It is known that contagion from housing markets crashes can cause large financial catastrophes such as the United States Subprime Mortgage Crisis leading to the Global Financial Crisis. Furthermore, housing markets are illiquid, making their recovery from crashes slower. While reviewing previous works on housing bubbles, we find that housing bubbles are often poorly defined. Also, these studies tend to each focus on a single factor. However, since housing markets consist of large number of heterogeneous agents with non-linear interactions, many have recognized the importance of studying them as complex systems. We find a Gibbs-Pareto equilibrium home price distribution for the markets we have looked at. We then identify bubbles as statistically significant deviations from these equilibrium distributions, providing a clear and unambiguous definition of bubbles. Next, we detected early warning signals for the bubble in the Singapore condominiums that started in 2007 in districts 9/10 before spreading out to the rest of the island. Similar early warning signals were also detected for the Hong Kong housing bubble that started in 2004. Lastly, we present correction formulas to improve parameter estimation and statistical significance when dealing with noisy and finite (housing) data.