

# Capital Markets Participants, Products, and Functions

This chapter provides an introduction to the participants, products, and functions of capital. We also discuss the important role capital markets play in supporting economic growth and development (Figure 1.1). We start with a detailed discussion of key participants and how capital markets support their economic activities. We then introduce the foundational product groups offered and review their key features and uses. Then we will explain the various types of markets and how they facilitate the funding and investing needs of participants.

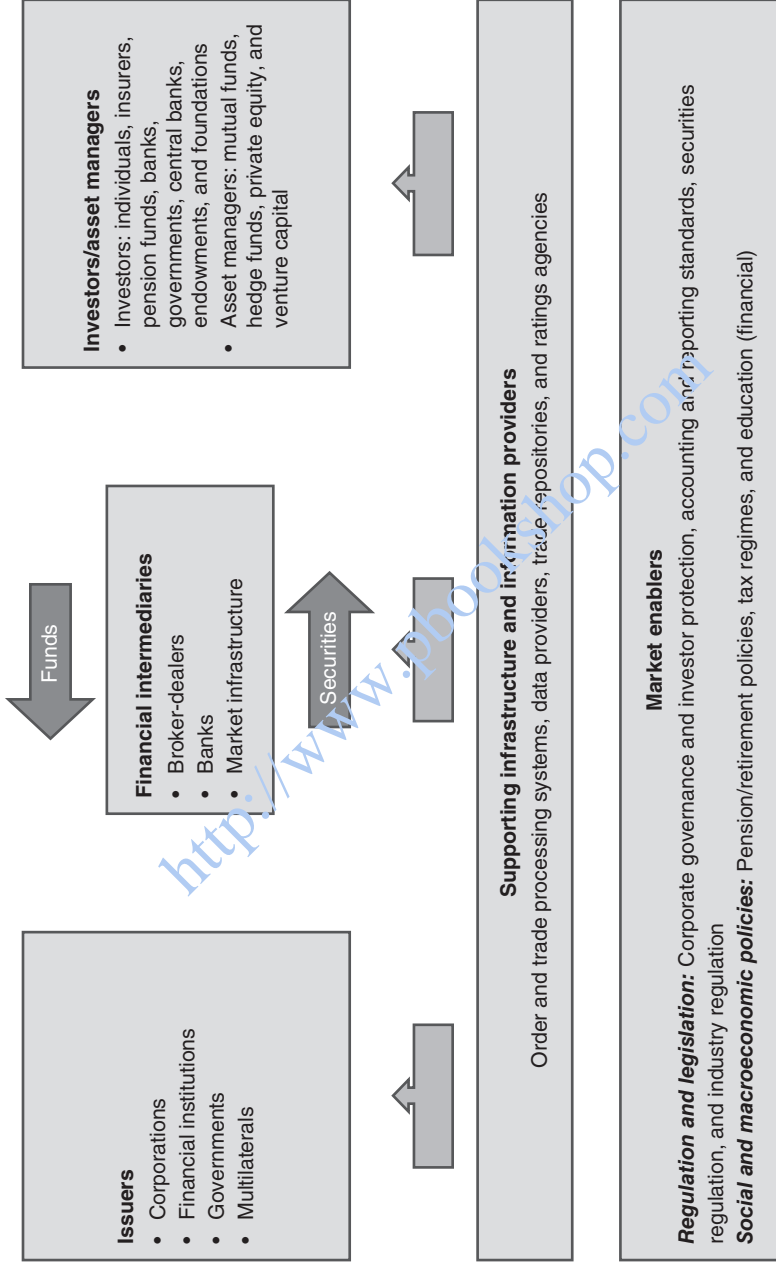
## **THE BASIC PRODUCTS OFFERED IN CAPITAL MARKETS**

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For the focus of our discussion we view capital markets as offering two types of funding products to issuers: Equities and debt (also called fixed income) through both primary (initial issuance of securities) and secondary (ongoing trading of securities) markets. From a broader perspective, capital markets may also include the trading commodities, currencies, and derivatives.

