GUIDE TO FINANCIAL MARKETS

Why they exist and how they work

Seventh edition

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The Economist BOOKS

Published under exclusive licence from The Economist by
Profile Books Ltd
3 Holford Yard
Bevin Way
London WC1X 9HD
www.profilebooks.com

Typeset in Milo by MacGuru Ltd

Printed and bound in Great Britain by Clays, St Ives plc

A CIP catalogue record for this book is available from the British Library

ISBN 978 1 78816 034 6
eISBN 978 1 78283 438 0

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Why markets matter

THE EURO IS SLIGHTLY HIGHER against the yen. The Dow Jones Industrial Average is off 18 points in active trading. A Chinese airline loses millions of dollars with derivatives. Following the Bank of England's decision to lower its base rate, monthly mortgage payments are set to fall.

All these events are examples of financial markets at work. That markets exercise enormous influence over modern life comes as no news. But although people around the world speak glibly of "Wall Street", "the bond market" and "the currency markets", the meanings they attach to these time-worn phrases are often vague and usually out of date. This book explains the purposes different financial markets serve and clarifies the way they work. It cannot tell you whether your investment portfolio is likely to rise or to fall in value. But it may help you understand how its value is determined, and how the different securities in it are created and traded.

In the beginning

The word "market" usually conjures up an image of the bustling, paper-strewn floor of the New York Stock Exchange or of traders motioning frantically in the futures pits of Chicago. These images themselves are out of date, as almost all of the dealing once done face to face is now handled computer to computer, often with minimal human intervention. And formal exchanges such as these are only one aspect of the financial markets, and far from the most important one. There were financial markets long before there were exchanges and, in fact, long before there was organised trading of any sort.

Financial markets have been around ever since mankind settled down to growing crops and trading them with others. After a bad harvest, those early farmers would have needed to obtain seed for the next season's planting, and perhaps to get food to see their families through. Both of these transactions would have required them to obtain credit from others with seed or food to spare. After a good harvest, the farmers would have had to decide whether to trade away their surplus immediately or to store it, a choice that any 21st-century commodities trader would find familiar. The amount of fish those early farmers could obtain for a basket of cassava would have varied day by day, depending upon the catch, the harvest and the weather; in short, their exchange rates were volatile.

The independent decisions of all of those farmers constituted a basic financial market, and that market fulfilled many of the same purposes as financial markets do today.

What do markets do?

Financial markets take many different forms and operate in diverse ways. But all of them, whether highly organised, like the London Stock Exchange, or highly informal, like the money changers on the street corners of some African cities, serve the same basic functions.

- **Price setting.** The value of an ounce of gold or a share of stock is no more, and no less, than what someone is willing to pay to own it. Markets provide price discovery, a way to determine the relative values of different items, based upon the prices at which individuals are willing to buy and sell them.
- **Asset valuation.** Market prices offer the best way to determine the value of a firm or of the firm's assets, or property. This is important not only to those buying and selling businesses, but also to regulators. An insurer, for example, may appear strong if it values the securities it owns at the prices it paid for them years ago, but the relevant question for judging its solvency is what prices those securities could be sold for if it needed cash to pay claims today.
- **Arbitrage.** In countries with poorly developed financial markets, commodities and currencies may trade at very different prices

in different locations. As traders in financial markets attempt to profit from these divergences, prices move towards a uniform level, making the entire economy more efficient.

- **Raising capital.** Firms often require funds to build new facilities, replace machinery or expand their business in other ways. Shares, bonds and other types of financial instruments make this possible. The financial markets are also an important source of capital for individuals who wish to buy homes or cars, or even to make credit-card purchases.
- **Commercial transactions.** As well as long-term capital, the financial markets provide the grease that makes many commercial transactions possible. This includes such things as arranging payment for the sale of a product abroad, and providing working capital so that a firm can pay employees if payments from customers run late.
- **Investing.** The stock, bond and money markets provide an opportunity to earn a return on funds that are not needed immediately, and to accumulate assets that will provide an income in future.
- **Risk management.** Futures, options and other derivatives contracts can provide protection against many types of risk, such as the possibility that a foreign currency will lose value against the domestic currency before an export payment is received. They also enable the markets to attach a price to risk, allowing firms and individuals to trade risks so they can reduce their exposure to some while retaining exposure to others.

