows to restate, in its entirety, the table of selling security holders under the caption "Selling Securityholders" contained on pages 39-44 of the Prospectus:

| Name | Principal Amount of Notes Beneficially Owned and Offered | Percentage of Notes Outstanding | Shares of Common Stock Owned Prior to the Offering(1) | Conversion Shares Offered(2) | Percentage of Common Stock Outstanding(3) |
|--------------------------------------|--|---------------------------------------|---|------------------------------------|---|
| Advent Convertible Master (Cayman) | | | | | |
| L.P. | 21,232,000 | 3.69% | | 943,644 | * |
| AIG DKR SoundShore Opportunity | | | | | |
| Holding Fund Ltd. | 4,000,000 | * | | 177,777 | * |
| Akanthos Arbitrage Master Fund, L.P. | 5,000,000 | * | | 222,222 | * |

| Alcon Laboratories | 419,000 | * | 18,622 | * |
|---|----------------|------------|-------------------|------|
| Allentown City Firefighters Pension | | | | |
| Plan | 11,000 | * | 488 | * |
| Allentown City Officers and | | | | |
| Employees Pension Fund | 18,000 | * | 800 | * |
| Allentown City Police Pension Plan | 25,000 | * | 1,111 | * |
| Alpha US Sub Fund 4 LLC | 1,159,000 | * | 51,511 | * |
| Allstate Insurance Company | 3,000,000 | * | 33,200(4) 133,333 | * |
| Arapahoe County, Colorado | 51,000 | | 2,266 | * |
| Arbitex Master Fund, L.P. | 21,500,000 | 3.74% | 955,555 | * |
| Argent Classic Convertible Arbitrage | | | | |
| (Bermuda) Fund Ltd. | 1,350,000 | * | 60,000 | * |
| Argent Classic Convertible Arbitrage | | | | |
| Fund L.P. | 650,000 | * | 28,888 | * |
| Argent Low Lev Convertible | | | | |
| Arbitrage Fund Ltd. | 7,800,000 | 1.36% | 346,666 | * |
| Argent LowLev Convertible Arbitrage | 1.200.000 | als. | 52.222 | ala. |
| Fund LLC | 1,200,000 | * | 53,333 | * |
| Arlington County Employees | 722 000 | ale. | 22.122 | .1. |
| Retirement System | 723,000 | * | 32,133 | * |
| Asante Health Systems | 93,000 | * | 4,133 | * |
| Asymmetric Convertible Fund Ltd. | 2,500,000 | * | 111,111 | * |
| Auspicis Ltd. | 250,000 | * | 11,111 | * |
| Bank America Pension Plan | 3,000,000 | * | 133,333 | * |
| Bank Austria Cayman Islands, LTD | 2,500,000 | * | 111,111 | * |
| Barclays Global Investors Limited | 1,000,000 | ጥ | 44,444 | ጥ |
| Beamtenversicherungskasse des Kantons Zurich | 2,700,000 | * | 120,000 | * |
| BP AMOCO PLC Master Trust | 558,000 | * | 24,800 | * |
| | 338,000 | | 24,800 | |
| British Virgin Islands Social Security Board | 96,000 | * | 4,266 | * |
| Canyon Capital Arbitrage Master | 90,000 | | 4,200 | |
| Fund, LTD | 4,500,000 | * | 200,000 | * |
| Canyon Value Realization Fund, L.P. | 2,250,000 | * | 100,000 | * |
| Canyon Value Realization Fund | 2,230,000 | | 100,000 | |
| (Cayman), LTD | 6,150,000 | 1.07% | 273,333 | * |
| Canyon Value Realization MAC 18, | 0,120,000 | 1.0770 | 273,333 | |
| LTD. (RMF) | 900,000 | * | 40,000 | * |
| Castle Convertible Fund, Inc. | 750,000 | * | 33,333 | * |
| CGNU Life Fund | 400,000 | * | 17,777 | * |
| Citigroup Global Markets FMR | , | | , | |
| Salomon Smith Barney | 150,000 | * | 6,666 | * |
| City and County of San Francisco | | | | |
| Retirement System | 1,600,000 | * | 71,111 | * |
| City of New Orleans | 220,000 | * | 9,777 | * |
| Clinton Convertible Managed Trading | | | | |
| Account 1 Limited | 2,235,000 | * | 99,333 | * |
| | | | | |
| . <u></u> . | | 2 | | |
| Clinton Multistrategy Master Fund, | | | | |
| Ltd. | 20,580,000 | 3.58% | 914,666 | * |
| Clinton Riverside Convertible | 20,360,000 | 3.30 /0 | 714,000 | · |
| Portfolio Limited | 14,105,000 | 2.45% | 626,888 | * |
| Commercial Union Life Fund | 500,000 | 2.43% * | 22,222 | * |
| Consulting Group Capital Markets | 500,000 | | 22,222 | |
| Fund | 500,000 | * | 22,222 | * |
| Context Convertible Arbitrage Fund, | 500,000 | | 22,222 | |
| L.P. | 825,000 | * | 36,666 | * |
| Context Convertible Arbitrage | 323,000 | | 20,000 | |
| Offshore, LTD | 1,175,000 | * | 52,222 | * |
| * | , /= - | | - ,=== | |

