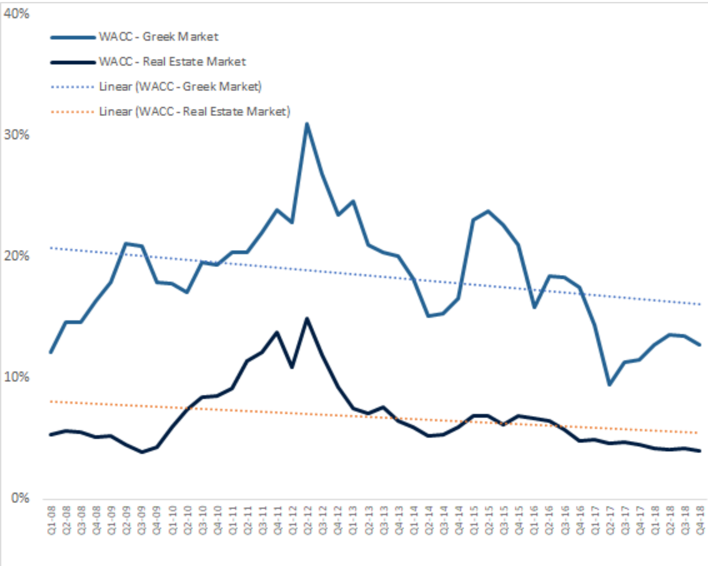
Inventio Market Indexes 2018
Initiating Coverage

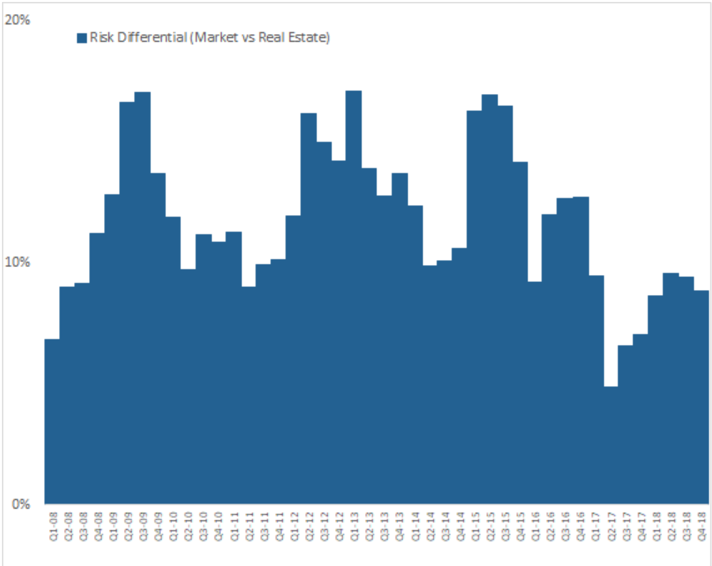
Overview

In the ever-changing investment environment, the cost of capital analysis is essential for gauging and undertaking investment decisions. Historical data reveals market reactions and/or expectations to a wide range of events and their causality in terms of equity or debt cost/expected returns.

Inventio computes and assesses the Weighted Average Cost of Capital in Greece both in terms of the broader Market as well as for Real Estate. In addition, Inventio computes an **Economic Expectations Index** and a **Real Estate Value Index** for a closer monitoring of changes in economic sentiment and expectations and the corresponding changes in the value of assets.

WACC - Greek Market & Real Estate





WACC - Greek Market: The first market signs that the Greek Economy had difficulties to refinance its public debt appeared in early 2008, although broader signs of upcoming difficulties were apparent by the end of 2006. As a result, Market WACC began to move on an upward trend at that time. This trend stalled temporarily in 2009-2010 due to the elections at the end of 2009 and the ensuing announcement for cost cutting measures in the public sector and some reforms.

By the second quarter of 2010, the upward trend picked up again when the Greek government announced a double-digit deficit for 2009 and signed the first bail-out program with IMF and the European Union (EU) authorities. At that time, it became noticeable that the program that the Greek government had planned was tax heavy rather than reform heavy. The Market WACC reached its highest point in mid-2012, climbing almost 3 times above its pre-crisis level, indicating default status. This was a very turbulent socio-economic period accompanied by political and social unrest as well as extensive civil rioting and strikes.

After the elections of June 2012, the new coalition government concluded a medium-term financial framework with the foreign authorities, thus restoring to a degree and for some limited period a sense of normality in the Greek market. A significant deceleration of the Market WACC was recorded from June 2012 until the end of 2014 when new elections were announced.

