ATHENS EXCHANGE

Information

about the

Recapitalisation of Core Banks and the Issue of Warrants

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1 Recapitalisation of Core Banks

1.1 What is the institutional framework that governs the recapitalisation of core banks?

The institutional framework that governs the recapitalisation of banks is:

- Ministerial Council Act (MCA) no 38 as of 9 November 2012 (Law 3864/2010, as in force).

Subject to this framework, the recapitalisation of these banks aims to strengthen the capital basis of banks with the funds that are necessary by law and supervision. More specifically:

- To enhance the basic equity of credit institutions so that they meet the terms and conditions set by the international and European law in order to be viable as financial institutions-undertakings.
- To ensure adequate capital against unexpected losses.

1.2 How can investors know which banks are involved in the recapitalisation?

According to the MCA, the recapitalization involves 'core' and 'non-core' banks. The report of the Bank of Greece on the "Recapitalisation and Restructuring of the Greek Banking Sector" (December 2012) identified four (4) core banks: "National Bank of Greece", "Eurobank", "Alpha Bank" and "Piraeus Bank".

1.3 How will 'non-core' banks be recapitalised?

'Non-core' banks will be recapitalised by the private sector, as provided for in the Memorandum of Understanding of December 2012 (Memorandum). Otherwise the procedure of orderly resolution will be followed. Finally, 'non-core' banks may also merge with other banks if they can demonstrate a credible business plan and meet their recapitalisation needs.

1.4 What are the possible ways to implement recapitalisation?

Based on the above framework, banks may implement recapitalisation in the following ways:

1) **1) Share capital increase by contribution in cash or in kind and issue of common shares**
    - The banks will issue new common shares and investors will be asked to pay money for the amount of the increase.

- In all cases, the Financial Stability Fund (FSF) will cover any unallocated common shares to be issued under the share capital increase decided by the credit institution.

2) **Issue of contingent convertible bonds (CoCos)**, which will be fully covered by the Financial Stability Fund (FSF).
3) Both Share Capital Increase and issue of CoCos, i.e. a combination of points 1 and 2.

2 Features of Bank SCI's

2.1 What is a Bank's SCI?

A Bank SCI is a complex capital increase through the issue of common shares. Because banks need funds to recapitalise, they issue preemptive rights (or rights), at an offering price which is actually considerably lower than the current price (pursuant to the Ministerial decision). In this way they enable shareholders to acquire additional shares at a lower price, with a substantial number of shares (approximately 90%) being covered by the FSF.

2.2 Who can participate in the share capital increase?

The following persons will be entitled to participate in the increase by common shares:

- existing shareholders of the financial institution, i.e. those who have their shares on the Dematerialised Securities System (DSS) of HELEX SA before the ex-dividend date and do not intend to sell them while traded on ATHEX; and
- other investors who will acquire rights either from the stock market (while the right is traded) or through the allocation of rights, at the discretion of the credit institution's BoD, after trading of the right has been completed, while the total amount of recapitalisation is already guaranteed by the Fund (FSF).

- Because the SCI's of banks have different terms, it is essential for investors to refer to the exact terms of the increase published by each credit institution or seek advice from a certified investment advisor.

2.3 How will the offering price of the new shares be determined?

- With regard to common shares covered by the Financial Stability Fund (FSF)

In relation to credit institutions whose shares are listed on a regulated market, pursuant to Ministerial Council Act No. 38/9-11-12 the offering price will be determined by the relevant credit institution and will be **equal to or lower than** the following two values, whichever is lower:

1) 50% on the average market price of the share during the 50 trading days (**50% of the 50-day VWAP**) preceding the fixing date for the offering price of the shares, and
2) the closing price on the trading day preceding the fixing date for the offering price of the shares.

- With regard to investors participating in the increase, other than the Fund

The offering price may not be less than the offering price of the common shares covered by the Fund (FSF).

Actually, the Offering Price for the specific SCI will be available upon publication of the Prospectus and the relevant SCI announcement by the credit institution.

2.4 How many pre-emptive rights will be issued?

The number of pre-emptive rights in the share capital increase will be **equal to the number of existing shares**, and will be allocated to shareholders in proportion to the number of shares held:

to those who are registered with HELEX on the Record date (the second business day following the ex-date). In relation to the SCI schedule, investors should consult the notice of the credit institution or contact their brokers/investment advisors.

2.5 What is the share issue ratio?

The ratio will be determined by the credit institutions at the General Meetings that decide on share capital increases.

Investors should consult the notice of the credit institution or contact their brokers/investment advisors.

