GLAXOSMITHKLINE PLC
Form 6-K
May 24, 2012

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION
Washington D.C. 20549

Report of Foreign Issuer

Pursuant to Rule 13a-16 or 15d-16 of
the Securities Exchange Act of 1934

For period ending May 2012

GlaxoSmithKline plc
(Name of registrant)

980 Great West Road, Brentford, Middlesex, TW8 9GS
(Address of principal executive offices)

Indicate by check mark whether the registrant files or
will file annual reports under cover Form 20-F or Form 40-F

Form 20-F x Form 40-F

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Indicate by check mark whether the registrant by furnishing the
information contained in this Form is also thereby furnishing the
information to the Commission pursuant to Rule 12g3-2(b) under the
Securities Exchange Act of 1934.

Yes No x

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GlaxoSmithKline plc (the Company) announces that in accordance with the authority granted by shareholders at the Company's Annual General Meeting on 3 May 2012 it purchased 1,800,000 of its Ordinary Shares of 25 pence each (Shares) on 24 May 2012.

The highest price paid per Share was 1,417.5 pence per Share.

The lowest price paid per Share was 1,387.5 pence per Share.

The Company intends to hold these Shares in Treasury.

The Company holds 536,147,927 of its Shares in Treasury, representing 9.63% of the total issued share capital of the Company.

Including Shares which have been purchased but not yet settled, the Company holds 543,347,927 of its Shares in Treasury, representing 10.81% of the current total voting rights in the Company.

The Company has 5,028,542,428 Shares in issue (excluding Shares held in Treasury). This number represents the total voting rights in the Company and may be used by shareholders as the denominator for the calculations by which they can determine if they are required to notify their interest in, or a change to their interest in, the Company under the Financial Services Authority's Disclosure and Transparency Rules.

This announcement does not constitute, or form part of, an offer or any solicitation of an offer to purchase or subscribe for securities in any jurisdiction and is in conformity with the Financial Services Authority's Disclosure and Transparency Rules.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorised.

GlaxoSmithKline plc
(Registrant)

Date: May 24, 2012

By: VICTORIA WHYTE

Victoria Whyte
Authorised Signatory for and on
behalf of GlaxoSmithKline plc