The lingering financial crisis and the harsh cuts in pension and social services as well as the sharp raising of tax burdens resulted in the election of the leftish SYRIZA on a platform in which citizens were promised the end of austerity as by a miracle. After long and unsuccessful negotiations with the ESM, ECB and IMF for a new support agreement, a referendum on false pretenses, and the enforcement of capital controls, Grexit appeared to be more likely than ever.

During this period, one can observe in the above diagram a fresh upward rally of the Market WACC. Despite the referendum outcome, the government succumbed to a new austerity program with the creditors and announced new elections for September 2015. SYRIZA

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won again, albeit weakened, and formed a coalition government with a different policy and an agenda to apply the agreed reforms and return the Greek economy to economic growth. Since the end of 2015, Market WACC has declined steadily with some slight variability, reaching its pre-crisis level in mid-2017. One can assume that the decrease is the result of the ever-increasing sense that Grexit is not in the plan any longer.

In the meantime, the anemic economic growth of the Greek economy, the “wait and see” attitudes of foreign investors, the country’s reluctance to implement the economic reforms to which the government has agreed, and several advanced indications of rolling back whatever reforms have been implemented in 2012-2014 era are reflected in in the increase of the Market WACC during 2017.

The lingering uncertainty after the memorandum period (exit as of August 2018), the slow and expensive access to international credit markets for the financing of the economy, the paralysis of addressing the NPL issue in the banking sector, and the protracted pre-election period kept the Market WACC almost stable for the whole of 2018.

Historical data points out that the Market WACC is particularly sensitive in election years. So, provided that no unsettling developments transpire indicating a hang parliament after the election later in this year, Market WACC may return to the pre-crisis levels, despite the challenging investment environment.

The mere perception of a stable government after next elections, implementing the long overdue economic reforms, will decrease further Market WACC, making investment returns even more attractive from the current depressed levels.

WACC - Real Estate: The Real Estate WACC displayed a bigger resistance at the beginning of the crisis. The positive performance of the sector in the previous several years kept the confidence up until mid-2010 despite the first discouraging signs from early 2018. It even decreased marginally for a while due to the elections at the end of 2009. However, subsequently the severe impact of the financial crisis (signing of the first bail-out program with IMF and the European Union (EU) authorities) and particularly of the unexpected Property Tax ENFIA, hit hard the sector and drove Real Estate WACC in an upward rally.

In a similar fashion with the Market WACC, this index peaked (almost 3 times above its pre-crisis level) during the second quarter of 2012 (very turbulent socio-economic period).

Following the elections in June 2012, the Real Estate WACC recorded a smooth and persistent decline, as a sense of normality was restored to the Greek markets after the agreement for a medium-term financial framework of support with the foreign authorities by the new coalition government. This trend is interrupted only in the end of 2014 when new elections were announced and retained during the first semester of 2015 when the country was on the brink of Grexit (long and unsuccessful negotiations with the ESM, ECB and IMF for a new support agreement, a referendum on false pretenses, and the enforcement of capital controls).

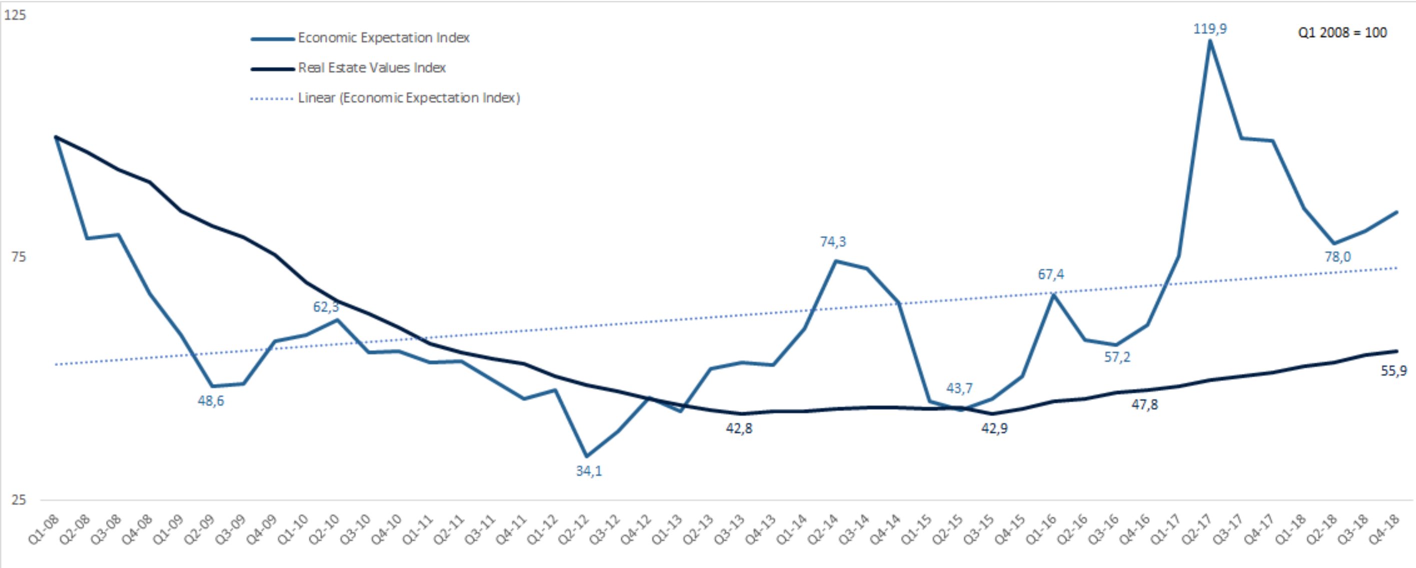
Since the end of 2015, Real estate WACC has declined steadily with some slight variability, not affecting by the anemic economic growth of the Greek economy and the “wait and see” attitudes of the foreign investors.