| Continental Assurance Co. on Behalf | | | | |
|---------------------------------------|------------|-------|-------------|---|
| of its Separate Account (E) | 900,000 | * | 40,000 | * |
| Continental Casualty Company | 7,100,000 | 1.23% | 315,555 | * |
| Credit Suisse First Boston LLC(5) | 1,000,000 | * | 44,444 | * |
| DBAG-London | 52,540,000 | 9.14% | 2,335,111 | * |
| Delaware Public Employees | | | | |
| Retirement System | 1,677,000 | * | 74,533 | * |
| Deutsche Bank Securities Inc.(5) | 610,000 | * | 27,111 | * |
| Dylan (IMA) LTD | 5,000,000 | * | 222,222 | * |
| Erste Bank der esterreichischen | | | | |
| Sparkassen AG | 2,000,000 | * | 88,888 | * |
| Excelsior Master Fund L.P. | 1,000,000 | * | 44,444 | * |
| Gasner Investors Holdings Ltd. | 2,500,000 | * | 111,111 | * |
| Gemini Sammelstiftung zur Forderung | | | | |
| der Personalvorsorge | 110,000 | * | 4,888 | * |
| Geode U.S. Convertible Arbitrage | | | | |
| Fund, a series of Geode Invetors, LLC | 1,000,000 | * | 44,444 | * |
| Georgia Municipal Employees Benefit | | | | |
| System | 642,000 | * | 28,533 | * |
| GMAM Group Pension Trust | 500,000 | * | 22,222 | * |
| Goldman Sachs & Co. Profit Sharing | | | | |
| Master Trust | 212,000 | * | 1,026 9,422 | * |
| Grady Hospital Foundation | 144,000 | * | 6,400 | * |
| Guggenheim Portfolio Co. XV, LLC | 800,000 | * | 35,555 | * |
| Hotel Union & Hotel Industry of | | | | |
| Hawaii Pension Plan | 247,000 | * | 10,977 | * |
| HFR Arbitrage Fund | 1,251,000 | * | 55,600 | * |
| HFR TQA Master Trust c/o TQA | | | | |
| Investors, LLC | 74,000 | * | 3,288 | * |
| Highbridge International LLC | 10,000,000 | 1.74% | 444,444 | * |
| Investec Bank (UK) Limited | 500,000 | * | 22,222 | * |
| Jefferies and Company Inc. | 5,000 | * | 222 | * |
| Jefferies Umbrella Fund Global | | | | |
| Convertible Bond | 650,000 | * | 28,888 | * |
| John Deere Pension Trust | 1,000,000 | * | 44,444 | * |
| | | | | |

| KBC Financial Products USA Inc. | 450,000 | * | | 20,000 | * |
|--------------------------------------|------------|-------|---------|-----------|---|
| LDG Limited | 89,000 | * | | 3,955 | * |
| Lehman Brothers Inc. | 1,000,000 | * | | 44,444 | * |
| Lexington Vantage Fund c/o TQA | | | | | |
| Investors | 16,000 | * | | 711 | * |
| Lydian Global Opportunities Master | | | | | |
| Fund Limited | 7,500,000 | 1.30% | | 333,333 | * |
| Lydian Overseas Partners Master Fund | 48,000,000 | 8.35% | | 2,133,333 | * |
| Lyxor | 2,959,000 | * | | 131,511 | * |
| Lyxor Master Fund | 2,000,000 | * | | 88,888 | * |
| Meadow IAM Limited | 1,650,000 | * | | 73,333 | * |
| MFS Total Return Fund, a series of | | | | | |
| trust V | 8,000,000 | 1.39% | | 355,555 | * |
| Mill River Master Fund, L.P. | 1,500,000 | * | | 66,666 | * |
| Municipal Employees | 259,000 | * | | 11,511 | * |
| Nisswa Master Fund Ltd. | 3,000,000 | * | | 133,333 | * |
| New Orleans Firefighters | | | | | |
| Pension/Relief Fund | 147,000 | * | | 6,533 | * |
| Nomura Securities Intl Inc. | 17,500,000 | 3.04% | 420,947 | 777,000 | * |
| Norwich Union Life and Pensions | 700,000 | * | | 31,111 | * |
| Occidental Petroleum Corporation | 287,000 | * | | 12,755 | * |
| • | | | | | |

