

## Greece's Debt: Sustainable?

After six years of economic recession, substantial disagreement surrounded the level of indebtedness of Greece and whether the country really had too much debt, which would need to be subjected to a haircut, or actually had too little debt, which would represent a competitive advantage. The situation was further complicated by an announcement, made in May 2015 by Greek Deputy Finance Minister Dimitris Mardas, that Greece would adopt accrual accounting and the International Public Sector Accounting Standards (IPSAS).<sup>a</sup> This announcement was previously made several times since the beginning of the crisis but was never fulfilled.<sup>1</sup>

### The Greek Economy

#### *Background*

According to World Bank statistics for the year 2013, the economy of Greece was the 43<sup>rd</sup> or 51<sup>st</sup> largest in the world at \$242 billion or \$283 billion by nominal or purchasing power parity GDP (gross domestic product), respectively.<sup>2</sup> Greece's economy mainly revolved around the service sector (80%) and industry (16%), while agriculture made up an estimated 4% of the GDP in 2014.<sup>3</sup> Important Greek industries included tourism and shipping. The Greek merchant navy was the largest in the world, with Greek-owned vessels accounting for 15% of global deadweight tonnage in 2013.<sup>4</sup> With approximately 20 million international tourist arrivals in 2014, Greece was one of the most attractive tourist destinations in the world.

Greece was classified as an advanced, high-income economy and was a founding member of the Organization for Economic Co-operation and Development (OECD). The Treaty of Accession of Greece to the European Communities was signed in Athens on May 28, 1979, and the country formally joined the European Union on January 1, 1981. On January 1, 2001, Greece adopted the euro as its currency, replacing the drachma at an exchange rate of 340.75 drachmas per euro.

The country's economy was devastated in the 1940s by the Second World War and internal conflicts. This was followed by high levels of economic growth in the latter half of the 20<sup>th</sup> century. Since the turn

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<sup>a</sup> IPSAS were based on the International Financial Reporting Standards (IFRS), formerly known as International Accounting Standards (IAS). IFRS were issued by the International Accounting Standards Board (IASB). IPSAS were issued by the International Public Sector Accounting Standards Board (IPSASB), an independent organ of the International Federation of Accountants (IFAC).

of the millennium, Greece had seen high levels of GDP growth above the eurozone average, close to 5%. As a result, Greece achieved similar levels of GDP per capita to Italy and Spain by 2008. The subsequent Greek government-debt crisis plunged the economy into a sharp downturn, with real GDP growth rates of -4.4% in 2009, -5.4% in 2010, -8.9% in 2011, -6.6% in 2012, and -3.3% in 2013.<sup>5</sup> After six years of economic decline, Greece returned to growth in the second and third quarters of 2014.

### *Beginning of the Crisis*

At the end of 2009, the Greek economy faced its most severe crisis since the restoration of democracy in 1974; the Greek government admitted that government statistics had been manipulated in the past and it was now revising its deficit numbers upwards. Greece's economy suffered from a competitiveness deficit, with most sectors being less competitive than those same sectors in other OECD countries (see **Exhibit 1**). The most competitive sectors were transport services, where shipping was dominant; tourism; and agriculture. Greece scored the highest in an index of uncertainty avoidance<sup>b</sup> across all countries.<sup>6</sup> The Greeks' high level of discomfort in ambiguous situations meant that they were less likely to take risks in order to invent new products, processes, or business models. As a result, Greece had one of the lowest license and patent revenues from abroad as a percentage of its GDP as well as one of the lowest contributions from high-tech product exports to its trade balance.<sup>7</sup> Furthermore, bureaucracy, laws, and rules exerted particular influence in Greece because they helped make life more structured and less uncertain. In Greece, acquiring construction permits, registering property, and enforcing contracts in courts required vast amounts of paperwork and time.<sup>8</sup>

Greece had weak institutions relative to other countries. The government had poor governance practices that were reflected in high corruption levels, widespread tax evasion, poor functioning of courts, and opacity in government dealings (see **Exhibit 2** for measures of institutional quality in Greece). Most labor-intensive sectors lacked competitiveness, and many attributed that to increasing wage levels that were not accompanied by productivity increases (see **Exhibit 3** for unit labor costs). As a result, Greece had very low levels of Foreign Direct Investment (FDI) relative to other countries (see **Exhibit 4**).

In early 2010, it was revealed that major investment banks had assisted in developing financial products that enabled the governments of Greece, Italy, and many other European countries to hide their borrowing. Dozens of similar agreements were concluded across Europe whereby banks supplied cash in advance in exchange for future payments by the governments involved; in turn, the liabilities of the involved countries were hidden.

Loans given to European governments were disguised as swaps and, consequently, did not get registered as debt because Eurostat at the time ignored statistics involving financial derivatives. A German derivatives dealer had commented that "the Maastricht rules can be circumvented quite legally through swaps," and "in previous years, Italy used a similar trick to mask its true debt with the help of a different U.S. bank."<sup>9</sup> In May 2010, the Greek government deficit was again revised and estimated to be 13.6%, the second-highest in the world relative to GDP, with Iceland in first place at 15.7%. Public debt was forecast to reach 120% of GDP during 2010. As a consequence, there was a lack

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<sup>b</sup> The uncertainty-avoidance measure was originally created by Geert Hofstede through a cultural survey of more than 100,000 IBM employees around the world and was subsequently confirmed in additional global surveys. High uncertainty-avoidance cultures try to minimize the occurrence of unknown circumstances and proceed by implementing rules, laws, and regulations. In contrast, low uncertainty-avoidance cultures accept and feel comfortable in unstructured situations or volatile environments, try to have as few rules as possible, and tend to be more tolerant of change.

of international confidence in Greece's ability to repay its sovereign debt, and Greece was unable to access market financing due to increased borrowing rates.

## Bailout

### *First Program*

On May 2, 2010, the Eurogroup<sup>c</sup> agreed to provide bilateral loans pooled by the European Commission (the "Greek Loan Facility," or GLF) for a total amount of €80 billion to be disbursed over the period May 2010 through June 2013.<sup>d</sup> The program needed approval by the parliament of a eurozone member state that agreed to provide financing. The financial assistance agreed by euro area member states was part of a joint package, with the International Monetary Fund (IMF) committing an additional €30 billion under a standby arrangement (SBA).