### **Equities**

Equities, also known as shares and stocks, represent an ownership interest in a corporation; the term *share* means each security is a share of ownership in a corporation. Shares have the same limited-liability rights of the corporations they represent, which means that the liability of share owners is limited to their investment amount. Shares are initially created when a corporation is formed, whereby the owners can choose the number of shares appropriate for the corporation's plans and valuation. At this point the corporation is known as a private corporation, as all the shares are held by a close group of investors.



**FIGURE 1.1** Capital markets environment.

As corporations grow, some may choose to become a public corporation, or one that is listed on a public stock exchange, where members of the public can openly buy or sell shares. This process is known as listing where existing or additional shares may be created and offered to the public through an initial public offering (IPO).

Shares entitle their holders to a share of the dividends declared by the firm's board of directors to be distributed from the corporation's profits. Likewise, they also generally entitle owners to a vote on critical decisions at annual general meetings. Shares can be created in different classes with differing rights. There are two broad classes of shares, common and preferred. Preferred shares typically have a higher claim on dividends and on the assets of a firm in the event of liquidation, but typically have no voting rights and have a fixed dividend that will not rise with earnings.

Following an IPO, shares are traded on stock exchanges and their valuation is subject to supply and demand, which in turn is influenced by the underlying fundamentals of the business, macroeconomic factors such as interest rates, and market sentiment.

The return to shareholders is a function of both the dividends paid to them from the corporation's profits and of any movements in the share price (capital growth). Importantly, too, equities have the lowest rights in the default and liquidation of a corporation and are the last to be paid out.

## Fixed Income

Fixed-income securities, as the name suggests, promise a fixed return to investors. Fixed-income funding is similar in nature to the provision of a loan by a bank, but issuers manage to attract a broader investor base through tapping into capital markets, generally lowering the required interest rate or improving non-price terms for the borrower.

Fixed-income securities typically have a maturity date when the security expires and the principal or loan amount is paid back to the investor. Most fixed-income securities also offer interest rate payments (known as coupons) at regular intervals. Some types of securities, such as zero-coupon bonds, do not pay out any coupons while inflation-indexed (also called inflation-linked) bonds index the principal amount to inflation and floating-rate bonds offer a variable interest rate based on a benchmark market (variable) interest rate plus a premium.

There are two broad types of bonds based on the issuer: Corporate bonds are issued by corporations, and sovereign bonds are issued by governments. A third type includes municipal bonds issued by governments at the subnational level, which are particularly common in the United States. Sovereign securities are also referred to as rates, as the main risk is related

to movements in market interest rates. This is based on the assumption that the sovereign is risk free—an assumption that has sometimes proven false as we have seen 30 sovereign defaults from 1997 to 2014 alone.<sup>1</sup> Corporate bonds are also known as credit securities, as the primary risk related to these is the underlying credit risk of the issuer.

Fixed-income securities are also tradable in the market and are thus subject to market price movements. Given that the interest rate payments are largely fixed, any decline in interest rates raises the effective yield of the security (coupon payment as a percentage of value of the security). As a result, there would be increased demand for the security, driving its price higher and reducing its yield. Thus, the prices of fixed-income securities typically move inversely to movements in interest rates. Furthermore, a change in sentiment about the credit quality of an issuer can result in a decline in the value of those securities.

### **Foreign Exchange and Commodities**

Foreign exchange (FX) relates to the trading of currencies in exchange for other currencies. The most basic form of FX transaction is a spot trade where two currencies are agreed to be exchanged immediately at an agreed rate. FX is frequently broken down into G10 (comprising the 10 largest developed countries) and EM (currencies of all other countries).

Commodities represent basic goods, typically used in production and commerce. There are many types of commodities traded, with each commodity represented for contract purposes using a variety of sizes and qualities based on historical conventions. When commodities are traded on an exchange, they must conform to strict quality criteria to ensure standardization of each unit. The key groups of commodities include, but are not limited to, agricultural, animal products, energy, precious metals, and base metals. Commodities are largely traded in the form of derivatives contracts.

