How stable is the financial sector?

1. The Efficient Market Hypothesis (EMH)

Definition 1.1. The EMH holds that <u>the market price of an asset reflects the asset's true value</u>, so market prices are always 'correct'.

According to EMH, (i) <u>changes in asset prices are caused by external shocks</u>, like new information related to the asset and (ii) <u>there do not exist asset price bubbles nor asset price busts</u>: sudden or intense asset price swings are merely the response by buyers and sellers of the assets to changes in the fundamental variables that determine the 'real' value of the asset.

Example 1.2. The NASDAQ stock market (National Association of Securities Dealers Automated Quotations)**.** It was, in June 2015 and by market capitalization, the second-largest exchange in the world (the first one, the New York Stock Exchange). At the time of its inception, 1971, it became the world's first electronic stock market. Fig. 1 presents the evolution of the NASDAQ Composite, the NASDAQ main index. The presumed speculative bubble known as the dot-com (or Internet) bubble is associated with the explosion of online business and the subsequent failure of many of them (like 'pets.com'). https://en.wikipedia.org/wiki/NASDAQ | https://en.wikipedia.org/wiki/Dot-com_bubble

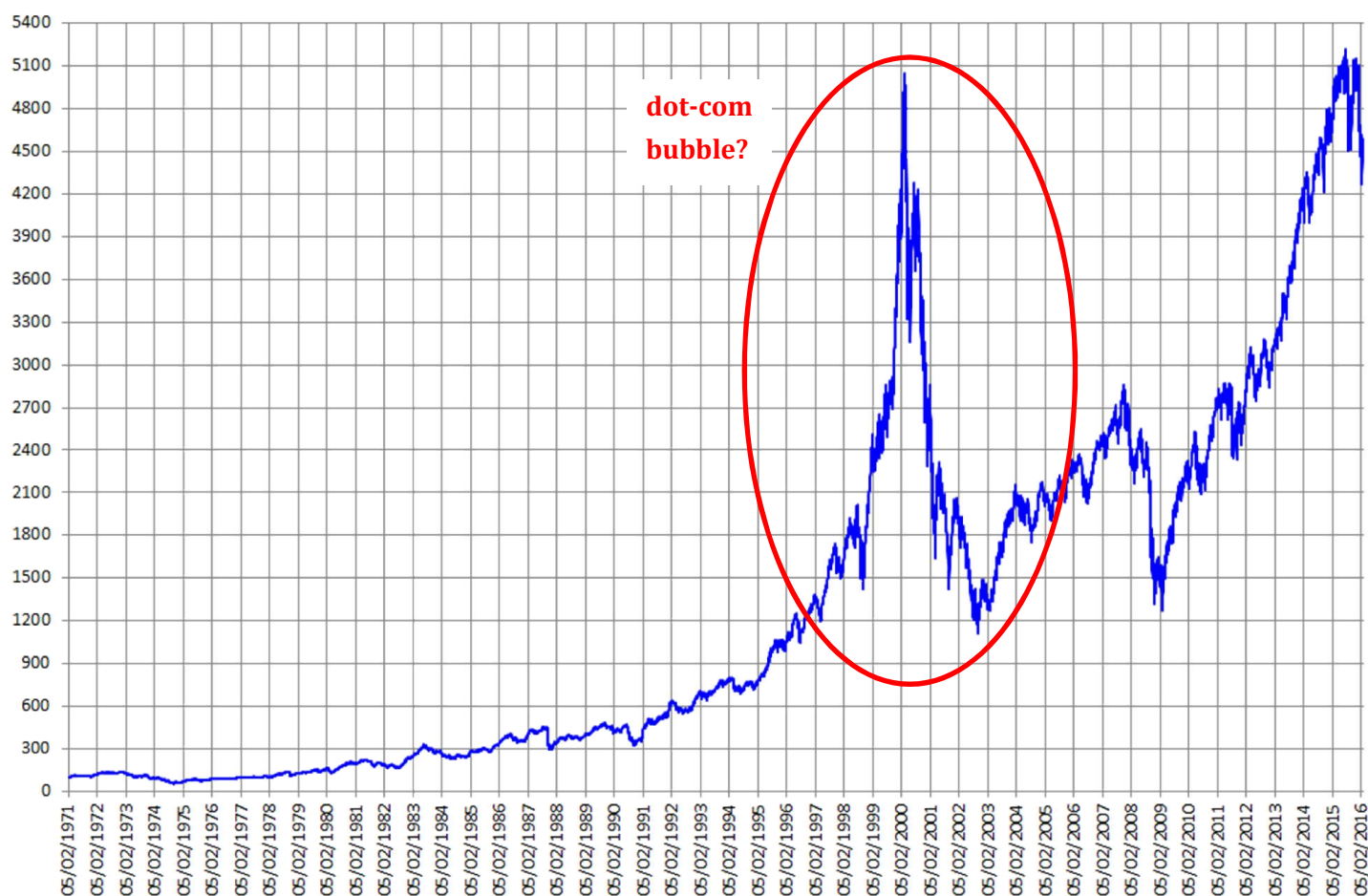Fig. 1. The NASDAQ Composite, 5 Feb 1971 – 29 Feb 2016 (last: 4,557.95)
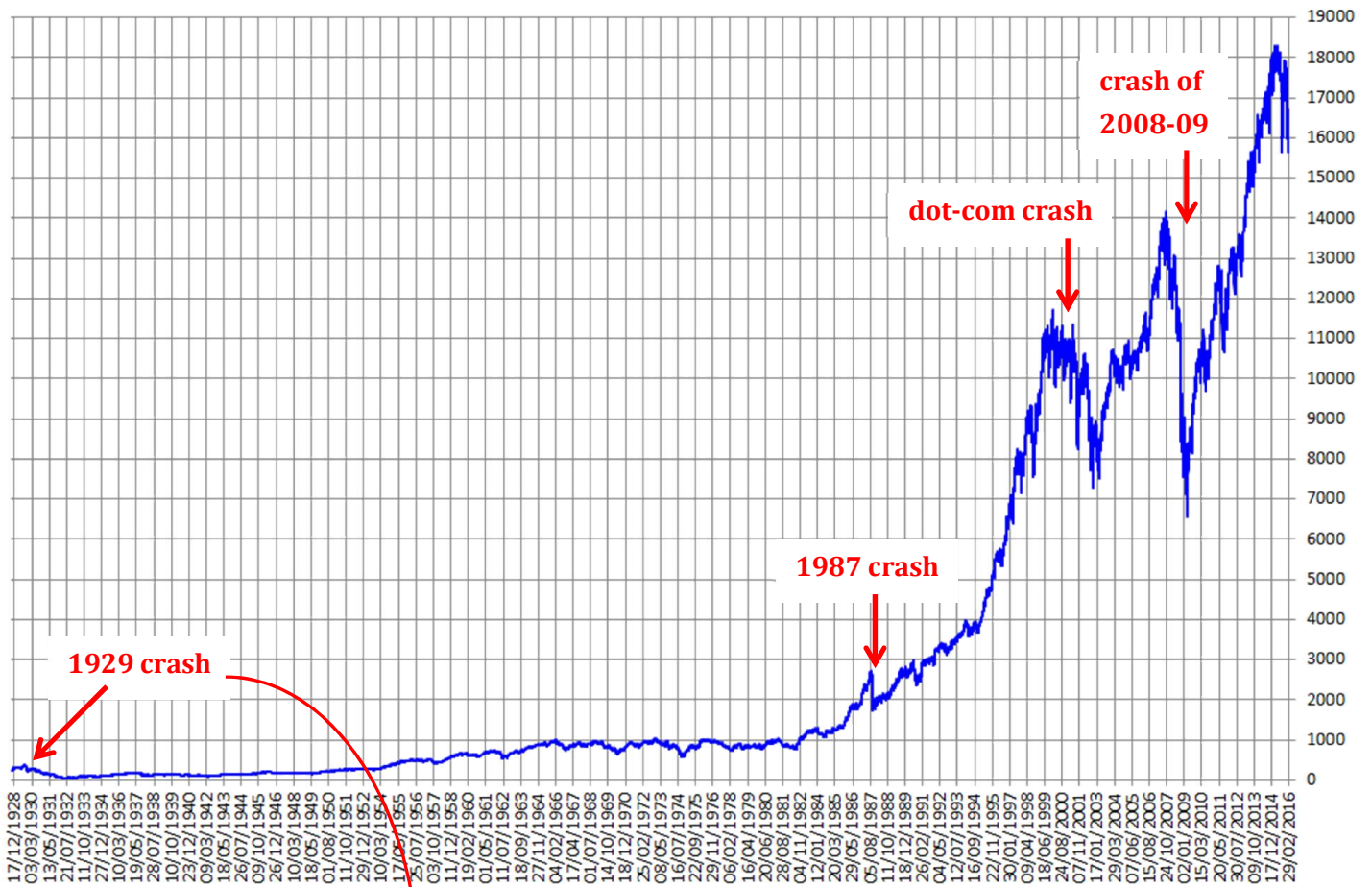http://finance.yahoo.com/q/hp?s=^IXIC&a=01&b=5&c=1971&d=02&e=1&f=2016&g=d