2.6 Will subscriptions be available?

During the period of exercise of the pre-emptive rights, subscription rights may be also allocated for shares that will remain unallocated after the deadline for the exercise of rights. Investors should consult the decisions of the General Meeting and the Prospectus of the increase of the relevant credit institution.

2.7 What is the key investor information on the Share Capital Increase of each bank?

Key information about the share capital increase of each bank is available on the site of ATHEX http://www.ase.gr/content/gr/Companies/ListedCo/Profiles/. Investors can visit this site and select the name of the relevant bank to find all information about the SCI of the listed bank. Such information is:

- In the **Events Calendar,** announced dates, time and place for the Extraordinary General Meeting (e.g. **http://www.ase.gr/content/gr/Companies/ListedCo/Profiles/pr_CalEvt.asp?Cid=278&coname=ALPHA+%D4%D1%C1%D0%C5%C6%C1+%C1%2E%C5%2E)**
- In **News Feed**, all announcements, notices and information about the SCI, by date. (e.g.

http://www.ase.gr/content/gr/Companies/ListedCo/Profiles/pr_press.asp?Cid=278&coname=ALPHA+%D4%D1%C1%D0%C5%C6%C1+%C1%2E%C5%2E)

All the above are hyperlinked to announcements and information, and are useful to investors.

2.8 What are the stages of recapitalisation in case of a reverse split?

Immediately after the last trading day (cum date) of the share of Bank X:

- **Stage 1:** Temporary cessation of trading due to reverse split.
- **Stage 2:** Start of trading of the new shares resulting from reverse split. Further change to the par value of the share.
- **Stage 3:** Ex-rights of the pre-emptive right in the share capital increase by cash contribution (recapitalisation).
- **Stage 4:** Start of trading of pre-emptive rights in the share capital increase by cash contribution.
- **Stage 5:** End of pre-emptive right trading.
- **Step 6:** End of pre-emptive right exercise.
- **Step 7:** Start of trading of the new shares resulting from the recapitalisation SCI and, subject to the requirements laid down by law, simultaneous start of trading of the warrants.

2.9 How is the new Theoretical Ex Rights Price (TERP) determined?

This is an estimated price of a company's shares when the pre-emptive right in the SCI by cash contribution goes ex-rights.

In principle, it is a "theoretical" value of the share price on the ex-date. The market price of the share may be different from TERP due to:

- Supply/demand divergence on the ex-date;
- Different perceptions of participants on the use of new funds from the company;
- Different strategies followed by investors in relation to the pre-emptive rights.

TERP is equal to

[(capitalization of the listed company's shares before ex-rights) + (proceeds)] to the total number of shares after ex-rights (old listed + new shares)

The calculation of TERP following a SCI by cash contribution is described in Decision 26 of the ATHEX BoD. In relation to the specific purpose of the recapitalization, an Information Memorandum on the implementation of Decision 26 is available on the website of ATHEX. http://www.athex.gr/content/gr/ann.asp?AnnID=166679 .

2.10 How is the starting price of a pre-emptive right determined?

This is the *theoretical starting price* at the first trading session of pre-emptive rights on shares from SCI by cash contribution. It is calculated by multiplying the difference between (TERP minus share Offering Price) by the ratio of the right (i.e. the ratio of new to old shares).

The calculation of the starting trading price of a pre-emptive right is described in Decision 26 of the ATHEX BoD, whereby if the start of trading follows the date of share price adjustment, TERP will be the closing price before the start of trading of the preemptive rights.

An Information Memorandum on the implementation of Decision 26 is available on the website of ATHEX http://www.athex.gr/content/gr/ann.asp?AnnID=166679.

2.11 What are the options of an investor who holds shares during the SCI?

Assume that an investor currently holds 100 shares of Bank X which announces the precise terms of the SCI in its Prospectus and its notice to ATHEX.

Also, assume that the investor receives 100 rights and that the issue ratio is 10 new shares for each old share. As a result, 100 rights buy 1,000 new shares (100 rights x 10 new shares per right) at the offering price announced by the Bank, e.g. €0.60.

Now, the investor has four options:

OPTION 1

The investor may exercise his rights fully, which means that, based on the announced Offering Price and during the exercise period (i.e. from the Starting Date of Trading until the Exercise Date), the investor can pay €600 (€1,000 x €0.60) and receive 1,000 new shares.

