

U.S. EconoMonitor



Stocks for the long-run?

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The financial crisis and the recent fluctuations in the stock market have prompted investors to ask the question “Are stocks still the best investment for the long run?”

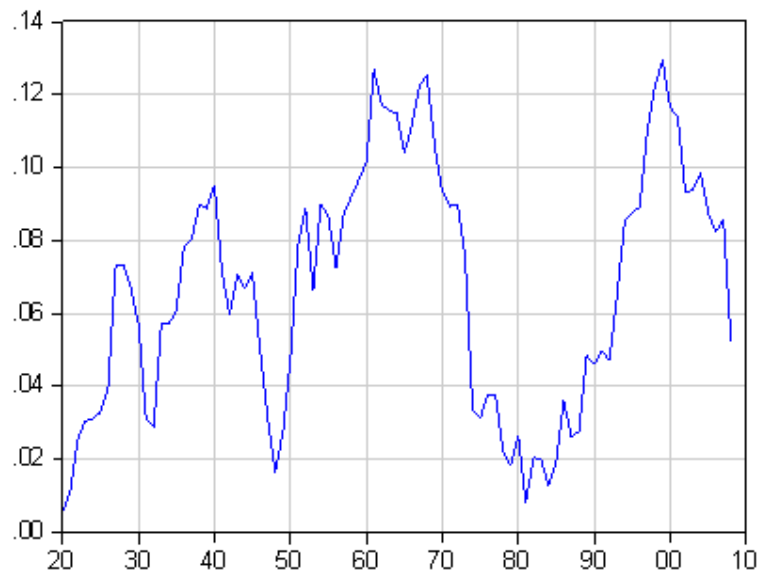
Figure 1 reports the value over time in real terms (nominal returns are deflated by the inflation of the Consumer Price Index) of 1 dollar in 1900. 1 dollar invested in the SP index at the beginning of the twentieth century has risen rather steadily to 800 times the initial value at the end of the century and it has then fluctuated to reach 500 hundred times the initial value at the end of 2008.

Figure 1: Real value of 1 USD invested in the Stock Market in 1900



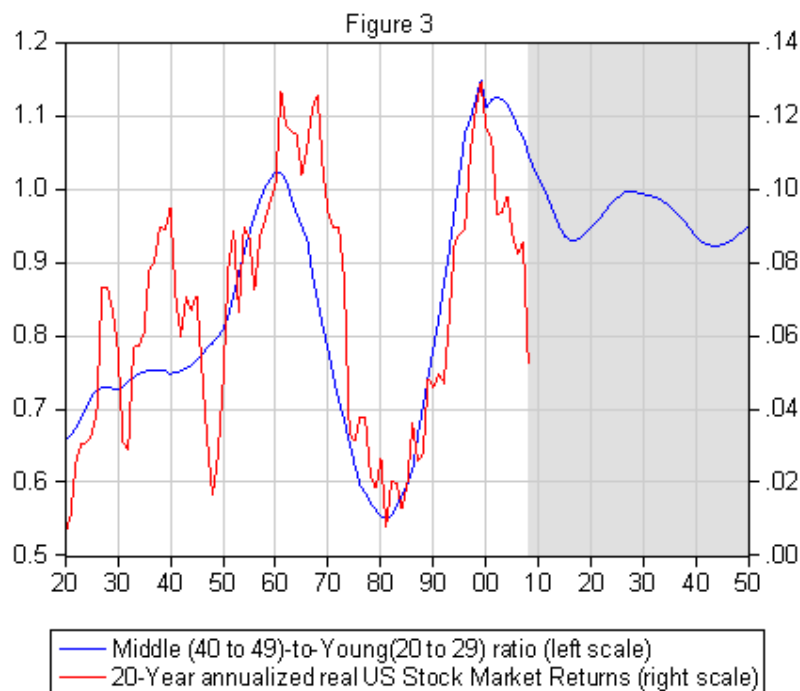
A close look at the data shows that, in fact, there have always been fluctuations: Figure 2 shows annualized 20-year real returns: this variable has always fluctuated. Returns on the stock market have been markedly heterogenous across different generations.

Figure 2: 20-Year annualized real US Stock Market returns



Joltin' Joe DiMaggio investing his wealth in the index on the day of his retirement in 1951 would have collected about six times as much in real terms twenty years later (for an average annual return of 12 per cent). Not so lucky would have been George "Mr. Basketball" Mikan who by investing on the day when he was inducted in the basketball hall of fame in 1959 would have collected only 1.6 times his wealth in real terms twenty years later (for an average annual return of 2 per cent). The interesting question now is what will happen to Shaq, and to all investors, over the next twenty years.

Can we explain the variation of long-run stock market returns? Figure 3 illustrates an idea. We report the 20-Year annualized stock market returns with MY, the ratio of the Middle (40-49)-to-Young (20 to 29) population in the US. Fluctuations in returns are closely related to this demographic variable and the projections for MY up to 2050, made available by the bureau of Census via its website (<http://www.census.gov/ipc/www/idb/pyramids.html>), hint at the presence of some hope for Mr. O'Neal, and for all investors. Why are long run returns related to MY?



Geanakoplos, Magill and Quinzii (2004, henceforth, GMQ) offer a potential solution to this problem by considering a (overlapping generations) model in which the demographic structure mimics the pattern of live births in the U.S. that have featured alternating twenty-year periods of boom and busts. GMQ study the equilibrium of a cyclical exchange economy in which three generations alternate: agents should borrow when young, invest for retirement when middle-aged, and live off of their investment once they are retired. In this economy the dividend-price ratio is proportional to the ratio of middle aged to young adults (MY ratio). As the dividend price-ratio defines the equilibrium long-run stock market returns, the model delivers a rationale for the observed relation between the demographic variable and the stock market returns.

In a recent paper Favero Gozluklu and Tamoni (2009, henceforth, FGT) closely analyze the empirics of the GMQ model by identifying econometrically a long-run equilibrium for the dividend price ratio consistent with the evidence reported in Figure 3. FGT show that the slowly evolving mean toward which the dividend price ratio is reverting is driven by MY and a technological trend. They also show that an empirical model using information in long-run factors performs very well in the prediction of medium and long-run stock-market returns. Finally, they exploit the exogeneity and predictability of the demographic factor to simulate the equity risk premium up to 2050. Consistently with Figure 1, the simulation points to an average annual return of just above 8 per cent for the next twenty years if Shaquille were to invest in the stock market today. The performance of the market in 2008 has effectively improved the opportunities for the long-run investors.

Favero C.A., A.Gozluklu and A.Tamoni (2009) "Long-Run Factors and Fluctuations in the US Dividend-Price ratio.", mimeo, IGIER, Dept. of Finance, Bocconi University

Geanakoplos, John, Magill, Michael and Martine Quinzii, 2004, Demography and the Long Run Behavior of the Stock Market, Brookings Papers on Economic Activities, 1: 241-325.

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