

Takin' Care of Business



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The Accountant Who Changed The World

Debit

Credit

The story of the birth of accounting begins with numbers. In the 1400s, much of Europe was still using Roman numerals, and finding it really hard to easily add or subtract. (Try adding MCVI to XCIV.)

But fortunately, Arabic numerals (1, 2, 3, 4, etc.) started catching on, and with those numbers, merchants in Venice developed a revolutionary system we now call "double-entry" bookkeeping. This is how it works:

Every transaction gets entered twice in financial records. If one day you sold three gold coins' worth of pepper, you would write that the amount of cash you had went up by three gold coins. You would also write in that the amount of pepper you had went down by three gold coins' worth.

Before double-entry, people just kept diaries and counted their money at the end of the day. This innovation allowed merchants to see every aspect of their business in neat little rows.

Jane Gleeson-White wrote the new book *Double Entry: How the Merchants of Venice Created Modern Finance*. She explains how significant this new accounting was:

"You could itemize the profits in each account, so you knew which products you were doing well in and which you weren't. Then you could start to think about how you would change your business activities. It was just a whole revolution in the way of thinking about business and trade."

Luca Pacioli was a monk, magician and lover of numbers. He discovered this special bookkeeping in Venice and was intrigued by it. In 1494, he wrote a huge math encyclopedia and

Double-Entry Accounting: Never Negative Numbers

Although the concept of negative numbers was stated in the 7th century by the Indian mathematician Brahmagupta, in 1758 the British mathematician Francis Maseres still claimed that negative numbers "... darken the very whole doctrines of the equations and make dark of the things which are in their nature excessively obvious and simple".

When today's "double entry" accounting system began in the 15th Century, negative numbers were considered unnatural and therefore bad. This is why numbers in accounting are organized in 2 columns – left and a right and does not use negative numbers to represent debt or liabilities.

Timeline of Negative Numbers

- **4th century BCE.** Aristotle made a distinction between numbers and magnitude.
- **100 BCE.** In the *Nine Chapters of Mathematical Art*, the Chinese used negative numbers in solving systems of equations.
- **3rd century CE.** Diophantus solved equations with negative numbers in *Arithmetica*, but then rejected the equation itself.
- **7th century CE.** Indians used negative numbers to represent debt.
- **9th century CE.** Arabs were familiar with negative numbers, but rejected them.
- **12th century CE.** Bhaskara (Indian) gives negative roots for quadratic equations, but rejects the roots because people do not approve of negative roots.
- **15th Century CE.** Double-entry accounting is developed, using left debit) and right (credit) columns to represent positive and negative values.
- **16th Century CE.** European Mathematicians thought of negative numbers as "fictitious" or "absurd."
- **17th Century CE.** Rene Descartes claims the result of negative square roots as "imaginary."
- **18th Century CE.** Negatives start to become accepted in Europe even though they are still commonly ignored.
- **19th Century CE.** Doubts of negative numbers finally disappear and negatives are known now as real numbers.

included an instructional section on double-entry bookkeeping.

Thanks to the newly invented printing press, his book was mass produced and became a big hit. One of the first readers was Leonardo da Vinci, who at the time was painting *The Last Supper*. Pacioli's encyclopedia had a section on the mathematics of perspective painting which fascinated da Vinci.

"They were hanging out together. They certainly spent a lot of time

together, and definitely Luca Pacioli was there in the church when Leonardo da Vinci was there in the actual church when Leonardo da Vinci was painting *The Last Supper*," said Gleeson-White.

What Pacioli is known for today, though, is that tiny section of the book about accounting. Today, every country and every business uses double-entry bookkeeping.

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