| Oppenheimer Convertible Securities | | | | | |
|---|-------------------------------|-------|--------|----------------------------|-----|
| Fund | 4,000,000 | * | | 177,777 | * |
| OZ Convertible Master Fund, Ltd. | 786,000 | * | | 34,933 | * |
| OZ MAC 13 Ltd. | 243,000 | * | 1,727 | 10,800 | * |
| OZ Master Fund, Ltd. | 8,759,000 | 1.52% | 63,523 | 389.288 | * |
| Pacific Life Insurance Company | 500,000 | * | 50,020 | 22,222 | * |
| Pensionskasse der Antalis AG | 40,000 | * | | 1,777 | * |
| Pensionskasse der Ems-Chemie AG | 50,000 | * | | 2,222 | * |
| Pensionskasse der Ems- Dottikon AG | 70,000 | * | | 3,111 | * |
| Pensionskasse der Lonza AG | 100,000 | * | | 4,444 | * |
| Pensionskasse der Plüss-Statifer AG | 40,000 | * | | 1,777 | * |
| Pensionskasse der PV Promea AG | 80,000 | * | | 3,555 | * |
| Pensionskasse der Rockwell | | | | | |
| Automation AG | 40,000 | * | | 1,777 | * |
| Pensionskasse Vantico | 60,000 | * | | 2,666 | * |
| Peoples Benefit Life Insurance | | | | | |
| Company Teamsters | 20,500,000 | 3.57% | | 911,111 | * |
| Personalfursorgestiftung der | | | | | |
| Gebaudeversicherung des Kantons | | | | | |
| Bern | 150,000 | * | | 6,666 | * |
| Pro-Mutual | 812,000 | * | | 36,088 | * |
| Putnam Convertible Income- Growth | | | | | |
| Trust | 7,500,000 | 1.3% | | 333,333 | * |
| Quattro Fund Limited | 4,000,000 | * | | 177,777 | * |
| Ramius, LP | 150,000 | * | | 6,666 | * |
| | | | | | |
| | | 4 | | | |
| | | | | | |
| Ramius Capital Group | 500,000 | * | | 22,222 | * |
| Ramius Master Fund, LTD | 4,425,000 | * | | 196,666 | * |
| Ramius Partners II, L.P. | 200,000 | * | | 8,888 | * |
| RCG Baldwin, L.P. | 600,000 | * | | 26,666 | * |
| RCG Halifax Master Fund, LTD | 500,000 | * | | 22,222 | * |
| RCG Latitude Master Fund, LTD | 4,425,000 | * | | 196,666 | * |
| RCG Multi Strategy Master Fund, | | | | | |
| LTD | 400,000 | * | | 17,777 | * |
| Sphinx Convertible Arb Fund Master | | | | | |
| Fund Ltd. | 193,000 | * | | 8,577 | * |
| Sphinx Fund c/o TQA Investors, LLC | 17,000 | * | | 755 | * |
| St. Albans Partners Ltd | 14,000,000 | 2.43% | | 622,222 | * |
| State of Maryland Retirement Agency | 3,469,000 | * | | 154,177 | * |
| Sunrise Partners Limited Partnership | 4,500,000 | * | 13,332 | 200,000 | * |
| Tag Associates | 249,000 | * | | 11,066 | * |
| The City University of New York | 162,000 | * | | 7,200 | * |
| The Coast Fund, L.P. | 18,500,000 | 3.22% | | 822,222 | * |
| The Grable Foundation | 96,000 | * | | 4,266 | * |
| Thrivent Financial for Lutherans | 3,000,000 | * | | 133,333 | * |
| TQA Master Fund, LTD | 828,000 | * | | 36,800 | * |
| TQA Master Plus Fund, LTD | 571,000 | * | | 25,377 | * |
| Topanga XI | 2,600,000 | * | | 115,555 | * |
| Trustmark Insurance | 369,000 | * | | 16,400 | * |
| UBS AG London Branch | 82,500,000 | 6.99% | | 3,666,666 | * |
| UBS Securities LLC(5) | 22,140,000 | 3.85% | | 939,555 | * |
| Viacom Inc. Pension Plan Master | | | | | |
| Trust | 19,000 | * | | 844 | * |
| Victory Capital Management | 2,500,000 | * | | 111,111 | * |
| Wachovia Securities LLC(5) | 7,200,000 | 1.25% | | 320,000 | * |
| | | | | | |
| Xavex Convertible Arbitrage #5 | 500,000 | * | | 22,222 | * |
| Xavex Convertible Arbitrage #5 Xavex-Convertible Arbitrage 7 Fund | 500,000 | * | | 22,222 | * |
| | 500,000 300,000 500,000 | * * | | 22,222 13,333 22,222 | * * |