### **Derivatives**

Securities can be classed also as cash and derivatives. Cash securities represent direct ownership or claims on assets, such as part of a corporation or a financial obligation from an issuer. Deriv, as the name suggests, derive their value from an underlying asset such as other securities, indices, commodities, or currencies (FX).

Derivatives typically represent future claims on assets, for example, if a commodity is bought for future delivery via a forward contract. Hence, they are heavily used for hedging purposes by a wide variety of market participants. Hedging involves offsetting some form of risk, such as potential

future changes in interest rates or the potential change in the price of a commodity. When used as a hedging tool, derivatives effectively transfer the risk in the underlying asset to a different party. As such, derivatives can also be thought of as providing a form of insurance. The most common types of derivatives are *forwards*, *futures*, *options*, and *swaps*:

- **Forwards:** Forwards represent binding contracts for the sale or purchase of a fixed quantity of an asset at a fixed point of time in the future. Forwards are most commonly used in the FX and commodities markets.

- **Futures:** Futures are similar to forwards except that their contract terms are standardized and they are traded on exchanges. Futures are also available on many index products including stock indices.

- **Options:** Options, as the name suggests, provide the right (but not obligation) for the contract holder to either buy (known as a call option) or sell (put option) a certain fixed quantity of an asset either before or at a fixed expiry date at a fixed price. Options can help provide a floor price for certain assets (i.e., through owning a put option, which guarantees a certain sale price) or a ceiling price (i.e., through a call option, which guarantees a maximum purchase price) for certain assets, thus minimizing risks faced by the option holder.

- **Swaps:** Swaps are contracts by which two parties agree on the swapping or exchange of two assets or commitments at some point in time. The most common form of swaps is interest rate swaps (IRSs). These contracts swap the interest rate payment commitments between two counterparties. The two main types of IRSs include float for fixed, where a floating interest rate commitment is swapped for a fixed interest rate commitment, and float for float, involving the swapping of a floating rate based on one benchmark rate with another. Both involve fixed notional or principal amounts upon which the rates are calculated.

## **CAPITAL MARKETS AS A SUBSTITUTE FOR BANK LENDING**

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We described the narrow definition of capital markets as the provision of funding to issuers. In that sense, capital markets serve similar functions to traditional banking. Banks facilitate the provision of funds to customers to support their economic activities. Banks traditionally raise their own funding through customer deposits and thus match investors supplying funds with issuers requiring funds. They also help transform the maturity or term profile required by each of these parties, with investors typically seeking to part with their funds mostly for short periods, and issuers looking for longer-term funds.

Banks traditionally relied on their deposits for a significant proportion of their lending; thus deposits were the primary limit on lending. However, now, under most modern fractional reserve banking systems (which we will not detail here), banks have the unique ability to also create money. To highly simplify the process, when a bank creates a loan (an asset on its balance sheet), it simultaneously also creates a deposit in the loan customer's account (a liability on its balance sheet). The deposit is effectively new money, created by the bank, which the customer can then utilize. This is known as the money creation effect. Banks could theoretically offer unlimited lending and create unlimited new money; however, they face several regulatory restrictions on their activities. These regulations result in banks having to optimize between several constraints to their lending and deposit-taking activities based on the quality and quantity of loans, deposits, other funding, and capital (can largely be thought of as shareholders' equity and reserves). In effect, the deposit base and capital position of a bank serve as key restrictions on overall lending growth. The main regulations have converged globally around the Basel accords and local requirements. At a high level, these regulations are:

- **Leverage ratio:** Constrains the ability of a bank to leverage its balance sheet, thus representing a constraint on lending in relation to capital. The leverage ratio is defined as a bank's highest quality capital (Tier 1 capital) divided by its exposures (on-balance sheet exposures, derivatives exposures, securities financing exposures, and off-balance-sheet exposures). Basel 3 sets the leverage ratio at 3%.