The size of the markets

Estimating the overall size of the financial markets is difficult. It is hard in the first place to decide exactly what transactions should be included under the rubric "financial markets", and there is no way to compile complete data on each of the millions of sales and purchases occurring each year. Dealogic, a financial information provider, estimates that total capital market financing was approximately $11.8 trillion worldwide in 2016, including $726 billion of equity issues, $6.8

trillion of debt issues, and $4.3 trillion of syndicated loans. However, this excludes large amounts of loans that were not resold in the form of securities and is not adjusted for the fact that governments and firms often issue new securities to replace existing ones, leaving the total stock of outstanding securities unchanged.

The figure of $11.8 trillion for 2016, sizeable as it is, represents only a single year's activity. Another way to look at the markets is to estimate the value of all the financial instruments they trade. When measured in this way, the financial markets accounted for approximately $193 trillion of capital in 2016 (see Table 1.1). This figure excludes many important financial activities, such as insurance underwriting, bank lending to individuals and small businesses, and trading in financial instruments such as futures and derivatives that are not means of raising capital. If all these other financial activities were to be included, the total size of the markets would be much larger.

Cross-border measure

Another way of measuring the growth of finance is to examine the value of cross-border financing. Cross-border finance is by no means new, and at various times in the past (in the late 19th century, for example) it has been quite large relative to the size of the world economy. The period since 1990 has been marked by a huge increase in the amount of international financing broken by financial crises in Asia and Russia in 1998, the recession in the United States in 2001, and the financial meltdowns of 2008–09 in the United States and 2008–13 in Europe. The total stock of cross-border finance in 2016, including international bank loans and debt issues, was more than $46 trillion, according to the Bank for International Settlements.

Looking strictly at securities provides an even more dramatic picture of the growth of the financial markets. A quarter of a century ago, cross-border purchases and sales of securities amounted to only a tiny fraction of most countries' economic output. Today, annual cross-border share and bond transactions are several times larger than GDP in a number of advanced economies – Japan being a notable exception.

TABLE 1.1 **The world's financial markets**
Year end, $trn

	2004	2008	2012	2016
International bank loans	13.6	22.6	20.4	27.0
International debt securities	11.5	18.9	21.9	21.3
Domestic debt securities	44.1	59.8	62.5	68.7
Equities	37.2	32.6	54.6	67.2
Other	5.2	8.0	8.4	8.8
Total value outstanding	**111.6**	**141.9**	**167.8**	**193.0**

Sources: Bank for International Settlements; World Federation of Exchanges

International breakdown

The ways in which firms and governments raise funds in international markets have changed substantially. In 1993, bonds accounted for 59% of international financing. By 1997, before financial crises in Asia and Russia shook the markets, only 47% of the funds raised on international markets were obtained through bond issues. Equities became an important source of cross-border financing in 2000, when share prices were high, but bonds and loans regained importance in the low-interest-rate environment of 2002–05. In 2008, syndicated lending fell off as lack of capital forced banks to restrain their lending activities. Issuance of international bonds was relatively flat in the years following 2008, as non-financial companies increased their bond issuance even while banks reduced their outstanding bond indebtedness. In more recent years, international bank lending has fallen off, but extremely low interest rates in the United States, Japan, Britain, and the EU have encouraged greater use of long-term bond financing.

Turn-of-the-century slowdown

By all these measures, financial markets grew rapidly during the 1990s. At the start of the decade, active trading in financial instruments was confined to a small number of countries, and involved mainly the same types of securities, bonds and equities that had dominated trading for two centuries. By the first years of the 21st century, financial markets were thriving in dozens of countries, and new instruments accounted for a large proportion of market dealings.

The expansion of financial-market activity paused in 1998 in response to banking and exchange-rate crises in a number of countries. The crises passed quickly, however, and in 1999 financial-market activity reached record levels following the inauguration of the single European currency, interest-rate decreases in Canada, the UK and Continental Europe, and a generally positive economic picture, marred by only small rises in interest rates, in the United States. Equity-market activity slowed sharply in 2000 and 2001, as share prices fell in many countries, but bond-market activity was robust. Trading in foreign-exchange markets fell markedly at the turn of the century. Credit and equity markets around the world were buoyant in 2006–07, but then contracted abruptly as financial crisis led to the failures of several major financial institutions and a dramatic reduction in lending. Although credit markets began to recover in 2009, their expansion was subdued because of the prolonged financial crisis affecting the euro zone, recession or sluggish growth in a number of major economies, and new regulatory requirements that constrained bank lending and discouraged use of certain financing methods, notably securitisation. By making large-scale purchases of bonds in 2010–13, the major central banks played a significant role in supporting credit-market expansion to meet the needs of businesses and households. In 2017, the US Federal Reserve Board and the European Central Bank announced that they would gradually end their bond-purchase programmes. This is likely to occur over a number of years, gradually making it more costly for firms and governments to issue bonds and possibly dampening total issuance.