The disbursement of loans from creditors to the Greek government was made contingent on the successful implementation of a series of reforms and the adoption of austerity measures. Creditors demanded that Greece needed to implement a series of reforms to open the economy, such as making labor markets more flexible by decreasing the power of unions and liberalizing regulated professions, breaking down monopolies, privatizing state assets, and reducing bureaucracy. Moreover, they demanded that the government decrease public spending by reducing the salaries of public workers and lowering pensions. At the same time, they demanded an increase in direct and indirect taxation by increasing tax rates or by levying new taxes on real estate assets or other sources of wealth.

There was intense debate surrounding the austerity measures imposed on the Greek economy. Some believed that such austerity measures were needed in order to reduce its debt level, restore confidence in the Greek economy, and increase its competitiveness. Others thought that such austerity measures were sinking the Greek economy into a spiral of decreasing consumption and investment and into a prolonged recession that the country would not be able to escape for many years.

Austerity measures were designed to accommodate debt-to-GDP target levels at a given point in the future. Those target levels were set to ensure the sustainability of a country's debt, an analysis that the IMF labeled Debt Sustainability Analysis (DSA).<sup>e</sup> In line with DSA, the "Troika" — comprising the European Commission, the European Central Bank, and the IMF — set a date and a target for the ratio of debt-to-GDP that needed to be achieved before Greece could access capital markets again.<sup>f</sup> Then the

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<sup>c</sup> The Eurogroup was an informal body where the finance ministers of the euro area member states discussed matters relating to their shared responsibilities related to the euro.

<sup>d</sup> This amount was eventually reduced by €2.7 billion because Slovakia decided not to participate in the Greek Loan Facility Agreement, while Ireland and Portugal stepped down from the facility as they requested financial assistance themselves.

<sup>e</sup> The IMF explained: "The DSA should be based on gross debt, but the concept of net debt could be applied as a complementary measure to reflect factors that could mitigate risks associated with high levels of gross debt. Considerations in this regard include: (i) whether the country has large financial assets that could realistically be used to repay or service debt; and (ii) whether reliable data on government assets are available." Source: IMF. "Staff Guidance Note for Public Debt Sustainability Analysis in Market-Access Countries." May 9, 2013.

<sup>f</sup> According to the IMF, "The nominal value is the starting point for establishing legal liability and is used in vulnerability and sustainability analysis. . . . The nominal value of a debt instrument is a measure of value from the viewpoint of the debtor: at any moment in time it is the amount that the debtor owes to the creditor. . . . The nominal value of a debt instrument reflects the value of the debt at creation plus any subsequent economic flows, such as transactions (for example, repayment of principal) plus exchange rate and other valuation changes other than market price changes. . . . Conceptually, the nominal value of a debt

Troika made a series of assumptions regarding, among others, growth rates, public spending, tax revenues, and privatization receipts to compute what primary surpluses were necessary in every year to achieve the target. Those primary surpluses in turn informed what austerity measures were needed.

### *Second Program*

On March 14, 2012, euro area finance ministers approved financing of the Second Economic Adjustment Program for Greece. The euro area member states and the IMF committed the undisbursed amounts of the first program (the GLF) plus an additional €130 billion for the years 2012–2014. Whereas the financing of the first program was based on bilateral loans, it was agreed that—on the side of euro area member states—the second program would be financed by the European Financial Stability Facility (EFSF), which had been fully operational since August 2010. Like the first program, the second program needed approval by European national parliaments.

In total, the second program committed financial assistance of €164.5 billion until the end of 2014. Of this amount, the euro area commitment amounted to €144.7 billion to be provided via the EFSF, while the IMF contributed €19.8 billion. This was part of a four-year €28 billion arrangement under the Extended Fund Facility for Greece that the IMF approved in March 2012.

Additionally, when launching the second program, it was agreed that there should be private sector involvement (PSI) to improve the sustainability of Greece's debt. The high participation in Greece's debt exchange offer in spring 2012 made a significant contribution to this end. Out of a total of €205.6 billion in bonds eligible for the exchange offer, approximately €197 billion, or 95.7%, were exchanged. New bonds were issued for investors that held Greek government bonds, at a fraction of the old face value of the bonds. This provided substantial debt relief to Greece and imposed large losses on Greek bondholders. The face value of Greece's debt declined by more than €100 billion, or more than 50% of the eligible debt.<sup>10</sup> The new Greek government bonds given to private investors as part of the PSI had a yield to maturity of approximately 15% on March 12, 2012, the first day of trading. As a result, the bonds traded at around a quarter of their face value, or 25 cents on a euro.

### *Restructuring*

In spring 2012, continued political instability led to elections that created a tense environment where uncertainty about the possible outcome of a second election led to an acceleration of capital outflows and doubts about the capacity of Greece to implement the adjustment program. Ultimately, the election resulted in the formation of a coalition government, comprised of three political parties and spearheaded by a center-right political party, with the mandate to secure Greece's future in the euro area and to implement the economic adjustment program resolutely. The new government took up the challenge of identifying and taking the measures needed for catching up on the implementation of the program. The difficulty of fulfilling the conditionality in the immediate aftermath of the elections significantly delayed the disbursement of the next tranches of the loans from international lenders, which took a heavy toll on the economy.<sup>11</sup>

Against this background, and taking into account the action taken by the authorities, on November 26–27, 2012, the Eurogroup and the IMF agreed to extend the fiscal adjustment path by two years. This involved a reduction of the primary surplus target for 2014 from 4.5% of GDP to 1.5% of GDP and an even annual adjustment of 1.5% of GDP until a primary surplus of 4.5% of GDP would be achieved in

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instrument can be calculated by discounting future interest and principal payments at the existing contractual interest rate(s) on the instrument." Source: International Monetary Fund. "Public Sector Debt Statistics: Guide for Compilers and Users." 2013.