- **Liquidity coverage ratio:** Requires banks to hold an amount of highly liquid assets (e.g., cash and government bonds) generally equal to 30 days of net cash flow. This requirement helps ensure that banks can meet any immediate cash shortages through the sale of their liquid assets. Liquid assets generally do not include lending, and so this requirement also restricts lendable assets.

- **Capital adequacy ratio:** Sets a minimum capital requirement based on a bank's risk-weighted assets. Riskier lending and assets generate higher capital requirements. This requirement also further constrains the amount of lending banks can engage in based on their capital.

- **Loan-to-deposit ratio:** In many emerging markets, lending is also directly constrained by the size of deposits based on the loan-to-deposit ratio. In Indonesia, Bank Indonesia, the central bank, enforces a maximum loan-to-funding ratio of 94% at the time of this writing. Here, funding includes demand deposits, time deposits, medium-term notes, floating rate notes, and bonds that are issued by banks.

Given the constraints faced by banks, capital markets offer an important alternative source of funding for issuers and alternative investment

options for investors. From an issuer perspective, fixed-income securities allow a broader range of funding options compared to bank loans. They are highly customizable and allow for a broader investor base, enabling issuers to raise funds that banks may not be willing to provide in the form of a loan given constraints discussed earlier. Of course, capital markets also offer the option of raising equity funding, which is not available generally from banks. From an investor perspective, both fixed-income securities and deposits offer a fixed return. However, fixed-income securities allow investors to take corporate credit risk, create a more diversified portfolio, and access different points on the risk/return profile, whereas deposits, which tend to be at least partially insured, typically offer the lowest return for investors.

## **THE KEY STAKEHOLDERS IN CAPITAL MARKETS**

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There are four primary stakeholders in capital markets:

1. Issuers (principally corporations, financial institutions, government, and multilateral organizations) that seek funding for business activities
2. Investors who seek a financial return on their investment and/or seek liquidity
3. Financial intermediaries that ensure an efficient flow of money from investors to issuers
4. Supporting infrastructure and information providers that sustain capital markets by providing critical information to market participants

### **Issuers**

Issuers represent the demand for funding in capital markets and seek to obtain funding for a variety of reasons, differing based on the type of issuer. In general, issuers seek funds to develop or maintain economic projects that generate cash flow. The cash flow from these projects is partly used to pay for the cost of funding obtained. There are four main categories of issuers: Financial corporations, nonfinancial corporations, sovereigns/governments, and quasi-sovereigns or international multilateral organizations.

Overall, corporations are by far the largest issuers in the capital markets, and we differentiate here between financial and nonfinancial corporations as their needs and use of funds, along with the types of funds used, can differ considerably. Each of the issuers is discussed in more detail here, and the types of capital markets products they use will be covered in the next section.

**Corporations (Nonfinancial Institutions)** Nonfinancial corporations include both public (listed) and private unlisted firms. These firms require funds for carrying out their various economic activities with funding requirements typically differentiated between the term required:

- **Long-term capital:** Longer-term investments include the construction of factories, purchasing or developing equipment, acquiring other firms, and funding research and development—typically investments that generate cash flows that span beyond one year. Specific funding products can include term loans (from banks) and/or a combination of equity funding and fixed-income bonds.

- **Short-term capital:** Typically classed as working capital and used for purchasing of items and inputs to production that are expected to be sold within one year. Working capital is typically funded either through short-term working capital loans, overdraft facilities, and credit cards provided by banks and other financial institutions or through short-term capital markets products such as commercial paper.

**Financial Corporations** From an issuer perspective, financial corporations include banks, thrifts (also known as savings and loans in the United States), building societies, and credit unions, but also to a lesser extent investment managers such as fund managers. Financial corporations are also significant users of capital markets and are highly involved as intermediaries, too. While many of them have investment needs as corporations (e.g., for branches or IT systems), we highlight two distinct funding purposes:

1. **Asset-liability management (ALM):** ALM is the process of managing structural mismatches between assets and liabilities on the balance sheet. In a bank, these include the balancing of lending and/or investments (assets) and deposits and other non-equity funding (liabilities). ALM is also a vital function of financial institutions such as insurers and asset managers, which have significant maturity transformation roles or frequently changing assets and liabilities. Mismatches arise and change on an intraday basis due to the changing profile of assets and liabilities and market movements. Capital markets are utilized to manage and balance these mismatches as they occur.