In this way, the investor participates in the increase (see below 0) and may also receive warrants that entitle him to buy shares of the bank over the next 4.5 years, at prices close to the offering price which is incremented annually by a small percentage. If the investor receives warrants at the ratio of 7.33 shares per warrant, then he may buy another 7,330 new shares over the next 5 years (7.33 x 1,000), paying the relevant amount over the next 4.5 years (not immediately). This is an incentive for the investor, which will generate gains if the share price moves upwards.

OPTION 2

The investor may exercise his rights partially. This means that he may only exercise a percentage of his rights.

If, for example, the investor decides to exercise 50 Rights, then he will have to pay €300 (50 rights x 10 new shares x €0.60) and receive 500 new shares. At the same time, he may receive 3,665 new shares over the next 5 years on exercise of the warrants (7.33 x 500) by paying the corresponding amount.

It is in the investor’s interest to sell the remaining rights on the market, rather than let them expire. This sale should be made by the date of the last trading of rights. The proceeds of the sale will depend on the value of the rights on the market.

OPTION 3

In this case, the investor sells all of his rights on the market. As a result, he will not be entitled to receive any warrants to buy shares in the next 4.5 years.

OPTION 4

Do nothing and let the rights expire.

It should be noted that leaving rights to expire is not in the investor’s interest; therefore his actual options are 1 to 3.

3 Features of warrants

3.1 What are bank warrants?

Warrants are transferable securities to be listed on the Athens Exchange, and are freely transferable, namely they are subject to secondary trading.

Each warrant is issued on the share of each Bank recapitalising.

Each warrant incorporates the **right**, but not the obligation, of its holder:

- • to **buy**
    - a **fixed number** of underlying shares of the Bank held by the FSF;
    - at a **predetermined price** (the warrant's strike price);
    - on **specific dates** (exercice dates),

until a predetermined time in the future, 4.5 years (or 54 months) from the issue date of the warrants.

3.2 Who can acquire warrants of a Bank?

Warrants may be acquired by investors who participate in the Share Capital Increase (SCI) of each Bank, provided that the minimum percentage of investor participation is achieved, i.e. 10% of the total funds to be raised by issuing shares.

In other words, warrants act as a sweetener for investors who will participate in the SCI of a Bank, entitling them to buy shares of the bank over a period of 4.5 years (or 54 months), on the specific exercise dates.

Namely, they are call warrants.

3.3 How many warrants will investors participating in the increase receive?

Beneficiaries will receive a free warrant for every **new** common bank share acquired during the SCI upon exercise of their rights. Warrants will be delivered to investors simultaneously with the delivery of new common shares.

3.4 Who is eligible to acquire warrants?

Investors who participate in the share capital increase will receive warrants, free of charge, in proportion to their participation in the increase. More specifically, for each one (1) new share acquired from the increase, they will be entitled to one (1) free warrant, provided that the minimum participation percentage of private investors is achieved.

For example, for each warrant acquired:

If individuals participate by 10%, they will be entitled to receive (100% -10%)/10% = 9 shares.

If individuals participate by 12%, they will be entitled to receive (100% -12%)/12% = 7.3333 shares.

3.5 Example of an investor who participates in the SCI and exercise his warrants on the 1st exercise date

Warrants will be acquired by investors who participate in the share capital increase (SCI) of each bank (i.e. who exercise one or more of their rights to acquire new shares), provided that the minimum participation percentage (10%) of private investors is achieved. Those investors will receive warrants for the new shares to be acquired and will be able to exercise their warrants at each exercise date.

For each exercise date, it is to their interest to exercise them if the bank's price is higher than the warrant strike price at the specific date. This example shows the procedure for someone who participates in the Bank's SCI.

The SCI results in the issue of	1,000,000,000	new shares	
Assuming that the ISSUE RATIO is	10	new shares for each 1 old share at the price of	0.40
If coverage by investors is:	12%		
THEN the FSF will have to cover the remaining	88%		
Therefore,			
The number of shares to be covered by investors is:	120,000,000	new shares.	
and the FSF will assume	880,000,000	new shares	
If participation in the SCI exceeds	10%,		
investors will receive	120,000,000	new shares	
and	120,000,000	warrants.	
Therefore,			
If an investor had	100	old shares	
he will receive	100	warrants to buy	1,000 shares
These rights will be credited to his account and will be available during the exercise period,			
according to the dates announced by the Bank.			
Assume that an investor who wishes to exercise his rights in part			
exercises	90	warrants to buy	900 shares
and pays	360	EUR	
THEN, he will receive	900	bonus warrants, each representing	7.333 shares
If the warrant strike price is	**0.43**	EUR and at the 1st exercise date	
the share price is	0.47	EUR, then it is in the investor's interest to exercise his warrants.	
Therefore, the investor will exercise	900	warrants	
for	6,600	shares	
and pay	2,838.00	EUR	

3.6 What are the particular features of bank warrants?

The particular features of bank warrants will be available in the Bank's prospectus to be approved by the Capital Market Commission. The key features are:

Underlying value of warrant

A bank's common share on which the warrant is issued.

