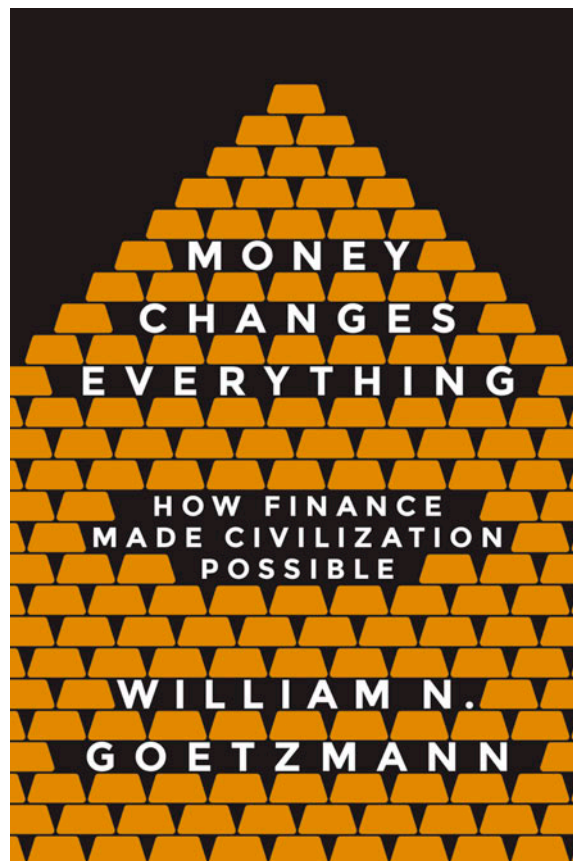


Book review



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Money Changes Everything: How Finance Made Civilization Possible, by William N. Goetzmann, Princeton University Press (2016), 584 pp., illustrated, \$35. ISBN 978-0691143781.

‘When somebody says it’s not about the money, it’s about the money’.[†]

Books called ‘XYZ changes everything’ are very trendy these days. A quick search on Amazon brings up the following titles: ‘This Changes Everything: Capitalism vs. The Climate’, ‘When Changing Nothing Changes Everything: The Power of Reframing Your Life’, ‘Lukewarming: The New Climate Science that Changes Everything’, and, ironically, ‘Money Changes Everything: A Bedford Spotlight Reader’.

William N. Goetzmann, Edwin J. Beinecke Professor of Finance and Management Studies and Director of the International Centre for Finance at Yale University, is not deterred by the ubiquity of his chosen title and contributes a book of his own to the list. Goetzmann’s book is a bold, sophisticated and learned, yet somewhat flawed, attempt to cover the history of financial thought in one volume.

The book was published to critical acclaim by reviewers for the NYT, the FT, the IMF, among others. Unfortunately, I feel compelled to dissent from their esteemed opinions.

In the Introduction Prof. Goetzmann summarizes the topics that he is aiming to cover: time and money reallocation through time, investment, culture vs. finance, finance and civilization, finance and knowledge, hardware and software, the other side of the coin, perspectives.

The book consists of four parts:

- From Cuneiform to Classical Civilization;
- The Financial Legacy of China;

[†]H.L. Mencken.

- The European Crucible;
- The Emergence of Global Markets.

The first part covers Classical Antiquity, from the invention of writing by the Sumerians, to the financial and monetary systems of Greece and Rome. The second part deals with China's financial world from prehistoric times up to the middle ages. The third part describes the growth of financial machinery in Europe from the twelfth to the nineteenth century. Finally, the fourth and last part discusses modern markets and economic theory.

The overarching idea of the book is that finance in general, and money in particular, is an invention on par with other revolutionary ideas like fire, the wheel and writing. The impact of finance on the development of humankind has been profound and undoubtedly beneficial. I share this sentiment and wholeheartedly believe that finance, warts and all, is one of the greatest vehicles of our betterment as a species. Thus, my disagreement with the author lies more in the execution rather than the overarching premise. Specifically, I feel that the author fails to discuss too many pivotal events to fairly claim that his book really achieves its stated goal of comprehensively covering the history of money and finance.

Hartley (1953) puts it succinctly: 'The past is a foreign country: They do things differently there'. The book by Goetzmann can be viewed as a travel guide to this foreign country produced by a writer fascinated solely by the role that money and finance have played in society. In some sense it's not dissimilar to the famous travel log describing an epic journey to China dictated by Marco Polo to a romance writer Rustichello da Pisa called *Livre des Merveilles du Monde* (Polo 1918). For instance, Marco Polo never explicitly referred to the Great Wall of China, tea, Chinese characters, chopsticks, foot binding and other distinctive features of Imperial China, yet marvelled about paper money and other administrative tools employed by the emperor to rule the Middle Kingdom. In this vein, 'Money Changes Everything' is also subject to several conspicuous omissions. For instance, a quick inspection of the Index shows no mention of the Medicis (de Roover 1999); tulip mania (Garber 2000); negative interest rates, demurrage and debasement of currencies (Lipton 2016); usage of foreign exchange to obviate the prohibition of charging interest (Bell *et al.* 2015); Islamic finance (Warde 2000), and the like. Surprisingly little is said about the role of war, violence and coercion in economics and finance (Brewer 1990).