Fig. 2. The Dow Jones Industrial Average, 1 Oct 1928 – 29 Feb 2016 (last: 16,516.5)
http://finance.yahoo.com/q/hp?s=^DJI&a=00&b=11&c=2010&d=01&e=29&f=2016&g=d&z=66&y=1254

Fig. 3. The 1929 crash (Dow Jones Industrial Average, 1 Oct 1928 – 31 Feb 1953

2. The Financial Instability Hypothesis (FIH)

Definition 2.1. The FIH contends that <u>the financial sector is inherently unstable</u> because forces endogenous to the sector generate cycles of credit expansion/asset inflation and credit contraction/asset deflation.
George Cooper (2008): The Origin of Financial Crises: Central Banks, Credit Bubbles and the Efficient Market Fallacy

The EMH and the FIH are both <u>theories of what makes financial prices move</u>. The EMH claims that market forces lead the market to an equilibrium state. This state is stationary in the sense that the market will not be pushed to another (stationary, equilibrium) state unless some unexpected external event (a 'shock') hits the market. The FIH asserts that the dynamics of financial markets is naturally unstable: left by themselves such markets show no tendency to reach stationary states. Destabilizing forces prevent financial markets from achieving efficient states and producing optimal outcomes.

Example 2.2. For the FIH to be true, it is necessary to identify built-in destabilizing mechanisms. In a typical debt market, institutions accept deposits, which are subsequenly lent. To get high profits in this business it is in general associated with charging a high interest in loans. The basic strategy to obtain a high interest rate is to accept more risk by lending, for the longest period, to the least-reliable borrowers. But a high-risk lending strategy increases the risk of not being repaid, which in turn increases the probability of not returning the deposits and thereby destabilizing the market (because of a run on the institutions that accept diposits). The source of potential instability is the fact that <u>achieving higher returns involves taking higher risks, which endangers the normal, stable operation of the market</u>.

Example 2.3. Bank runs seem to contradict the EMH: they are serious threats to the stability of the banking sector. Feedback processes (like speculative bubbles) have the potential of being inconsistent with the logic of the EMH. The EMH requires independence from the past: the transition from today's price of an asset to tomorrow's price must be essentially random. No immediate tendency of the evolution of the price should be predictable. By contrast, a feedback process is memory-driven: what has just happen affects in a very significant way what is going to happen next. For instance, if many people start withdrawing money from a bank, it is likely that additional clients will withdraw their funds, which is turn increases the likelihood of more future withdrawals. In view of this, a test to establish which of the two hypothesis is more accurate to describe the financial sector is how much memory possess the mechanisms at work in the financial sector: memoryless mechanisms tend to provide support to EMH; memory-driven mechanisms, to FIH.

No consensus has been reached as to whether the episodes indicated in Fig. 2 are ordinary market responses to exogenous shocks or constitute evidence of built-in market failures; that is, if EMH or FIH hold.

Definition 3.1. Named after the American economist Hyman Minsky (1919-1996), a <u>Minsky moment</u> is a situation where <u>asset prices suffer a sudden and precipitous collapse</u> as a result of an excessive speculation, financed by borrowed money, that forces speculators to start a major sell-off to pay back the loans.
Roger EA Farmer (2010): How the economy works, p. 92
https://en.wikipedia.org/wiki/Minsky_moment

Fig. 4. The Wile E. Coyote (/kaɪˈoʊtiː/) moment
as a metaphor for the Minsky moment
http://www.disneycharacters.net/data/media/7/Wile_E_Coyote_Fall_Cartoon_Image.jpg