2016. They also agreed on a package of measures aimed at reducing Greece's debt to 124% of GDP by 2020. The euro area member states agreed to initiatives that included:

- a lowering by 100 basis points of the interest rate charged to Greece on the loans provided in the context of the GLF by other eurozone governments;
- an extension of the maturities of the bilateral and EFSF loans by 15 years and a deferral of interest payments of Greece on EFSF loans by 10 years (see **Exhibit 5** for the change in the maturity of payments); and
- a commitment by member states to pass on to Greece's segregated account an amount equivalent to the income on the Securities Markets Program (SMP) portfolio accruing to their national central bank as from budget year 2013.<sup>12</sup>

In parallel, the Greek government announced that it was considering certain debt reduction measures (a debt buyback operation) through public debt tender purchases of the various categories of sovereign obligations. The buyback was carried out in early December 2012 and used €11.3 billion from EFSF loans to retire €31.9 billion in Greek government bonds, hence reducing the face value of Greece's debt by €20.6 billion.<sup>13</sup> The average price at which the Greek government bought the bonds, 34 cents per € of face value, had increased by 20% since the buyback was announced in November 2012, but the buyback was considered by the Greek government and the IMF as putting Greece's debt on a sustainable path.<sup>14</sup>

On December 12, 2012, following the finalization of the relevant national procedures and after having reviewed the outcome of the debt buyback operation conducted by Greece, the Eurogroup approved the second installment under the Second Economic Adjustment Program for Greece. On that basis, member states authorized the EFSF to release the next installment for a total amount of €49.1 billion. The disbursement was made in several tranches. In December 2012, €34.3 billion was paid out to Greece. The remaining amount was disbursed in the first quarter of 2013. Additionally, €7.2 billion was made available to cover bank recapitalization and resolution costs. Funds to cover budgetary financing were disbursed in three sub-tranches and were linked to the implementation of specific Memorandum of Understanding milestones agreed by the Troika.

In mid-2014, Greece returned to the capital markets after six years and issued a €1.5 billion three-year maturity bond with an interest rate of 3.5% and a €3 billion five-year maturity bond with an interest rate of 4.95%.

## Debate over Debt

With a debt close to 175% of its GDP, many commentators questioned the sustainability of Greece's debt. Greek politicians, representing both government and opposition, regularly cited external debt as being too large relative to the GDP of the country and, as a result, called for debt forgiveness.<sup>15</sup> However, Paul Kazarian, who led Japonica Partners, an entrepreneurial investment firm, believed that this number was grossly misleading. Japonica, which started investing in Greece in the summer of 2012, offered in 2013 to buy close to €3 billion of face-value Greek government bonds. According to Kazarian, Japonica was one of the largest private holders of Greek government bonds.

Japonica maintained its position in Greek government bonds in 2015 and relentlessly advocated that Greece's debt level was rather low. (**Exhibit 6** shows the schedule of future payments that Greece needed to make to its creditors.) Kazarian argued, "Greece is now suffering from a contrived liquidity

squeeze. They don't have a debt problem, they have a management challenge."<sup>16</sup> Kazarian highlighted the fact that Greece did not prepare financial statements under accrual accounting. Rather, debt was measured at face value according to the Maastricht Treaty.<sup>8</sup> Japonica's estimates suggested that if Greece were to follow IPSAS, which were broadly consistent with International Financial Reporting Standards, the debt would be just 68% of Greece's GDP as of year-end 2013.

Japonica's analysis suggested that due to a combination of lengthening maturity rates, lowering interest rates, and rebates on interest and principal payments after the restructuring, Greece's debt burden was substantially lower than generally thought (see **Exhibit 7** for adjustments to Greek debt). Specifically, the value of securities held by private sector investors, the European Central Bank, and European National Central Banks was reduced from a face value of €62.8–€20.3 billion. According to Japonica's estimates, loans made by European governments, the EFSF, and the IMF were reduced from €212.4–€59.5 billion.

Japonica also made the point that accounting for the financial assets held by the Greek government, the net debt was only 18% of its GDP. Greece had €91 billion in financial assets including €56 billion in equity shares, €21.6 billion in currency and deposits, and €13 billion in securities other than shares.<sup>17</sup> The net debt number compared favorably with the European national average, which was close to 80% (see **Exhibit 8** for a comparison of Greek debt with that of other EU countries).

However, many investors did not share Kazarian's viewpoint. "Accounting standard issues can be important . . . but what the market really cares about is what the IMF tells us," said Salman Ahmed, global fixed income strategist at Lombard Odier.<sup>18</sup> Similarly, credit rating agencies did not respond to Japonica's analysis maintaining Greece's low credit ratings. However, several academics and accountants publicly supported Japonica's analysis, and major media outlets such as the *Wall Street Journal*, the *New York Times*, and the *Financial Times* covered Japonica's analysis.<sup>19</sup>

After 2009, credit rating agencies had downgraded Greece's credit rating, something that Kazarian believed could be reversed if the country were to adopt IPSAS. Better sovereign credit ratings were closely related to higher levels of income-per-capita and lower levels of external debt.<sup>20</sup> In the World Competitiveness Yearbook Ranking, conducted by the International Institute for Management Development, Greek business managers answered a survey question about whether "cost of capital encourages business development." They gave a ranking of close to 6 (out of 10) before the crisis but only 1.3 in 2014.<sup>21</sup> Credit rating agencies imposed filters that automatically downgraded ratings of Greek corporations when Greek government bonds were downgraded.<sup>22</sup> According to Japonica's estimates, Greek companies borrowed at more than double the rate of their European competitors. With Greece's venture capital industry underdeveloped, Greek entrepreneurs also faced limited access to finance.<sup>23</sup>

Kazarian was increasingly worried that Greece's lack of transparency and reliable accounting numbers was leading to financial mismanagement. Japonica estimated that, between the end of December 2013 and the end of March 2015, Greece lost approximately €30 billion, almost a third of its financial assets.<sup>24</sup> Half of that was attributed to the decline in the value of investments made by the

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<sup>8</sup> The face value of a debt instrument was the undiscounted amount of principal to be repaid at the maturity. Source: International Monetary Fund. "Public Sector Debt Statistics: Guide for Compilers and Users." 2013. The difference between face and nominal value may be significant when countries have a high proportion of zero-coupon or deep-discount securities. When securities were issued at a discount, the face value included the interest that accrued over the whole life of the instrument. Accordingly, the face value would be greater than the nominal value due to the inclusion of interest that had not yet accrued.