2. **Investment leverage:** Some investment managers such as hedge funds will utilize capital markets for generating leverage on their investments—essentially raising funding from capital markets in the form of debt, enabling them to invest more than the sum of their investors' funds with the aim to generate higher leveraged returns.



**Sovereigns/Governments** Sovereigns and governments (used interchangeably) are also significant users of capital markets in most economies globally although smaller in aggregate than corporates. In larger economies such as the United States, governments at all levels, including the federal/national, state/province, and local/municipal level, are active users of capital markets while in smaller economies, typically only the national and state governments are in a position to seek funding through capital markets. Governments typically require funding from capital markets for two broad uses:

**1. Non-capital expenditure:** In many cases, government expenditure on consumption items that directly provide goods and services to their population (i.e., health care, education) exceeds general government income including but not limited to personal and business taxation, duties, fees, and asset sales. In this situation, the government's budget is said to be in deficit. Governments typically need to borrow funds from capital markets to fund this gap and ensure essential public services can be provided.

**2. Capital and infrastructure project development:** Governments are also primarily responsible for providing infrastructure such as highways, airports, hospitals, and schools. These, too, may require borrowing funds from capital markets if funds cannot be provided from general government income. Some of these projects may generate ongoing revenue streams in the future, which will assist in covering their borrowing costs.

A third but related point is that during times of economic stress (recessions), governments often use fiscal measures such as increasing public spending with the aim of creating extra demand and stimulating economic growth to lift their economies out of recession.

Government securities are typically issued by their treasury departments. However, certain sizable government entities that engage in significant financial activities may also seek funding on their own. These include, for example, the Federal National Mortgage Association (FNMA) or "Fannie Mae," a publicly traded corporation that is a government-sponsored entity (GSE) and supports the national mortgage market.

## **Investors and Asset Owners**

Investors, or asset owners, represent the supply of funding in capital markets and seek to obtain a return for supplying funds to issuers. Investor assets vary widely, with advanced economies having significant investment funds and emerging and developing economies much smaller pools of funds.

Investors can be any individual or institution in possession of funds and seeking to generate a return from those funds. The key categories of investors are discussed in the following.

**Individuals** Individuals have a variety of options for generating returns from their savings. Usually the largest investment made by individuals is their home. Individuals may choose to keep any extra savings funds in bank accounts, although these typically yield lower on average than other options. As a result, individuals increasingly participate in capital markets, either directly as in the purchase of equities or bonds through a broker, or indirectly through placing their funds with an asset manager.

With the prevalence of online brokers, and the diversification of their offerings, retail investors can now directly participate in many capital markets products. Retail capital markets activity is largely concentrated in equities because of ease of use, low fees, and typically less complex products. Retail investors can easily trade ETFs and basic derivatives such as stock options and contracts for difference (CFDs) while in some markets fixed-income securities are also easily accessible through brokers.

**Insurers** Insurers collect premiums from their policyholders and use these proceeds to invest in assets that will eventually support the payment of claims according to insured life events (death, terminal or critical injury, etc.), property and casualty events (fire, injury, etc.), and health events (hospitalization, medical care, etc.) by their claimholders.