Share/warrant ratio

The number of shares corresponding to 1 warrant which the holder may acquire upon exercise.

Example: When we say that the share/warrant ratio is 1 to 7 we mean that: for each share purchased, the holder receives 1 warrant which he may exercise in the future to acquire 7 shares for the warrant's strike price.

Type of warrant

These are Bermudan-style bank warrants, meaning that their holder may exercise them and buy shares **at specific times until maturity**. The exercise times and prices are made known in advance and extend over a five-year period, with exercise dates on a semiannual basis.

Other types of warrants include the European-style (where exercise is only possible at maturity) and the American-style (where exercise is possible at any time until maturity).

3.7 What are the advantages from the issue of warrants?

- Each warrant incorporates the holder's right to buy on specific dates and at a fixed price a predetermined number of common shares of the credit institution. This is a right and not an obligation for the holder of the warrants.
- Warrants are allocated free of charge to persons participating in the SCI, as a motive to participate, provided of course that 10% of the funds is covered by investors.
- They are issued to enable their holders to acquire in the future bank shares held by the Fund (FSF), subject to the recapitalisation terms. This means that an investor who pays an strike price slightly higher (by 3% plus a 1% increase for each year of exercise) than the current share price may potentially acquire shares of the Bank for less than their trading price in the future.
- A holder may at any time sell his warrants on the Stock Exchange, in secondary trading.

Warrants are **expected to carry their own value** because of the high volatility of bank prices and the time horizon until maturity.

3.8 When are warrants issued?

Warrants are issued and credited to the accounts of beneficiaries with HELEX simultaneously with the issue of the new shares resulting from the capital increase, provided of course that the minimum investor participation of 10% is achieved.

3.9 When will warrants start trading?

Warrants will start trading simultaneously with the new shares to result from the increase. The trading date will be announced following the approval of the each Bank's Prospectus by the Capital Market Commission.

3.10 What is the warrant issue ratio?

Warrant beneficiaries will receive **free of charge one warrant for each one new common share** of the credit institution they acquire.

The number of common shares of the credit institution corresponding to each warrant will be calculated according to the formula (X = A/B) to enable individuals to acquire all shares covered by the Fund (FSF),

where:

X is the number of common shares of the credit institution which the holder of each warrant is entitled to buy from the Fund (FSF),

A is the total number of common shares assumed by the Fund (FSF) as a result of its participation in the share capital increase, and

B is the total number of common shares assumed by individuals as a result of their participation in the same increase,

e.g. 1 warrant for 9 common shares if the share capital increase coverage ratio is 10% for private individuals and 90% for the FSF

It should be noted that any fractional shares will be added for all warrants exercised by the same beneficiary and then rounded up.

3.11 How are warrant exercise periods determined?

Warrants may be exercised up to and including 54 months from the date of issue, on a semi-annual basis. The first exercise date will be the six-month anniversary of the warrant issue date. Warrants that are not exercised until the final exercise date will automatically lapse and such warrants will be cancelled. During the six-month exercise periods, an investor may exercise **all and/or part** of his rights.

3.12 How is the warrant strike price determined?

The strike price for each warrant is equal to the Offering Price of the new shares, bearing interest accrued at the annual rate of 3% plus 1% spread for the first year, 2% for the second, 3% for the third, 4% for the fourth, and 5% for the remaining years, on the number of common shares that the warrant holder is entitled to acquire at the exercise of his right.

The Offering Price, the exact dates and strike prices will be specified in the Prospectus of each Bank and the relevant announcements.

3.13 Example of warrant strike price calculation

The Table below shows warrant strike prices, assuming that the initial Offering Price is 1 euro.

Warrant exercise period	Months	Initial rate	Annual rate increase	Number of days in an annual period	Warrant strike price
1	**6**	3.0%	1.0%	180	1.0200
2	**12**	3.0%	1.0%	360	1.0400
3	**18**	3.0%	2.0%	180	1.0650
4	**24**	3.0%	2.0%	360	1.0900
5	**30**	3.0%	3.0%	180	1.1200
6	**36**	3.0%	3.0%	360	1.1500
7	**42**	3.0%	4.0%	180	1.1850
8	**48**	3.0%	4.0%	360	1.2200
9	**54**	3.0%	5.0%	180	1.2600

3.14 What is the transfer procedure?

The Fund may not transfer the underlying shares for a period of 36 months from the warrants' issue date.