The long-run trends of increased financial-market activity can be traced to four main factors:

- **Lower inflation.** Inflation rates around the world have fallen markedly since the 1980s. Inflation erodes the value of financial assets and increases the value of physical assets, such as houses and machines, which will cost far more to replace than they are worth today. When inflation is high, as was the case in the

United States, Canada and much of Europe during the 1970s and throughout Latin America in the 1980s, firms avoid raising long-term capital because investors require a high return on investment, knowing that price increases will render much of that return illusory. In a low-inflation environment, however, financial-market investors require less of an inflation premium, as they do not expect general increases in prices to devalue their assets.

- **Pensions.** A significant change in pension policies occurred in many countries starting in the 1990s. Since the 1930s, and even earlier in some countries, governments have operated pay-as-you-go schemes to provide income to the elderly. These schemes, such as the old age pension in the UK and the social security programme in the United States, tax current workers to pay current pensioners and therefore involve no saving or investment. Changes in demography and working patterns have made pay-as-you-go schemes increasingly costly to support, as there are fewer young workers relative to the number of pensioners. This has stimulated interest in pre-funded individual pensions, whereby each worker has an account in which money must be saved, and therefore invested, until retirement. Although these personal investment accounts have to some extent supplanted firms' private pension plans, they have also led to a huge increase in financial assets in countries where private pension schemes were previously uncommon.
- **Stock and bond market performance.** Many countries' stock and bond markets performed well during most of the 1990s and in the period before 2008, with the global bond-market boom continuing until interest rates began to rise in 2013. Stockmarkets, after several difficult years, rose steeply in many countries in 2012 and 2013 and again in 2016 and 2017. A rapid increase in financial wealth feeds on itself: investors whose portfolios have appreciated are willing to reinvest some of their profits in the financial markets. And the appreciation in the value of their financial assets gives investors the collateral to borrow additional money, which can then be invested.

- **Risk management.** Innovation has generated many new financial products, such as derivatives and asset-backed securities, whose basic purpose is to redistribute risk. This led to enormous growth in the use of financial markets for risk-management purposes. To an extent previously unimaginable, firms and investors could choose which risks they wished to bear and use financial instruments to shed the risks they did not want, or, alternatively, to take on additional risks in the expectation of earning higher returns. The risk that the euro will trade above $1.40 during the next six months, or that the interest rate on long-term US Treasury bonds will rise to 6%, is now priced precisely in the markets, and financial instruments to protect against these contingencies are readily available. The risk-management revolution thus resulted in an enormous expansion of financial-market activity. The credit crisis that began in 2007, however, revealed that the pricing of many of these risk-management products did not properly reflect the risks involved. As a result, these products have become more costly, and are being used more sparingly, than in earlier years.

The investors

The driving force behind financial markets is the desire of investors to earn a return on their assets. This return has two distinct components:

- **Yield** is the income the investor receives while owning an investment.
- **Capital gains** are increases in the value of the investment itself, and are often not available to the owner until the investment is sold.

Investors' preferences vary as to which type of return they prefer, and these preferences, in turn, will affect their investment decisions. Some financial-market products are deliberately designed to offer only capital gains and no yield, or vice versa, to satisfy these preferences.

Investors can be divided broadly into two categories:

- **Individuals.** Collectively, individuals own a small proportion of financial assets. Most households in the wealthier countries own some financial assets, often in the form of retirement savings or of shares in the employer of a household member. Most such holdings, however, are quite small, and their composition varies greatly from one country to another. In 2010, equities accounted for 9% of households' financial assets in Germany but 34% in Finland. The great majority of individual investment is controlled by a comparatively small number of wealthy households. Nonetheless, individual investing has become increasingly popular. In the United States, bank deposits peaked at 14.3% of households' financial assets in 2008 as the 2008–09 stockmarket crash reduced the value of households' holdings of equities. The subsequent rebound in US share prices, however, raised the proportion of shares in households' financial assets from 28% in 2008 to 36% in 2016.

- **Institutional investors.** Insurance companies and other institutional investors (see below), including high-frequency traders, are responsible for most of the trading in financial markets. The assets of institutional investors based in the 34 member countries of the OECD totalled approximately $100 trillion in 2016. The size of institutional investors varies greatly from country to country, depending on the development of collective investment vehicles. Investment practices vary considerably as well. At the end of 2011, after a significant decrease in share prices, for example, US institutional investors kept roughly identical proportions of their assets in the form of shares and in bonds. By 2016, US institutional investors' holdings of shares were far greater than their holdings of bonds, due largely to share-price appreciation in the interim. Until recently, British institutional investors tended to hold a greater proportion of assets in shares, whereas institutional investors in Japan have tended to favour bonds and loans over shares.