On occasion, the author is engrossed in details at the expense of the big picture. For instance, despite the well-accepted position of Florence as a real financial powerhouse in late Medieval/Renaissance Italy, her contributions are altogether omitted in favour of a description of fixed income instruments traded in the two maritime republics of Venice and Genoa. In view of the author's neglect of Florence, which was a true hotbed of financial thinking, he further ignores the great arc of financial innovation stretching from Florence, to Bruges, Antwerp, Amsterdam, London, New York and, likely, Shanghai (Spufford 2005).

There is no discussion of the financial system of Ancient Israel. After all, Jesus of Nazareth expelled moneychangers

from the Temple in Jerusalem, an event that is often taken as an indication of the strength and sophistication of the monetary system at that time. Its vivid description in the Bible had a deep impact on the thinking of financiers during the Medieval times; it is vibrantly depicted by Giotto in the celebrated Arena Chapel with good reason. This chapel was commissioned from Giotto by the rich banker Enrico Scrovegni of Padua, who wished to atone for his and his father's transgressions committed as part of doing lending business (Derbes and Sandona 2008).

It is also puzzling that there is not a single word in the book about the Jewish contribution to the Medieval finance (Weber 2009). This is particularly striking in view of the fact that the author spends about 60 pages on the minutiae of Sumerian financial dealings, while failing to attribute its propagation and continuation to the Sephardic Jews, as is widely accepted by academics. Sephardic Jews brought these techniques to the Low Countries after their expulsion from Spain and Portugal at the end of XV century. The thriving community of Sephardic Jews included Isaac Le Maire, who was the first recorded short-seller and corporate activist fighting against the Dutch East India Company almost since its inception, Joseph de la Vega, who wrote *Confusion de Confusiones* (de la Vega 1688) and Isaac de Pinto, who wrote *Traité de la Circulation et du Crédit* (de Pinto 1771).

While, Goetzmann dedicates a large portion of his book to Ancient China and its monetary economy, he barely mentions some important economic underpinnings of the Silk Road: China was engaged in such long-distance land trade largely to secure the supply of the so-called blood sweating horses from Central Asia (Tanaka *et al.* 2010).[†] Such a significance these horses bore to the emperor Liu Che that the joy he felt upon their arrival was immortalized in the celebrated poem 'Ode to the Heavenly Horse':

The heavenly horses have arrived from the Western frontier
Having traveled 10,000 li, they arrive with great virtue
With loyal spirit, they defeat foreign nations
And crossing the deserts all barbarians succumb in their wake!
The Shiji, Chapter 24 ('The Treatise on Music')

Unfortunately, the book lacks not just seminal events but also glosses over the smaller details. For example, the book overemphasizes the role of Luca Pacioli as the inventor of double-entry book keeping (Pacioli 1494, Lauwers and Willekens 1994), in spite of the emerging academic consensus that attributes it to Benedetto Cortiglia (Carraro and Favero 2017).

Likewise, the author puts great importance on the role of the French School in developing mathematical finance, but plays down that of the German and British schools of thought. We are given a thorough description of the interesting but relatively straightforward analysis of profit charts

[†]In ancient times, the Chinese wanted something from their trading partners along the Silk Road, so that the trade was balanced. In contrast, in early modern times, the British had to introduce opium as a counterweight to the Chinese goods they wished to acquire.

published by Lefèvre (1873), but nothing of the analyses of Moser (1875). Similarly, we hear of Bachelier (1900) but not of Bronzin (1908). By right, Bronzin has as much of a claim to be called the founder of modern mathematical finance as Bachelier (Hafner and Zimmermann 2009), particularly given that he anticipated some of the most important results in the field of mathematical finance by more than 60 years.

I am left with the feeling that on occasion the author fails to see the forest for the trees. If one were to compare this book to a 600 page guidebook of the Louvre, it would be divided equally among Near Eastern Antiques, early Netherlandish and Flemish paintings, Venetian Mannerists, and selected paintings and sculptures, while leaving out the works of Leonardo da Vinci, and most notably the Mona Lisa, in their entirety.

Goetzmann puts great weight on financial engineering, but occasionally minimizes other aspects of the economy integral to a holistic understanding of the history of money. In the chapter on the Athenian economy, he attributes the high quality of the fabled Athenian tetradrachm coinage to advances in financial engineering. In fact, Athens was only able to produce the tetradrachm due to the fact that it controlled the richest source of silver on the Peloponnese at Laurium silver mines. In this regard, classical Athens was not dissimilar to petro-states of today, with silver being the ancient analogue of oil.