Hellenic Financial Stability Fund (HFSF) in Greek banks' equity shares.<sup>h</sup> HFSF was funded by loans made by the Troika during the Greek bailout. The other half was attributed to the decline in the value of equity investments made in Greek stocks by Greek state pension funds and other government or quasi-government agencies. As a result, Japonica estimated that at the end of March 2015, Greece's net debt was close to 42% of GDP.<sup>25</sup>

### *Sovereign Accounting Practices*

Greece had a long history of failed attempts to adopt accrual accounting.<sup>i</sup> In 1992, the Greek ministry of economy announced that Greek government agencies would adopt accrual accounting, but such adoption never happened. In 2003, the Greek government announced plans for public hospitals to implement accrual accounting. In 2008, the European Commission recommended that Greece implement IPSAS, but in 2015 the country had yet to prepare financial statements according to IPSAS. That said, low-level government employees began training in IPSAS starting in 2010. Many suggested that the absence of high-quality accounting numbers fueled bad governance, mismanagement, and lack of accountability.<sup>26</sup>

But Greece was not alone in not having adopted IPSAS to calculate the value of its assets and liabilities. In 2013, among 100 countries, less than half of the governments used accrual accounting.<sup>27</sup> Less than half of the countries that were member states of the European Union had adopted IPSAS. A notable country not using IPSAS was Germany, Europe's largest economy. Germany's finance minister, Wolfgang Schäuble, was asked about this decision on April 25, 2015:

Greece has terrible public accounting standards. Many European countries do. You don't know what the real level of the debt is unless you have accurate public accounting standards. . . . Public accounting standards—counting where the money went and counting what it is that you owe. Switzerland, Norway, Canada all have something called IPSAS. The OECD has asked the EU to adopt European public accounting standards. You would be able to see where the money went. Why not?<sup>28</sup>

Schäuble struggled to answer:

It is a little bit more difficult. It would be—it would be very—it is a very complicated issue, these accounting standards. It is not the solution for our problems, to say that. I would—I would—I would be ready to discuss this for a long time, but it is not. I can tell you; to make a long story short, it is not the solution for the—for the—we know—we know what the problem is. There is—we have different traditions in accounting, reporting. We have different traditions in surveying public expenditure.<sup>29</sup>

## *Accounting for Financial Instruments*

**Initial and subsequent measurement** Because Greece had not adopted accrual accounting, it did not report the value of its liabilities or the value of its assets according to IPSAS or any other internally recognized accounting standards. IPSAS 29 “Financial Instruments—Recognition and Measurement” was based on IAS 39 “Financial Instruments—Recognition and Measurement.” According to IPSAS 29 and IAS 39, initial recognition of a financial liability was based on fair value. Under IAS 39, and its successor International Financial Reporting Standards (IFRS) 9, subsequent measurement depended on whether the organization had designated a financial liability to be measured at fair value through profit and loss or at amortized cost using the effective interest rate method.<sup>j</sup> IPSAS did not typically allow for subsequent measurement at fair value through profit and loss, especially for financial liabilities and loans. Rather, subsequent measurement was based on amortized cost using the effective interest rate method.<sup>30</sup> The borrower recorded every year the carrying amount of the liability times the effective interest rate as an expense and the difference between the expense and the cash payment in that year as a change in the carrying amount of the liability.

**Fair value** Fair value was defined on the basis of an “exit price” notion and used a “fair value hierarchy,” which resulted in a market-based, rather than an entity-specific, measurement. The hierarchy categorized the inputs used in valuation techniques into three levels. The hierarchy gave the highest priority to (unadjusted) quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3).

Level 1 inputs were quoted prices in active markets for identical assets or liabilities that the entity could access at the measurement date. If an entity held a position in a single asset or liability and the asset or liability was traded in an active market, the fair value of the asset or liability was measured within Level 1 as the product of the quoted price for the individual asset or liability and the quantity held by the entity.<sup>31</sup> Greek government bonds held by private investors following the PSI were actively traded in a secondary market with an average monthly trading volume of €1 billion during 2014.<sup>32</sup>

Level 2 inputs were inputs other than quoted market prices included within Level 1 that were observable for the asset or liability, either directly or indirectly. Level 2 inputs included:

- quoted prices for similar assets or liabilities in active markets;
- quoted prices for identical or similar assets or liabilities in markets that were not active;
- inputs other than quoted prices that were observable for the asset or liability (for example, interest rates and yield curves observable at commonly quoted intervals implied volatilities or credit spreads); and
- inputs derived principally from or corroborated by observable market data by correlation or other means (“market-corroborated inputs”).<sup>33</sup>

Level 3 inputs were unobservable inputs for the measurement of an asset or liability. Unobservable inputs were used to measure fair value to the extent that relevant observable inputs were not available, thereby allowing for situations in which there was little, if any, market activity for the asset or liability

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<sup>j</sup> Amortized cost was calculated using the effective interest rate method. The effective interest rate was the rate that exactly discounted estimated future cash payments or receipts through the expected life of the financial instrument to the net carrying amount of the financial asset or liability.

at the measurement date. An entity developed unobservable inputs using the best information available in the circumstances, which might include the entity's own data, taking into account all information about market participant assumptions that was reasonably available.<sup>34</sup>

IFRS and US GAAP indicated the key elements from the perspective of market participants that should be captured in developing a fair value measurement:

- an estimate of future cash flows and expectations about possible variations in the amount and timing of cash flows;
- the time value of money based on the risk-free rate for monetary assets with maturity dates or durations that coincided with the period covered by the cash flows and posed neither uncertainty in timing nor risk of default to the holder—i.e., a “risk-free” interest rate (**Exhibit 9** shows the yield curve as of May 2015 from the European Central Bank); and
- a risk premium for any uncertainty in the cash flows. For a liability, the risk of nonperformance, including the reporting entity's own credit risk if not already included in the risk premium. (**Exhibit 10** shows the yield to maturity of Greek government bonds.)<sup>k</sup>

To avoid double counting or omitting the effects of risk factors, discount rates needed to reflect assumptions that were consistent with those inherent in the cash flows. For example, a discount rate that reflected the uncertainty in expectations about future defaults was appropriate if using contractual cash flows of a loan. That same rate would not be employed if using expected, probability-weighted cash flows because the expected cash flows already reflected assumptions about the uncertainty in future defaults. Instead, a discount rate that was commensurate with the risk inherent in the expected cash flows needed to be used.<sup>35</sup>

**Own credit risk** Reflecting nonperformance risk in a liability and especially in an organization's own debt was controversial and had resulted, during the transition to IFRS in 2005, in the European Commission adopting the fair value standard for financial instruments with the exception of the fair value option for liabilities. Recognizing income from an increase in default risk was considered counterintuitive because firms in trouble would recognize income in periods where they were becoming less solvent.<sup>36</sup> Recent changes in fair value standards by both the IASB and the Financial Accounting Standards Board (FASB) suggested that changes in the fair value of a liability due to changes in the organization's own credit risk would not flow through the income statement but would be recognized in other comprehensive income.<sup>l</sup> In contrast, changes in the fair value of a liability due to changes in the risk-free rate would flow through the income statement. Upon extinguishment of the liability, gains or losses included in other comprehensive income would be transferred and recognized in the income statement.

**Substantial modifications** IFRS and IPSAS provided very similar guidance on substantial modifications to existing liabilities. IAS 39 and IPSAS 29 defined that an exchange between an existing borrower and lender of debt instruments with substantially different terms should be accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability.