The paradox of efficient markets. "… if you think a market is efficient—efficient enough that you can't really beat it for a profit—then it would be irrational for you to place any trades. In fact, efficient-market hypothesis is intrinsically somewhat self-defeating. If all investors believed the theory—that they can't make any money from trading since the stock market is unbeatable—there would be no one left to make trades and therefore no market at all."
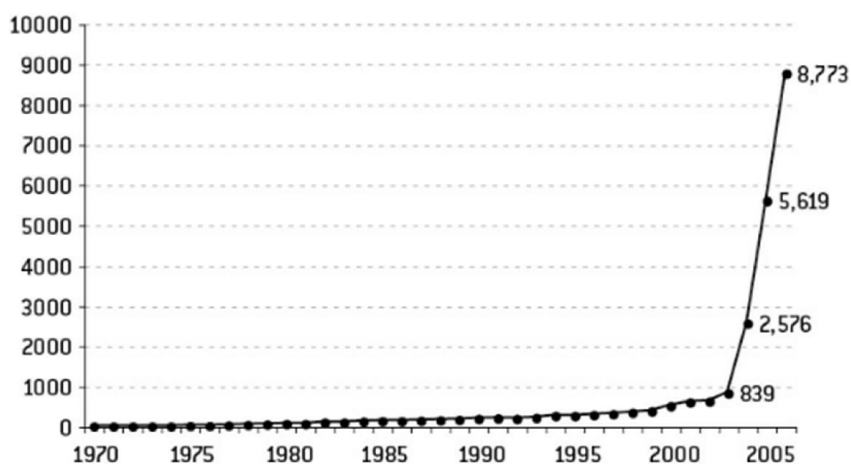Silver, Nate (2012): The signal and the noise: why most predictions fail but some don't
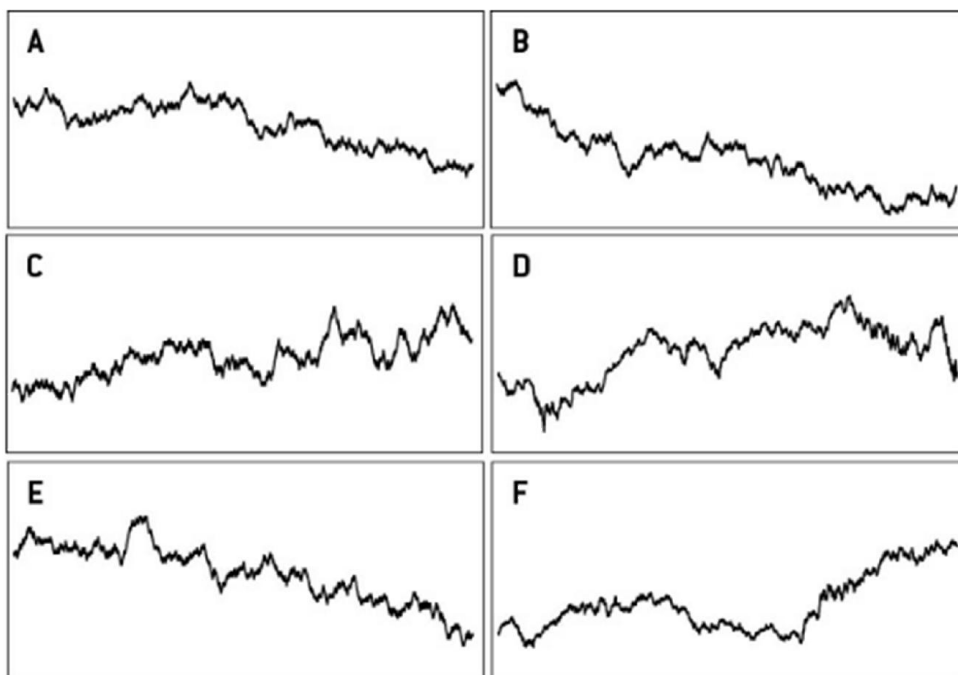
How distinguishable is noise from signal/pattern? Fig. 5 shows six stock market charts, but only two of them depict actual movements of the Dow Jones. Which charts are fakes? The answer, on the next page.

Fig. 5. Fictitious (random walk) and real stock market charts (Fig. 11.4 in Nate Silver (2012): The signal and the noise: why most predictions fail but some don't)

Murphy's laws. (1) Left to themselves, things go from bad to worse. (2) If anything can go wrong, it will.
Koch, Richard (2013): The 80-20 Principle and 92 Other Power Laws of Nature

The poker bubble

Fig. 6. The poker bubble: World Series of Poker Main Event participants, 1970-2006 (Fig. 10.1 in Nate Silver (2012): The signal and the noise: why most predictions fail but some don't

IBEX-35, 5 Jan 1987 - 1 Mar 2016
http://stooq.com/q/d/?s=^ibex&c=0

last: 8611

Answer to the Fig. 5 question

Chart D (F) depicts the actual movement of the Dow over the first 1,000 days of the 1970s (1980s).