Mutual funds

The fastest-growing institutional investors are investment companies, which combine the investments of a number of individuals with the aim of achieving particular financial goals in an efficient way. Mutual funds and unit trusts are investment companies that typically accept an unlimited number of individual investments. The fund declares the strategy it will pursue, and as additional money is invested the fund managers purchase financial instruments appropriate to that strategy. Worldwide, mutual funds had net assets of approximately $50 trillion as of early 2018, excluding assets in money-market funds. Investment trusts, some of which are known in the United States as closed-end funds, issue a limited number of shares to investors at the time they are established and use the proceeds to purchase financial instruments in accordance with their strategy. In some cases, the trust acquires securities at its inception and never sells them; in other cases, the fund changes its portfolio from time to time. Investors wishing to enter or leave the unit trust must buy or sell the trust's shares from stockbrokers.

TABLE 1.2 **Financial assets of institutional investors, 2016**
$bn

	Investment funds	Insurance companies and pension funds
Canada	1,486	2,093
France	1,743	2,832
Germany	1,960	2,702
Italy	330	980
Japan	1,563	5,509
Korea	402	1,053
Luxembourg	4,324	197
Netherlands	792[a]	1,851
Norway	1,148	1,935
Sweden	398	605
Switzerland[b]	710	1,287
UK	NA	5,841
US	19,802	27,768

a Excludes money-market funds. b Data for 2015.
Source: OECD

Hedge funds

A third type of investment company, a hedge fund, can accept investments from only a small number of wealthy individuals or big institutions. In return it is freed from most types of regulation meant to protect consumers. Hedge funds are able to employ aggressive investment strategies, such as using borrowed money to increase the amount invested and focusing investment on one or another type of asset rather than diversifying. If successful, such strategies can lead to very large returns; if unsuccessful, they can result in sizeable losses and the closure of the fund.

All investment companies earn a profit by charging investors a fee for their services. Some, notably hedge funds, may also take a portion of any gain in the value of the fund. Hedge funds have come under particular criticism because their fee structures may give managers an undesirable incentive to take large risks with investors' money, as fund managers may share in their fund's gains but not its losses.

Insurance companies

Insurance companies are the most important type of institutional investor, owning one-third of all the financial assets owned by institutions. In the past, most of these holdings were needed to back life insurance policies. In recent years, a growing share of insurers' business has consisted of annuities, which guarantee policy holders a sum of money each year as long as they live, rather than merely paying their heirs upon death. The growth of pre-funded individual pensions has benefited insurance companies, because on retirement many workers use the money in their accounts to purchase annuities.

Pension funds

Pension funds aggregate the retirement savings of a large number of workers. Typically, pension funds are sponsored by an employer, a group of employers or a labour union. Unlike individual pension accounts, pension funds do not give individuals control over how their savings are invested, but they do typically offer a guaranteed benefit once the individual reaches retirement age. Pension-fund assets in the OECD countries exceeded $25 trillion at the end of 2016.

Three countries, the United States, the UK and Japan, account for the overwhelming majority of this amount. Pension funds, although huge, are slowly diminishing in importance as individual pension accounts gain favour.

Algorithmic traders

Algorithmic trading, also known as high-frequency trading, has expanded dramatically in recent years as a result of increased computing power and the availability of low-cost, high-speed communications. Investors specialising in this type of trading program computers to enter buy and sell orders automatically in an effort to exploit tiny price differences in securities and currency markets. They typically have no interest in fundamental factors, such as a company's prospects or a country's economic outlook, and own the asset for only a brief period before reselling it. Algorithmic trading firms control only a tiny proportion of the world's financial assets, but they account for a large proportion of the trading in some markets.

Other institutions

Other types of institutions, such as banks, foundations and university endowment funds, are also substantial players in the markets.

The rise of the formal markets

Every country has financial markets of one sort or another. In countries as diverse as China, Peru and Zimbabwe, investors can purchase shares and bonds issued by local companies. Even in places whose governments loudly reject capitalist ideas, traders, often labelled disparagingly as speculators, make markets in foreign currencies and in commodities such as oil. The formal financial markets have expanded rapidly in recent years, as governments in countries marked by shadowy, semi-legal markets have sought to organise institutions. The motivation was in part self-interest: informal markets generate no tax revenue, but officially recognised markets do. Governments have also recognised that if businesses are to thrive they must be able to raise capital, and formal means of doing this, such as selling shares on a stock exchange, are much more efficient than informal means such as borrowing from moneylenders.