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<sup>k</sup> The yield to maturity of a bond was the required rate of return expected to be earned by an investor who bought the bond at the market price, assuming that the bond would be held until maturity, and that all coupon and principal payments would be made on schedule. Yield to maturity was the discount rate at which the sum of all future cash flows from the bond (coupons and principal) was equal to the price of the bond.

<sup>l</sup> Other comprehensive income generally included changes in asset and liability values that did not flow through the income statement.

Similarly, a substantial modification of the terms of an existing financial liability or a part of it (whether or not attributable to the financial difficulty of the debtor) should be accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability. Both standards defined the terms as substantially different if the discounted present value of the cash flows under the new terms, including any fees paid net of any fees received and discounted using the original effective interest rate, was at least 10% different from the discounted present value of the remaining cash flows of the original financial liability.<sup>37</sup>

**Concessionary loans** IPSAS, but not IFRS, provided guidance on the accounting treatment of concessionary loans that were granted to or received by an entity at below market terms. IPSAS 29 prescribed that an entity determined the fair value of the loan by reference to an active market; if there was no reference to an active market, a valuation technique was used. Any difference between the fair value of the loan and the transaction price (the loan proceeds) was treated by the receiving entity in accordance with IPSAS 23—Revenue from Non-Exchange Transactions. Where an entity determined that the difference between the transaction price (loan proceeds) and the fair value of the loan on initial recognition was non-exchange revenue, an entity recognized the difference as revenue except if a present obligation existed—e.g., where specific conditions imposed on the transferred assets by the recipient resulted in a present obligation. Where a present obligation existed, it was recognized as a liability. As the entity satisfied the present obligation, the liability was reduced and an equal amount of revenue was recognized. Where the loan was granted by an entity, the difference was treated as an expense in surplus or deficit at initial recognition.<sup>38</sup>

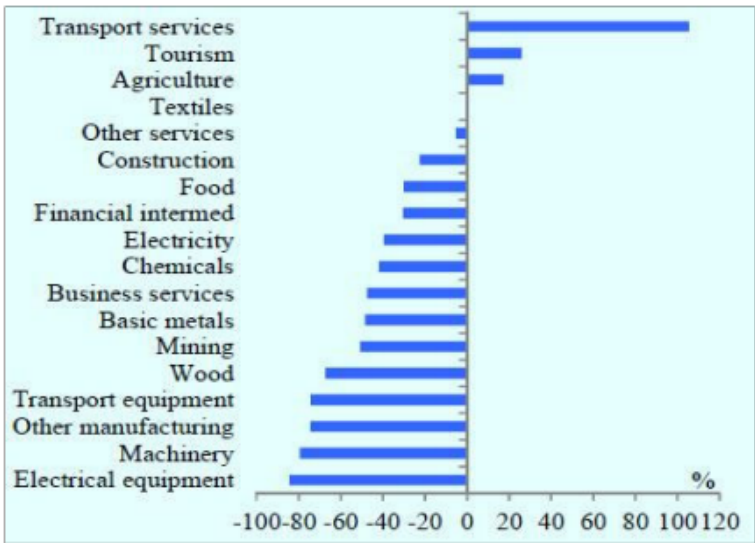
## The Future

In January 2015, a new government was elected in Greece. Greek citizens were dissatisfied with the old government due to the continuous imposition of new taxes and the lack of any apparent progress to fight corruption and cease cozy relations with tycoons, something that the new government, a left-wing political party, made a priority.<sup>39</sup> The new government was also elected on the promise to apply a haircut to the debt and force Greece's creditors into an agreement to cancel austerity measures. New Prime Minister Alexis Tsipras repeatedly cited a debt level close to 180% of Greece's GDP and argued that the debt should be cut by at least a third.<sup>40</sup> Similarly, new Finance Minister Yanis Varoufakis, a previously little-known economist from the University of Athens with an expertise in game theory but not in accounting and finance,<sup>41</sup> quickly became a social media sensation as he argued that Greece's debt was unsustainable and that austerity measures were harming Greece.<sup>42</sup> However, Japonica believed that the emphasis on the sustainability of Greece's debt was misguided and that Greek citizens needed to be informed about the importance of the country adopting IPSAS.

On February 18, 2015, after negotiations between the newly elected government in 2015 and the Troika, the Greek government requested an extension of the Master Financial Assistance Facility Agreement for Greece. The extension allowed the Greek authorities to design and implement, in coordination with the Troika, reforms for the Greek economy. However, in the next three months, intense negotiations between the Greek government and creditors failed to produce an agreement on the conditions for an extension of financial assistance. At the same time, no progress was made in implementing reforms that could increase the competitiveness of the country. As a result, on April 16, 2015, S&P downgraded Greece's long-term credit rating to CCC+ from B-, suggesting that "without deep economic reform or further relief, we expect Greece's debt and other financial commitments will be unsustainable."<sup>43</sup>

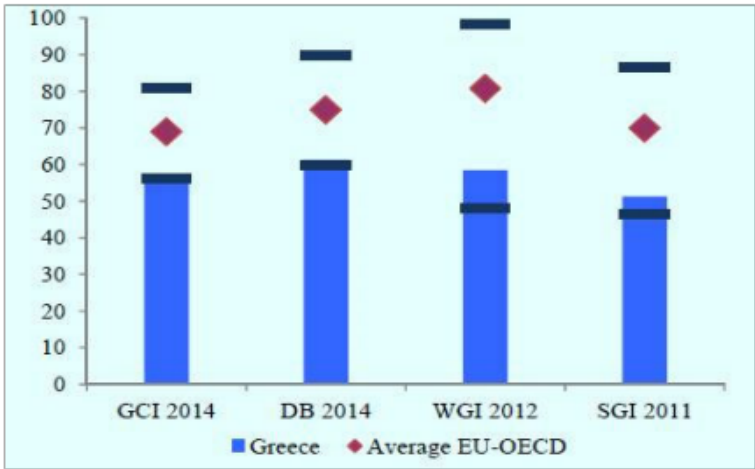
For many policy makers and business people, the optimal mix of reforms depended on how indebted Greece really was. Did Greece have too much debt? Should the Greek government push lenders to take a haircut on the debt? Were the austerity measures necessary? Did Greece have too little debt that would allow the country to avoid austerity measures, increase spending, and spark growth?