After the expiry of the above period and up to the final date for the exercise of warrants, the Fund (FSF) may transfer the underlying shares provided that it has communicated its intention to do so, as well as the number of shares it wishes to transfer and has sent a relevant thirty (30) calendar day notice to warrant holders.

This means that if the FSF finds a buyer for the shares and agrees on a price after the 36-month period, warrant holders will have the right to decide if they want and if it is in their interest to acquire shares before, and at the price offered to, the prospective buyer. Otherwise, the shares will be transferred to the buyer.

3.15 What type of shares will an investor receive at the exercise of warrants?

The shares that an investor will receive each time from the exercise of warrants will come from the portion of shares assumed by the FSF (Financial Stability Fund) in its participation in the share capital increase, for which there has been no investor involvement.

This means that

- The warrants are covered by the shares already held by the FSF as a strategic investor;
- No new shares are issued by the issuing bank at each exercise, but already existing shares are used. This means that there is no change to the dilution of existing shareholders as a result of exercise, since the total number of the bank's shares already issued remains unchanged.

3.16 What is Disorderly Exercise and when does it apply?

The FSF may not transfer the shares it holds which cover the warrants *before 36 months have passed* from the warrant launch date.

After the expiry of 36 months from the issue of the new shares, the Fund (FSF) **may transfer (disorderly exercise)** the underlying shares it holds which cover the issued warrants, provided that **it has communicated** its intention to do so, as well as the number of shares to be transferred, and has sent a relevant thirty (30) calendar day notice to warrant holders, to:

1) 1) acquire the shares to be transferred at a price equal to the lower of
   - the strike price of the 3rd year (known in advance), and
   - the average market price of the share over the 50 days preceding the date of notice;
2) 2) exercise their right warrant in relation to any other shares they may acquire under the warrant.

This means that a warrant holder is essentially protected in terms of the strike price at which he will acquire shares, if he so wishes to exercise the warrants.

3.17 What is the ratio of common shares per warrant after a disorderly exercise?

Naturally, **if the FSF transfers** a specific number of shares following the above procedure, the number of common shares corresponding to each warrant in the future will have to be adjusted. This means that after a disorderly exercise, if a number of shares are transferred to an investor or to warrant holders who exercised their rights in part, then a new ratio will apply to the remaining warrants which will be announced. The holders of these warrants may receive shares based on such new ratio in the future.

If within six months from the date of disorderly exercise the Fund **fails to transfer** the underlying shares in part or in whole, the number of common shares per warrant will not be adjusted, and the Fund must repeat the above procedure if it wishes to sell the shares it holds.

During the above six-month period, the exercise of warrants will be suspended; however, warrant holders may exercise their call rights both on the date of disorderly exercise and at the expiry of the six month period.

3.18 Which market will the warrants be listed on?

Warrants will be listed on the same market as common shares, at the request of the credit institution, and will be registered in paperless form in the dematerialised securities system of the relevant regulated market, i.e. they will be listed on the Athens stock exchange and registered in the HELEX SAT system.

3.19 Which ATHEX category will warrants trade in?

Warrants will trade in a separate category ("Warrants").

3.20 How will warrants trade in this new category?

Trading in the new category of warrants will be continuous ("Method 1" - Automatic and Continuous Trading), and the open hours in this category will be from 10:15 to 17:20.

In addition to continuous trading, block trades are also possible. An investor or broker may select the block trade that suits him best.

For more detailed information on the features of the new category of trading, please refer to Decision 22 of the ATHEX BoD, as recently amended and in force.

3.21 What is the tick size in warrant trading?

Tick size is the minimum, in absolute terms, possible change in the price of warrants. The tick size rule applies to:

- all orders placed on the system;
- the change of starting price after a corporate action.

Valid tick sizes for warrants are described in the table below:

Warrant price (€)	Tick size (€)
0.0010 – 1.0000	0.001
1.0000 – 60.0000	0.01
60.0000 – infinite	0.05

For example, if the price of the warrants is higher than €60, then considering that the valid tick size is €0.05, an investor may place orders at 60.05 or 60.10 or 60.15, without however being able to place orders at intermediate prices.
Valid tick sizes for warrants are described in revised Decision 22 of the ATHEX BoD.

3.22 Are there fluctuation limits in warrants and how are they defined?

During the first 3 trading days from the launch of warrants no daily fluctuation limits apply. This rule allows the free determination of market prices based on supply and demand, and applies to the shares of newly listed companies.