Investors have many reasons to prefer formal financial markets to street-corner trading. Yet not all formal markets prosper, as investors gravitate to certain markets and leave others underutilised. The busier ones, generally, have important attributes that smaller markets often lack:

- **Liquidity**, the ease with which trading can be conducted. In an illiquid market an investor may have difficulty finding another party ready to make the desired trade, and the difference, or "spread", between the price at which a security can be bought and the price for which it can be sold, may be high. Trading is easier and spreads are narrower in more liquid markets. Because liquidity benefits almost everyone, trading usually concentrates in markets that are already busy.
- **Transparency**, the availability of prompt and complete information about trades and prices. Generally, the less transparent the market, the less willing people are to trade there.
- **Reliability**, particularly when it comes to ensuring that trades are completed quickly according to the terms agreed.
- **Legal procedures** adequate to settle disputes and enforce contracts.
- **Suitable investor protection and regulation.** Excessive regulation can stifle a market. However, trading will also be deterred if investors lack confidence in the available information about the securities they may wish to trade, the procedures for trading, the ability of trading partners and intermediaries to meet their commitments, and the treatment they will receive as owners of a security or commodity once a trade has been completed.
- **Low transaction costs.** Many financial-market transactions are not tied to a specific geographic location, and the participants will strive to complete them in places where trading costs, regulatory costs and taxes are reasonable.

The forces of change

Today's financial markets would be almost unrecognisable to someone who traded there only two or three decades ago. The speed of change has been accelerating as market participants struggle to adjust to increased competition and constant innovation.

Technology

Almost everything about the markets has been reshaped by the forces of technology. Abundant computing power and cheap telecommunications have encouraged the growth of entirely new types of financial instruments and have dramatically changed the cost structure of every part of the financial industry.

Deregulation

The trend towards deregulation has been worldwide. It is not long since authorities everywhere kept tight controls on financial markets in the name of protecting consumers and preserving financial stability. But since 1975, when the United States prohibited stockbrokers from setting uniform commissions for share trading, the restraints have been loosened in one country after another. Although there are great differences, most national regulators agree on the principles that individual investors need substantial protection, but that dealings involving institutional investors require little regulation.

Liberalisation

Deregulation has been accompanied by a general liberalisation of rules governing participation in the markets. Many of the barriers that once separated banks, investment banks, insurers, investment companies and other financial institutions have been lowered, allowing such firms to enter each other's businesses. Rules that made it difficult for companies to issue shares have generally been eased as well, leaving the decision of whether a young, unprofitable firm's shares represent a worthwhile investment to investors rather than regulators. The big market economies, most recently Japan and South Korea, have also allowed foreign firms to enter financial sectors that were formerly reserved for domestic companies.

Consolidation

Liberalisation has led to consolidation, as firms merge to take advantage of economies of scale or to enter other areas of finance. Almost all the UK's leading investment banks and brokerage houses, for example, have been acquired by foreigners seeking a bigger presence in London, and many of the medium-sized investment banks in the United States were bought by commercial banks wishing to use new powers to expand in share dealing and corporate finance. Financial crisis led to further consolidation, as the insolvency of many major banks and investment banks led to forced mergers in 2008. However, the crisis also prompted lawmakers and regulators in some countries to force banks to "ring-fence" their consumer banking operations, separating them from their trading and corporate banking operations so that consumers' deposits will not be at risk if other, riskier businesses produce large losses.

Globalisation

Consolidation has gone hand in hand with globalisation. Most of the important financial firms are now highly international, with operations in all the major financial centres. Many companies and governments take advantage of these global networks to issue shares and bonds outside their home countries. Investors increasingly take a global approach as well, putting their money wherever they expect the greatest return for the risk involved, without worrying about geography.

This book

The following chapters examine the most widely used financial instruments and discuss the way the markets for each type of instrument are organised. Chapter 2 establishes the background by explaining the currency markets, where exchange rates are determined. The money markets, where commercial paper and other instruments are used for short-term financing, are discussed in Chapter 3. The bond markets, the most important source of financing for companies and governments, are the subject of Chapter 4. Asset-backed securities, complicated but increasingly important instruments that have some characteristics in common with bonds but also some important differences, receive special attention in Chapter 5. Chapter 6 deals with offshore markets, including the market for euro-notes. Chapter 7 discusses the area that may be most familiar to many readers – shares and equity markets. Chapter 8 covers exchange-traded futures and options, and Chapter 9 discusses other sorts of derivatives. The markets for syndicated loans and other kinds of bank credit are beyond the scope of this book, as are insurance products of all sorts.