| 3,500,000 | * | 155,555 | * |
|-----------|---|---|---|
| 3,500,000 | * | 155,555 | * |
| | | | |
| 1,000,000 | * | 44,444 | * |
| 50,000 | * | 2,222 | * |
| 1,000,000 | * | 44,444 | * |
| | | | |
| 400,000 | * | 17,777 | * |
| | | | |
| 1,478,000 | * | 65,688 | * |
| | | | |
| 1,000,000 | * | 44,444 | * |
| | 3,500,000 1,000,000 50,000 1,000,000 400,000 1,478,000 | 3,500,000 3,500,000 * 1,000,000 * 50,000 * 1,000,000 * 400,000 * 1,478,000 * | 3,500,000 * 155,555 1,000,000 * 44,444 50,000 * 2,222 1,000,000 * 44,444 400,000 * 17,777 1,478,000 * 65,688 |

5

| Zurich Institutional Benchmarks | | | | | |
|--------------------------------------|-------------------|-------|---------|------------|--------|
| Zurien montational Zenemanto | | | | | |
| Master Fund, LTD. c/o TOA | | | | | |
| Investors, LLC | 105,000 | * | | 4,666 | * |
| 1976 Distribution Trust FBO A.R. | | | | | |
| Lauder/Zinterhofer | 8000 | * | | 355 | * |
| 2000 Revocable Trust FBO A.R. | | | | | |
| Lauder/Zinterhofer | 8,000 | * | | 355 | * |
| All other holders of Notes or future | | | | | |
| transferees, pledgees, successors or | | | | | |
| donees of such holders(6) | 15,614,000 | 2.72% | | 693,955 | * |
| | | | | | |
| | | 1000 | | | ć 0 oc |
| Total | \$ 575,000,000 | 100% | 599,555 | 25,555,555 | 6.8% |

Less than one percent of the Notes or common stock outstanding, as applicable

- (1) Does not include shares of common stock issuable upon conversion of the Notes.
- (2)

 Consists of shares of common stock issuable upon conversion of the Notes, assuming a conversion price of \$22.50 per share and a cash payment in lieu of any fractional share interest. The conversion price is subject to adjustment as described under "Description of the Notes-Conversion Rate Adjustments."
- (3)

 Calculated based on Rule 13d-3(d)(i) under the Securities Exchange Act of 1934, as amended, using 377,302,886 shares outstanding on June 30, 2003. In calculating this amount, we treated as outstanding the number of shares of common stock issuable upon conversion of the Notes. However, we did not assume the conversion of any other holder's Notes.
- (4)

 Certain qualified ERISA plans maintained for the benefit of agents and employees of Allstate Insurance Company own 19,600 shares of the Company's common stock. Allstate Insurance Company disclaims any interest in such shares of common stock, although the investment committees for such plans consist of Allstate Insurance Company officers.
- (5)

 This holder has provided investment or commercial banking and financial advisory services to us within the past three years for which they have received customary fees.
- (6)
 We will identify additional selling securityholders, if any, by prospectus supplement or post-effective amendment before they offer or sell their securities.

QuickLinks

Prospectus Supplement No. 1 dated September 16, 2003 (To Prospectus dated August 20, 2003)