After the first 3 trading days, trading limits are defined, the determination of which takes into account that a key feature of warrants is that they are more volatile than the underlying bank shares. For this reason, fluctuation limits are escalating and extend gradually in order to allow time for the market to understand the fluctuations during the session. More specifically:

- The maximum daily price fluctuation is escalating. The **first fluctuation limit** is +50% or -50% on the starting price (reference price) of the session.
- If call orders at the maximum limit or put orders at the minimum limit remain unexecuted at the Best-Bid-Offer (BBO) for **fifteen (15) minutes**, the daily fluctuation limit is **extended to +100% or -100%** respectively.
- Subsequently, if call orders at the adjusted maximum limit or put orders at the adjusted minimum limit remain unexecuted at the Best-Bid-Offer (BBO) for **fifteen (15) minutes**, the daily fluctuation limit is extended to **+200%**.
- Subsequently, if call orders at the adjusted maximum limit or put orders at the adjusted minimum limit remain unexecuted at the best Best-Bid-Offer (BBO) for **fifteen (15) minutes**, the daily fluctuation limit is extended to **+400%**.

It should be noted that ATHEX may extend the daily price fluctuation limits by decision of ATHEX BoD Chairman or other authorised ATHEX officer, in order to immediately respond to changing conditions of the stock market.

3.23 What is the Opening Price of a warrant?

The **opening price of a warrant** will be the price of the first transaction (see Article 3(5) of Decision 22 of the ATHEX BoD).

Considering that no opening auction exists for the trading category of "Warrants", first transaction will mean the first transaction to be executed during continuous trading.

3.24 What is the Closing Price of a Warrant?

The **closing price of a warrant** will be the price of the last transaction (see Article 3(5) of Decision 22 of the ATHEX BoD). According to the same decision, if no transactions have been executed, the closing price will be the same as the starting price.

3.25 What are the fees for transactions in warrants?

The fees applying to transactions in warrants will be the same as the fees applying to transactions in shares. More specifically:

- **0.0125%** of the value of daily transactions executed by a warrant holder.
- €0.06 per order related to warrants.

The fees are detailed in the revised Decision 24 of the ATHEX BoD.

3.26 Will there be a market maker?

The existence of a market maker in the trading category of warrants is not mandatory. 3.27In the case, however, there is a market maker in this category, its obligations are described in detail in the revised Decision 2 of the ATHEX BoD.

3.27 How is a warrant valued?

A European-style warrant (namely a warrant with a specific exercise date) is valued using the Black-Scholes model. This means that the value of a warrant depends the following parameters:

- the price of the underlying share at the moment of valuation;
- annualised fluctuation of the underlying share (volatility)
- the strike price
- the risk-free rate at which an investor can have access to finance;
- the dividend yield, if any.

By attributing values to the above variables at the time we want to value a warrant, our valuation model produces an estimate of the warrant's value.

3.28 How is a Bermudan-style warrant valued?

Warrants are valued with the use of valuation models. The value of a warrant depends on the following parameters:

- the price of the underlying share at the moment of valuation;
- the annualised fluctuation of the underlying share (volatility);
- the strike price;
- the risk-free rate at which an investor can have access to finance;
- the dividend yield, if any.

By attributing values to the above variables at the time we want to value a warrant, our valuation model produces an estimate of the warrant's value.

The valuation of a Bermudan-style warrant, i.e. a warrant **with specific exercise dates**, may be roughly calculated as the maximum value among its constituent European-style warrants. This means that for each maturity date and strike price we first calculate the value of European-style warrants. We then select the highest value, which will roughly correspond to the price of the Bermudan-style warrant. The Cox-Ross-Rubinstein model, also known as binomial model, can also be used to value a Bermudan-style warrant subject to minor adjustment.

3.29 How is the start of day price of a warrant determined?

The start of day price of a warrant is determined according to decision 33 of the ATHEX Board of Directors, following the Cox-Ross-Rubinstein (CRR) methodology with certain modifications, by taking into consideration the following parameters:

- The **estimated volatility** is determined according to the calculation of the price for the 1st quartile of the rolling average of the 90 days annualized volatility of the returns of the underlying share from 01/01/2007 until the last working day prior to the warrants' commencement of trading.
- The **risk-free interest rate** is calculated according to the main refinancing operations (fixed rate) of ECB on the last working day prior to the warrants' commencement of trading, increased by 50 basis points.
- The **dividends parameter** is calculated as the expected return based on announcements by the issuer in relation to monetary distributions in relation to ordinary shares for the current year (i.e. dividend payments, capital returns, etc.). It

should be noted that monetary distributions are not expected for the specific Financial Institutions for the year 2013, thus the parameter price will be set at zero (0).