While, the first silver was extracted from the mines as early as 3200BC, it wasn't until Peisistratus came into power in 561, that its potential was exploited in earnest. Revenue from the mines was used by Themistocles to build a fleet of triremes and make Athens the pre-eminent naval power in Greece. However, as parts of the area were captured by Sparta and the mines became depleted, the quality of the tetradrachm coinage naturally declined, and no amount of financial engineering could fix these simple physical realities (Ardaillon 1897). Millennia later, when the Joachimsthal and Potosí mines in Bohemia and Peru were exhausted, a similar deterioration was seen in the Austrian *thaler*, and the Spanish *peso de ocho*.

When the author talks about Roman finance, he spends a great deal of time discussing financial innovations of the Emperor Tiberius, who was merely following in the footsteps of Julius Caesar. These financial reforms were described by Caesar himself in the third book of *The Civil War* (Caesar 1997):

When this business was finished, he decided to appoint assessors, since credit had become difficult all over Italy and debts were not being paid; these assessors were to make valuations of landed and other property at the prices ruling for individual items before the war, and such property was to be handed over to creditors. Caesar thought this would be the most appropriate measure, both to remove or reduce the fear of a general cancellation of debts, and to protect the value of debtors' assets.

Goetzmann is not always a follower of the old dictum, 'Better to see something once than to hear about it a thousand times'. In many instances, his descriptions would be best augmented by a suitable figure.

Some examples include:

- A lack of maps, most notably that of ancient Sumer. The author's dense explanation of its economy and financial system necessitates an association of the names of various city-states mentioned in the book with their physical location. This is particularly important in view of the ever-changing course of the main rivers in the region, Tigris and Euphrates, in the last three millennia. Maps of China and the ancient Silk Road are missing as well.
- The author spends a great deal of space describing various illustrations from *The Great Mirror of Folly* rather than including a few more of them into the book. Similar criticism can be applied to his description of Georgia O'Keefe paintings, which would have at least benefited from the addition of, if not the replacement of these passages, by the paintings themselves.†

Some illustrations are misleading:

- The graph on p. 66 is impossible to understand.
- Figure caption on p. 406 incorrectly states that Marx lived in Chelsea, rather than in Soho. Marx lived at 30 Dean St, Soho. In all likelihood, if Marx had lived in Chelsea, he would not have written *Das Kapital*.

On occasion, the author's descriptions suffer from the strange balance of having simultaneously too many and too few details. For instance, on p. 242, the author presents the problem from the book by Fibonacci called 'A noteworthy problem on a man exchanging 100 pounds at some banking house for interest' (Sigler 2002). The problem reads as follows:

A man placed 100 pounds at a certain [banking] house for 4 denarii per pound per months interest and he took back each year a payment of 30 pounds. One must compute in each year the 30 pounds reduction of capital and the profit on the said 30 pounds. It is sought how many years, months, days and hours he will hold money in the house.

The author formulates the problem in great detail, and yet forgets to mention the going rate of exchange between denari and pound at the time (Fibonacci assumed a rate of 240 denari per 1 pound).‡ It is also necessary to know that, following simple day counting conventions, Fibonacci assumed a 30 day month, and a 360 day year.

To satisfy the reader's curiosity, here is the solution to the Fibonacci's problem. A simple interest per year is $\frac{4 \times 12}{240} \times 100\% = 20\%$. This is a standard Mesopotamian interest rate of twelve shekels per mina per year (Hudson 2000). Hence, at time $T = 1Y$, 100 pounds become $1.2 \times 100 - 30 = 90$ pounds. Similarly, at $T = 2Y$, we have 78 pounds, at $T = 3Y$, 63.6 pounds, at $T = 4Y$, 46.32 pounds, at $T = 5Y$, 25.58 pounds, at $T = 6Y$, 0.7 pounds. If borrowing were possible, at $T = 7Y$, the amount would be

†O'Keefe's *Radiator Building, at Night* is reproduced on page 468.

‡Similarly, old British money had 12 pence in a shilling and 20 shilling in a pound.

−29.16 pounds. Finally, the stub of 0.7 pounds will be exhausted in $\frac{0.7 \times 360}{0.7 + 29.16} = 8.45$ days. At present, the reverse calculation is used to compute monthly fixed-rate mortgage payments.

Lastly, it seems to me that the book fails to position itself in a manner that is relevant to the current economic context. In particular, it totally ignores the fact that a large portion of the developed world's government debt trades at negative interest rates. Surprisingly, the author never mentions this staggering fact, and does not try to link it with the demurrage in the Medieval Europe. The book is premised on the assumption of the validity of macroeconomics in general, and modern portfolio theory in particular, all the while, modern scholarship moves away from these legacy concepts. This is also reflected in the fact that the book spends a great deal of time explaining the ideas of Marx and Keynes to the detriment of Kalecki's contributions (Kalecki 1971). Nothing is said about cryptocurrencies, such as Bitcoin and Ethereum, and their potential role as money (Lipton 2017).

To conclude, this book is the fruit of great scholarship and deep thought. Despite the fact that I enjoyed reading it, I feel that it fails to meet its stated goal in full. It is conceivable that it is simply not possible to cover the material the author had in mind in a single volume, but we can be certain that this topic will continue to rise in popularity as we enter an era of ever-changing monetary technology.

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