**Exhibit 1** Greek Sector Competitiveness



Source: European Commission. “The Second Economic Adjustment Programme for Greece, Fourth Review – April 2014.” [http://ec.europa.eu/economy\\_finance/publications/occasional\\_paper/2014/op192\\_en.htm](http://ec.europa.eu/economy_finance/publications/occasional_paper/2014/op192_en.htm), accessed April 2015.

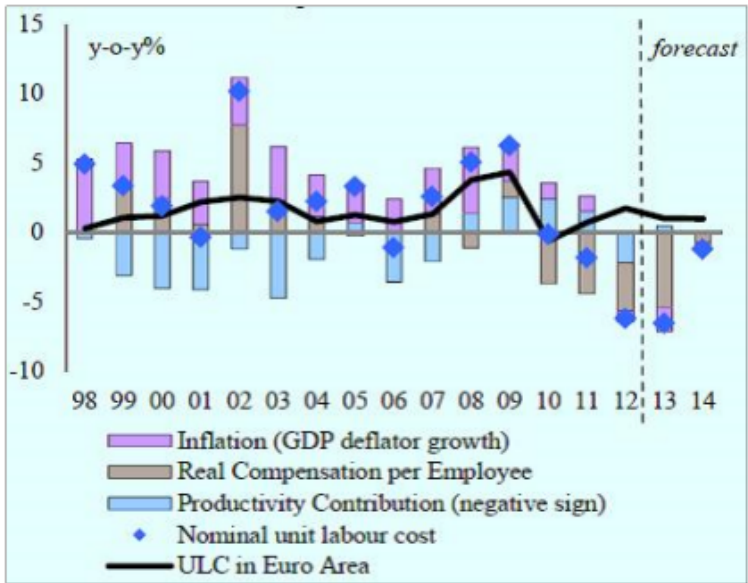
**Exhibit 2** Institutional Quality



Source: European Commission. “The Second Economic Adjustment Programme for Greece, Fourth Review – April 2014.” [http://ec.europa.eu/economy\\_finance/publications/occasional\\_paper/2014/op192\\_en.htm](http://ec.europa.eu/economy_finance/publications/occasional_paper/2014/op192_en.htm), accessed April 2015.

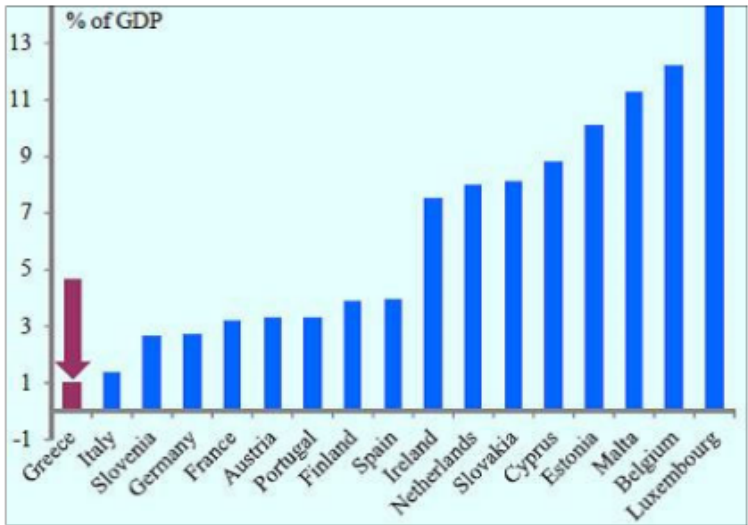
Note: The measures of institutional quality include the Global Competitiveness Indicator (CGI) from the World Economic Forum, The World Bank Doing Business Distance to Frontier Indicator (DB), the World Bank Worldwide Governance Indicator (WGI), and the OECD Sustainable Governance Indicator (SGI).

**Exhibit 3** Unit Labor Costs for Greece



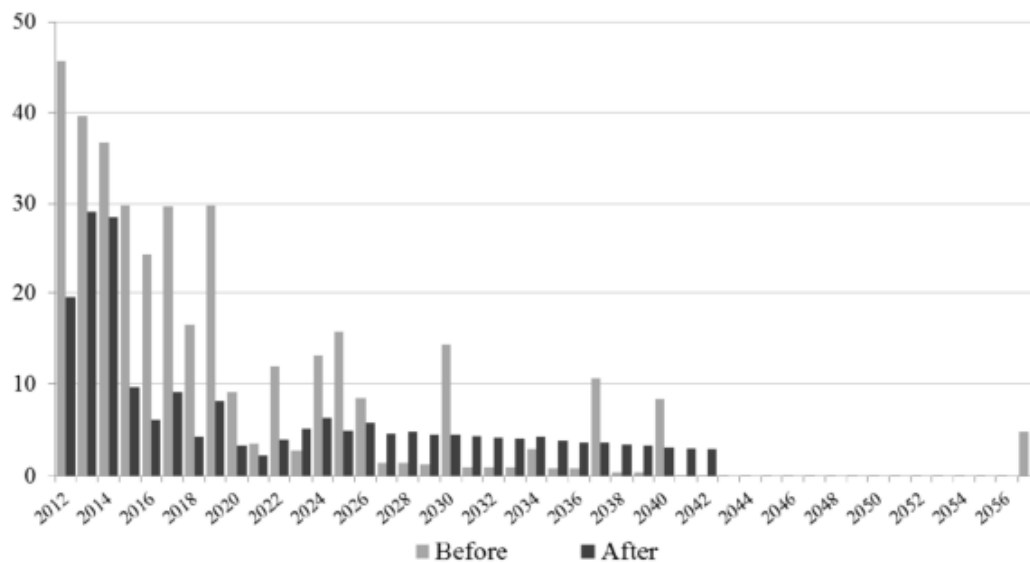
Source: European Commission. "The Second Economic Adjustment Programme for Greece, Fourth Review – April 2014." [http://ec.europa.eu/economy\\_finance/publications/occasional\\_paper/2014/op192\\_en.htm](http://ec.europa.eu/economy_finance/publications/occasional_paper/2014/op192_en.htm), accessed April 2015.

**Exhibit 4** Average FDI as a % of GDP, 2000–2007



Source: European Commission. "The Second Economic Adjustment Programme for Greece, Fourth Review – April 2014." [http://ec.europa.eu/economy\\_finance/publications/occasional\\_paper/2014/op192\\_en.htm](http://ec.europa.eu/economy_finance/publications/occasional_paper/2014/op192_en.htm), accessed April 2015.