Finally, it is noted that the trading price of each warrant represents the option per warrant for the purchase of a specific number of shares, according to the multiplier.

3.30 What is the sensitivity of a warrant's valuation to the parameters?

- The higher the share price fluctuation (volatility) the more expensive the warrant.
- The higher the share price (in relation to the strike price which is known in advance and fixed) the more expensive the warrant.
- The higher the strike price in relation to the underlying price of the share, the cheaper the warrant.
- - The higher the dividend yield the cheaper the warrant.

3.31 Which is the parameter that most affects change in the valuation of a warrant?

Volatility of the share price is the most important factor affecting the value of a warrant.

3.32 What is volatility?

We can take a look at the historical volatility of a share over a given period of time. Thus, for example, if the annualised 90-day volatility of a share was 50%, this means that the standard deviation of returns over the preceding 90 days (by 360/90 on an annual basis) would be 50%. Over a 30-day period volatility would be different, i.e. the annualised 30-day volatility (standard deviation of returns over the preceding 30 days by 360/30 on an annual basis).

In any case, our aim is to predict the volatility of the share in the future. Therefore, the decision on which historical volatility we will use (30, 60, 90, 180-day, etc.) is subjective to each investor.

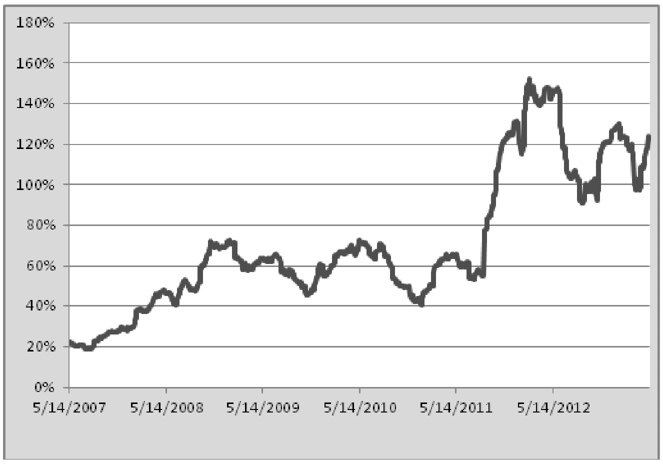
It is worth noting that after a period of significant fluctuations volatility returns, over time, at lower levels since the uncertainty that caused such high fluctuations usually fades away.

3.33 What is the volatility of the banks today?

The following charts provide investors with an insight of share price volatility of the four core banks:

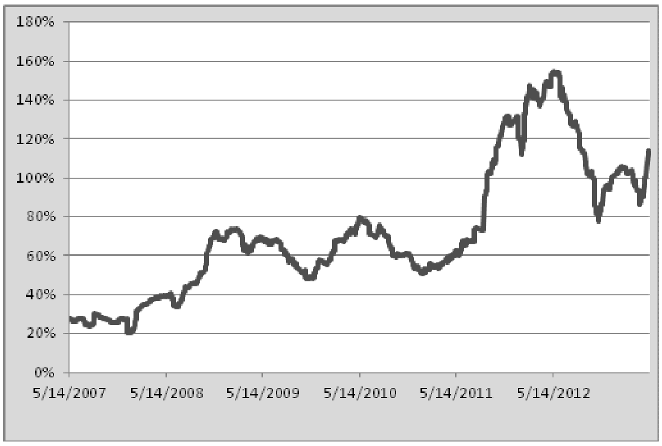
PIRAEUS BANK SA **10/05/2013**

VOLATILITY OF RETURNS **(90-day)**



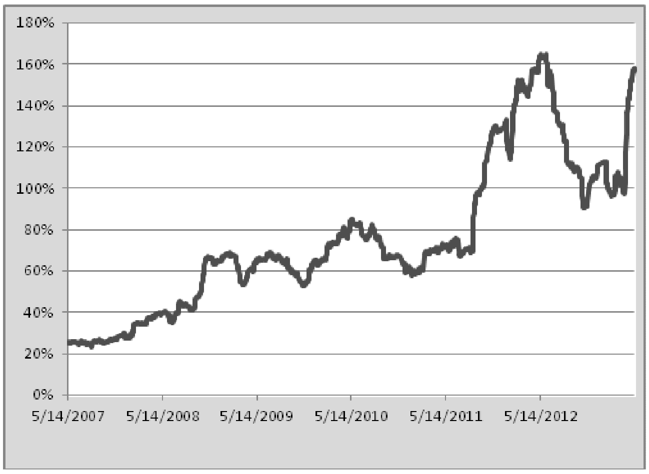
ALPHA BANK SA **10/05/2013**

VOLATILITY OF RETURNS **(90-day)**



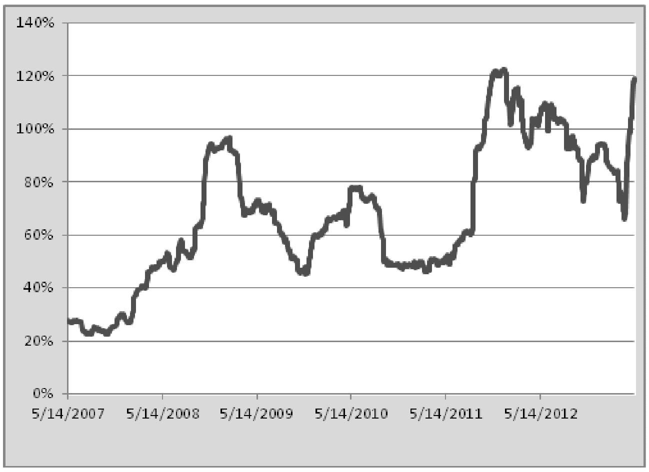
EUROBANK ERGASIAS SA **10/5/2013**

VOLATILITY OF RETURNS **(90-day)**



ETHNIKI BANK SA **10/05/2013**

VOLATILITY OF RETURNS **(90-day)**



3.34 What options does an investor in warrants have?

An investor may:

- Sell the warrant on the market, if he believes that the share will decline over the coming period and does not wish to exercise warrant to acquire shares;
- Keep the warrant and exercise at one of the intermediate exercise dates if he considers that the share price is high enough in relation to the strike price;
- Keep and exercise the warrant at the last exercise date.

4 Features of contingent convertible bonds (CoCos)

4.1 What are contingent convertible bonds (CoCos)?

Contingent convertible bonds (CoCos) are a way to raise capital in the form of bonds that may be converted into common shares in the future. In particular, CoCos are similar to convertible bonds in the sense that there is strike price at the conversion of the bonds into shares

4.2 Which institution issues CoCos?

Following a decision of the General Meeting of a credit institution's shareholders', the credit institution issues CoCos in favour of the Fund (FSF).

4.3 What happens after the issue of COCOs?

The COCOs may either be:

i) repaid by the credit institution (repayment of all bonds plus accrued interest);

ii) repurchased by the credit institution (redemption of debt) and then cancelled;

iii) converted into common shares.

4.4 What is their duration?

CoCos are securities of an indefinite duration with no maturity date, unless repurchased by the credit institution or converted into common shares. Conversion into common shares may be mandatory or due to some other event.

4.5 When is it mandatory to covert COCOs into common shares?

Five (5) years after the date of issue, the outstanding principal must be **mandatorily** converted into common shares of the issuer. In addition to the above case, the conversion of COCOs into common shares may be due to some other event (see question 4.8)

4.6 What is the yield of COCOs?

Bonds yield a contractual interest calculated at the annual rate of 7%, increased by 50 basis points p.a. The amounts of interest are payable annually in cash to the FSF, unless interest payment is replaced by payment in kind.

4.7 Do credit institutions have the right to repurchase COCOs?

The credit institution or the issuer may at any time at its discretion, repurchase the bonds, in whole or in part, at the issue price plus interest accrued and payable, subject to prior written approval of the Bank of Greece.

The bonds repurchased by the credit institution are cancelled subject to prior approval and in accordance with the regulations of the Bank of Greece.

4.8 In which cases are CoCos converted into common shares?

- Payment of interest in kind, if the payment of interest in cash would result in non-compliance of the credit institution with minimum capital requirements, or if the payment would, at the discretion of the Bank of Greece, compromise compliance with minimum capital requirements.
- Mandatory conversion of the outstanding principal on expiry of a 5-year period from the issue date of the bonds.
- Exceptional circumstances, when the expected ratio of constituents of the credit institution's basic equity falls below 7%.
- Viability circumstances, if a decision is made for the provision of aid to the credit institution by the public sector or for the provision of other similar aid, without which the credit institution would not be viable at the discretion of the Bank of Greece.
- Failure to achieve the minimum private sector participation in the credit institution's share capital increase.

For more information,

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