Real estate assets valuations bottomed out in mid-2013, since then they have been very slow to pick up. This attracts the interest of local (REICs) and foreign investors in the last 2 years, as the market provides opportunities that may yield above average returns of other European countries. As though, Real estate WACC reached its pre-crisis level, despite that real estate values are still below, and the transaction activity is not strong yet

Findings for the correlation between the indices of Market WACC & Real Estate WACC:

1. Real Estate WACC is always lower than the Market WACC, since it represents collateralized assets. The average spread for the period 2008-2018 is 11,5% while the max and min are 17% and 4,8% respectively. Max reflects the beginning of the crisis (Q3 2009) whereas Real Estate market still resisted to the new economic reality. Risk differential registered close to the max levels at the turbulent Q2 2012 and Q2 2015 periods. Min level was noticed during Q2 2017, when everyone was convinced that GREXIT was not on the table anymore.
2. Market WACC is more sensitive to socio-economic & political events.
3. The good performance of the real estate sector in the pre-crisis years delayed the reaction of the index as market participants were quite late in understanding the length, severity and further reprecautions of the crisis and they did not price in promptly its effects.

Economic Expectation Index & Real Estate Values Index

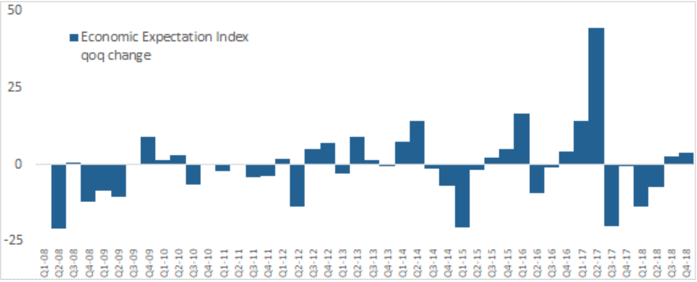


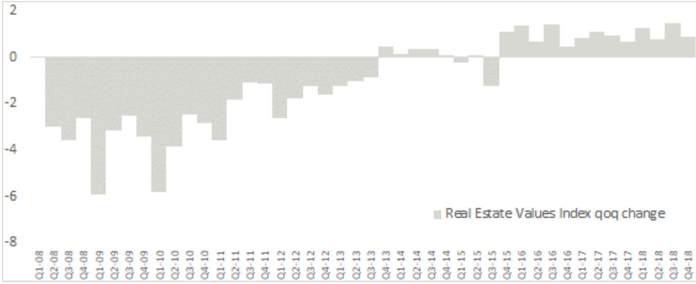
Economic Expectations Index- EEI: According to our analysis the main findings are:

1. The Index exhibits increased variance as it captures changes in sentiment
2. It bottomed out in Q2 2012, at 34,1 relative to Q1 2008 (base: 100)
3. It gained back half of its loss by Q2 2014, but it reverted back to its previous bottom in less than a year (Q2 2015)
4. Notably, in Q2 2017, the expectations for the Economy were higher than Q1 2008. Most likely this reflects the eagerness for good news after almost a decade of negative developments and socio-economic depression
5. Such expectation quickly reverts to the mean as everyone realized that there are many obstacles to overcome before the real economic recovery gets in a robust path
6. In Q2 2108, the Index has more than doubled from its bottom but is still over 20% behind its pre-crisis level
7. At present levels the index reflects the lingering uncertainty about economic prospects. Without adequate investment and in the absence of economic reforms the index lacks the spark to jumpstart to an upward trend
8. The further loosening of the 10-year Greek Bond Yield closer to 3,5% and a smoother, less volatile upward trend in the Athens stock exchange (indicating further derisking of the Greek economy) shall improve the Index performance to a 15year high