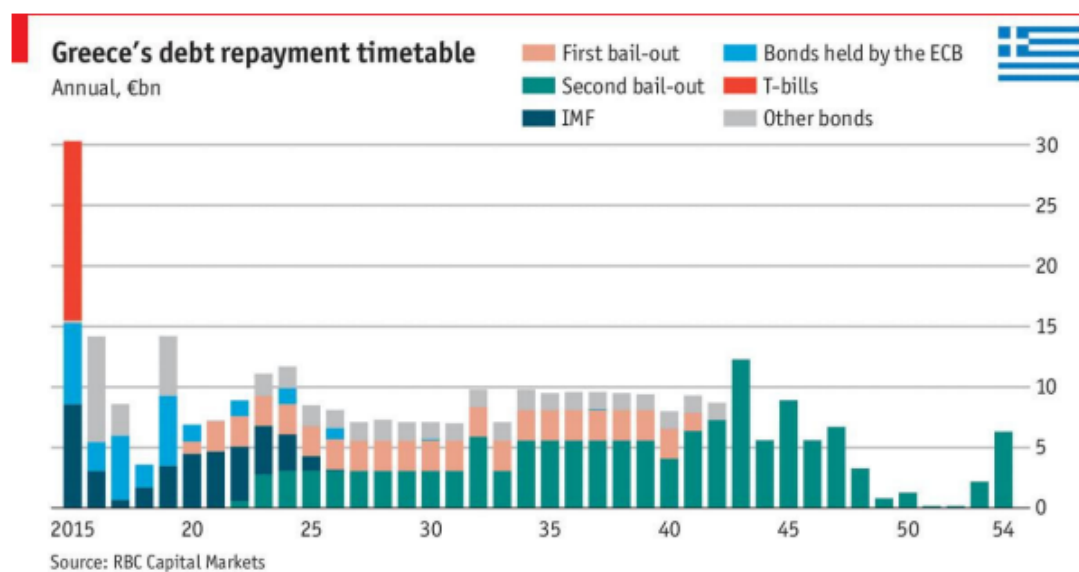
**Exhibit 5** Greece's Debt Repayment Schedule before and after the Restructuring



Source: Jeromin Zettelmeyer, Christoph Trebesch, and Mitu Gulati. "The Greek Debt Restructuring: An Autopsy." *Economic Policy* 28, no. 75 (2013): 513–563.

Note: Coupon plus principal repayments in face value in billions of €.

**Exhibit 6** Greece's Debt Repayment Schedule by Creditor



Source: "Payback time." *The Economist*. <http://www.economist.com/blogs/graphicdetail/2015/04/daily-chart-7>, accessed April 2015. Data reused by permission of The Economist Intelligence Unit.

## Exhibit 7 IPSAS Adjustments to Greek Debt

| SN  | Type of Debt/Asset               | Maastricht Debt (Face Value) | IPSAS Adjustments (Includes Accretion) |                                     |                                                    |                                                  | IPSAS Net Debt (Fair Value) |
|-----|----------------------------------|------------------------------|----------------------------------------|-------------------------------------|----------------------------------------------------|--------------------------------------------------|-----------------------------|
|     |                                  | 31 Dec 2013                  | OSI #1: Loans May 2010                 | OSI #1: Loan Modification June 2011 | OSI #2/PSI #1 Extensive Restructuring Feb/Mar 2012 | OSI #3/PSI #2 Modification/Buyback December 2012 | 31 Dec 2013                 |
| 1.  | Modified Securities              | € 62.8                       | € 0.0                                  | € 0.0                               | € 36.7                                             | € 5.8                                            | € 20.3                      |
| 2.  | Modified/Concessionary Loans     | € 212.4                      | € 11.0                                 | € 5.7                               | € 84.9                                             | € 51.3                                           | € 59.5                      |
| 3.  | Non-Revalued Debt                | € 43.5                       | € 0.0                                  | € 0.0                               | € 0.0                                              | € 0.0                                            | € 43.5                      |
| 4.  | Adjustments                      |                              | € 11.0                                 | € 5.7                               | € 121.6                                            | € 57.1                                           | € 195.4                     |
| 5.  | Total Gross Debt                 | € 318.7                      | € 307.7                                | € 302.0                             | € 180.4                                            | € 123.3                                          | € 123.3                     |
| 6.  | GDP                              | € 182.0                      |                                        |                                     |                                                    |                                                  | € 182.0                     |
| 7.  | Debt/GDP                         | 175%                         |                                        |                                     |                                                    |                                                  | 68%                         |
| 8.  | Financial Assets Funded w/ Loans |                              |                                        |                                     |                                                    |                                                  | € 33.6                      |
| 9.  | Other Financial Assets           |                              |                                        |                                     |                                                    |                                                  | € 57.1                      |
| 10. | Total Financial Assets           |                              |                                        |                                     |                                                    |                                                  | € 90.7                      |
| 11. | Net Debt                         |                              |                                        |                                     |                                                    |                                                  | € 32.6                      |
| 12. | Net Debt/GDP                     |                              |                                        |                                     |                                                    |                                                  | 18%                         |

| Concessionary Terms and Modifications: Highlights                                |                                                                                                   |                                                                                             |                                                                                                         |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| EU Loans: 3M Euribor plus 300-400 bps. Maturities: 5 yrs. Grace period: 1.5 yrs. | EU Loans cut to 3M Euribor plus 200-300 bps. Maturities up to 10 yrs. Grace period up to 4.5 yrs. | EU Loans cut to 3M Euribor plus 150bps. Maturities up to 15 yrs. Grace period up to 10 yrs. | EU Loans cut to 3M Euribor plus 50bps. Maturities extended to 30 yrs.                                   |
|                                                                                  |                                                                                                   | EPSF Loans: Cost-of-funding plus 200-300bps. Maturities: 30 yrs.                            | EPSF Loans cut to cost-of-funding. Interest deferred for 10 yrs. Maturities extended to maximum 45 yrs. |
|                                                                                  |                                                                                                   | ANFA bonds issued on extant terms with interest and partial principal rebate.               |                                                                                                         |
|                                                                                  |                                                                                                   | SMP bonds issued on extant terms.                                                           | SMP interest and partial principal rebate.                                                              |
|                                                                                  |                                                                                                   | GGBs start at 2% coupon with maturities up to 30 yrs.                                       |                                                                                                         |

Source: Japonica Partners, "Revaluation of Greece Financial Liabilities." [http://mostimportantreform.info/IPSAS\\_Net\\_Debt\\_Teaching\\_Materials.pdf](http://mostimportantreform.info/IPSAS_Net_Debt_Teaching_Materials.pdf), accessed April 2015.

Note: Modified securities included €26 billion held by private sector investors and €37 billion held by ECB and European National Central Banks. Modified/concessionary loans included €53 billion in the Greek Loan Facility, €134 billion in EPSF loans, and €26 billion in IMF loans.

## Exhibit 8 Comparison of Greek, Irish, Italian, Spanish, and Portuguese Debt before and after IPSAS Adjustments

|                          | Peer   |         |         |         |         |          |
|--------------------------|--------|---------|---------|---------|---------|----------|
|                          | Greece | Average | Ireland | Italy   | Spain   | Portugal |
| 1. Maastricht Debt/GDP   | 175%   | 120%    | 124%    | 133%    | 94%     | 129%     |
| 2. GDP                   | € 182  |         | € 164   | € 1,560 | € 1,023 | € 166    |
| 3. Maastricht Debt (EDP) | € 319  |         | € 203   | € 2,069 | € 961   | € 214    |

| IPSAS/IFRS:         |       |     |       |         |       |       |
|---------------------|-------|-----|-------|---------|-------|-------|
| 4. Gross Debt       | € 124 |     | € 189 | € 2,069 | € 940 | € 185 |
| 5. Financial Assets | € 91  |     | € 65  | € 317   | € 292 | € 69  |
| 6. Net Debt         | € 33  |     | € 125 | € 1,752 | € 647 | € 116 |
| 7. Net Debt/GDP     | 18%   | 80% | 76%   | 112%    | 63%   | 70%   |

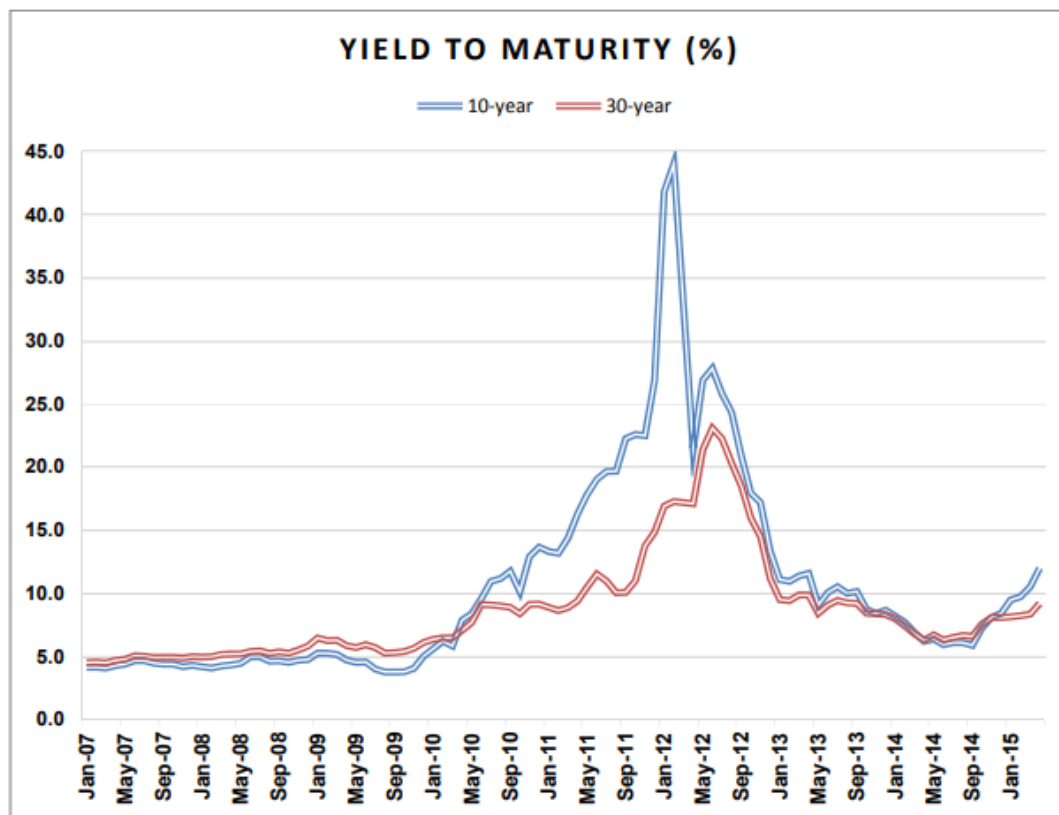
|                          |       |  |      |     |      |      |
|--------------------------|-------|--|------|-----|------|------|
| 8. IAS Impacted Debt     | € 275 |  | € 62 | € 0 | € 41 | € 72 |
| 9. IAS Impacted Debt (%) | 86%   |  | 31%  | 0%  | 4%   | 34%  |

Source: Japonica Partners. "Revaluation of Greece Financial Liabilities." [http://mostimportantreform.info/IPSAS\\_Net\\_Debt\\_Teaching\\_Materials.pdf](http://mostimportantreform.info/IPSAS_Net_Debt_Teaching_Materials.pdf), accessed April 2015.

**Exhibit 9** Yield Curve – Instantaneous Forward Rates

| Year | Rate (%) |
|------|----------|
| 1    | -0.260   |
| 2    | -0.220   |
| 3    | -0.130   |
| 4    | -0.011   |
| 5    | 0.126    |
| 6    | 0.265    |
| 7    | 0.398    |
| 8    | 0.520    |
| 9    | 0.629    |
| 10   | 0.725    |
| 11   | 0.809    |
| 12   | 0.883    |
| 13   | 0.947    |
| 14   | 1.004    |
| 15   | 1.053    |
| 16   | 1.097    |
| 17   | 1.137    |
| 18   | 1.171    |
| 19   | 1.203    |
| 20   | 1.231    |
| 21   | 1.257    |
| 22   | 1.280    |
| 23   | 1.301    |
| 24   | 1.321    |
| 25   | 1.339    |
| 26   | 1.355    |
| 27   | 1.370    |
| 28   | 1.385    |
| 29   | 1.398    |
| 30   | 1.410    |

**Exhibit 10** Yield to Maturity of Greek Government Bonds



Source: Bank of Greece. [http://www.bankofgreece.gr/Pages/en/Statistics/rates\\_markets/titloiieldimosiou/titloiieldimosiou.aspx?Year=2015](http://www.bankofgreece.gr/Pages/en/Statistics/rates_markets/titloiieldimosiou/titloiieldimosiou.aspx?Year=2015), accessed April 2015.

Note: Time period January 2007–April 2015.