Real Estate Values Index- REVI: the index reflects Real Estate Values (base of 100- Q1 2018)

1. The index trend is smooth and its variability rather harmonious
2. Real estate values have dropped by ≈58% by Q3 2013 (peak to through). Overall, it took almost 5 years for asset values to adjust to the new country financial regime
3. Real estate market reaction appears to lag 3-4 quarters relative to the Economic Expectation index
4. Real estate market has remained almost 2 years at the bottom (mid 2013- mid 2015)
5. The Index recorded a slightly upward trend from that point, with low transactions activity
6. The recorded improvement (+30% from bottom) in the last few quarters has brought the index to -44% from its 2008 value at 56. There is still a long way to full recovery
7. RE asset derisking (WACC) is not yet reflected to values
8. A strong upward trend of the real estate rental rates is essential for the recovery of the sector. But this will happen, only if the Greek Economy records a robust growth in the next years. At that point and as investment activity shall be increasing we expect an acceleration of the values which shall be further reinforced by a) the development of new grade A supply in each sector (retail/office) which is much needed after 15 years of construction stagnation and b) the improvement of purchase capacity (disposable income) of Greek that will be channeled to retail





Calendar					
Period	***Macro Events***	***Economy WACC***	***EEI***	***RE WACC***	***REVI***
2008 Q3 2009	Financing Issues – Beginning of the crisis	↑ Initial flight to quality	↓ Uncertainty pick up	↔ Stable	↘ Downward trend
Q4 2009 Q2 2010	Elections	↘ Slight Correction	↗ dead cat bounce	↔ Stable	↘ Downward trend acceleration
Q3 2010 Q1 2012	First Program	↗ Stoppage of investments	↘ Negative expectations persist	↗ Risk Increase	↘ Downward trend
Q2 2012	Failed Election	↑ Historical Top-Default status	↓ Negativity bottoms out	↑ Historical Top	↘ Downward trend decelerates
Q3 2012 Q3 2014	Elections – Signing of new agreement	↓ Economic climate improvement	↗ Expectations improve with ups and downs	↘ Slight derisking	↘ Historical Low (Q3 '13)
Q4 2014 Q2 2015	Elections – near GREXIT	↑ A new reversal to security	↓ Reemergence of uncertainty	↗ Trends reversal	↔ Stable
Q3 2015 Q2 2017	Elections – Signing of new agreement	↘ A new derisking cycle	↗ Positive expectations build up	↘ Long Term derisking	↗ A slight upward momentum
Q3 2017 Q2 2018	Moderate growth – Investors hesitancy	↗ Uncertainty looms	↘ Realization time-adjustment of Expectations	↘ derisking continues	↗ Slight Increase
Q3 2018 Q1 2019	End of memorandums – Long pre-election period	↔ Stable/ Slight decrease	↗ Wait and see attitude	↘ derisking continues	↗ Slight Increase

Methodology

1. Calculation of WACC

The general formula for WACC: WACC = (E/V) * Cost of Equity + (D/V) * Cost of Debt, whereas

E = Market Value of the firm's equity

D = Market value of the firm's debt

V = E + D

E/V = 40%, D/V = 60%

Cost of Equity = Risk Free Rate of Return + Beta * Market rate of return

Risk Free Rate of Return = 10-year Greek Bond Yield

Beta = Europe Beta Market according to Damodaran/ Europe Real Estate Beta Market according to Damodaran

Market Rate of Return = 12m volatility of Athens Stock Exchange /Average Real Estate Values volatility

Cost of Debt = Interest Rate * (1 – Tax rate)

Interest Rate = Non-Financial Corporation Loans over an amount of €1m, non collaterilized/ for RE with collateral and/or guarantees

Tax Rate = Effective Corporate Tax Rate at the time

2. Economic Expectation Index

Considering the 10-year Greek bond yield, the Greek Corporate tax rate, Loan Interest rates and volatility of Athens Stock Exchange, Inventio creates an index which measures the expectations that prevail for the course of the Economy. Q1 2008 = 100

3. Real Estate Values Index:

Analysis of the historical real estate yields and rents in the main real estate markets (retail, industrial and office) for calculating the weighted average value of an indicative asset. Q1 2008 = 100

Sources: Elstat, Eurostat, Bank of Greece, Athens Exchange Group (Helex), Damodaran Online

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