**Pension Funds** Pension funds aggregate the retirement savings of individuals. For pensions managed and provided directly by employers, the pension fund represents the employer's contributions to meet their future pension obligations to their employees. Individuals and/or their employers make regular contributions to these funds, usually as a proportion of monthly pay, and this is invested to grow over their working life. Given their size in some countries, pensions represent a powerful class of investors. Upon retirement, individuals either withdraw their pension for usage or convert their pension fund into an annuity that pays regular cash flows. In an increasing number of nations, contributions to pensions are mandated, including Australia (Superannuation), UK (Workplace Pensions), and Singapore (Central Provident Fund), to mention just a few. Governments have realized that as the share of the working-age population declines and as people live longer, the government is less able to fund extensive social security programs and that individuals will need to be responsible for retirement income. As such, pensions represent a sizable share of available funds and are very important given the millions of individuals who rely on them for retirement income

and for saving governments from extensive social security payments. Pensions originally were largely structured as a defined benefit where investors were guaranteed a fixed benefit or payment based on their incomes or regular contribution amounts. Given fluctuations in asset prices and difficulty in forecasting, together with the fact that life expectancy has increased significantly in the past 50 years, pensions are increasingly adopting a defined contribution structure, where the benefit is dependent on both contributions and the investment performance of the pension.

**Banks** Banks invest in capital markets products as part of their asset–liability management (ALM) process. However, banks need to be prepared for any short-term shortages in liquidity and thus are required to hold a significant amount of highly liquid assets (set to be at least 100% of net stressed cash flows over a 30-day period under the Basel Liquidity Coverage Ratio rules). This should ensure that in the event of a liquidity crisis, banks can convert these assets into cash in capital markets relatively quickly to cover cash shortfalls.

**Governments** Governments can generate surplus funds, either through budget surpluses, through asset sales (national firms, commodities, etc.), or through foreign exchange surpluses. Many governments have created state funds tasked with investing these funds, known as sovereign wealth funds (SWFs). The investment of these funds is extremely important given that their income supports national budgets and national investment in infrastructure and facilities such as schools and hospitals. Given the size of these funds, they must tap capital markets to source appropriately sized investments.

**Central Banks** Following the financial crisis of 2008, central banks have become significant investors in capital markets through the use of quantitative easing (QE). QE involves the purchase of securities (largely government securities) from banks to reduce yields and enable banks to increase lending activity with the additional funds in order to stimulate economic growth. The United States (Federal Reserve), Europe (European Central Bank), and Japan (Bank of Japan) have all extensively used QE over the past decade to stimulate economic activity.

Central banks also participate widely in capital markets as part of their role to implement monetary policy and in some cases as part of their role in managing exchange rates. In many countries, central banks manage the key overnight reference interest rates through trading activity in overnight repo markets, effectively setting the rates banks lend to each other overnight. Repos (repurchase agreements) are short-term collateralized loans made

between two parties where one party borrows money in return for securities and agrees to buy back the securities at a fixed time. Repos are vital instruments for short-term financing in many capital markets.

**Endowments and Private Foundations** Endowments are trusts made up of funds, usually donated, and dedicated to provide ongoing support for the activities of certain institutions. The most well-known endowments include those established to support universities or charitable not-for-profit organizations. Endowments invest their funds through capital markets and supply a portion of the investment returns to support their beneficiary institution, occasionally also utilizing some of the funds when investment incomes may be low.

Investors/asset owners may directly manage their capital markets investment decisions or place their funds with asset managers who make investment decisions for asset owners based on various investment strategies. Asset managers either offer segregated and bespoke mandates to institutional investors or aggregate investible funds from numerous investors into funds, each with clearly defined investment policies and principles.

There are four types of basic fund structures:

**1. Mutual funds:** Mutual funds typically issue units, each representing a proportion of the total fund, allowing investors to purchase an investment in the fund based on their desired size. Mutual funds can be structured as closed-ended or open-ended. Closed-ended funds issue a fixed number of units when a fund is launched. They are normally listed on a stock exchange, and investors are only able to enter and exit by buying and selling existing units in the fund, with units priced by the market. Closed-ended funds commonly utilize leverage in their investments. Open-ended funds do not have a fixed number of units and thus can accept new investments (through the creation of new units) or redemptions (through reducing the number of units) based on demand for investing in the fund.

**2. Hedge funds:** Hedge funds seek to generate a positive return in all market conditions. As a result, hedge funds will often have complex investment strategies, utilizing a broad variety of investment products spanning many asset classes, including significant usage of derivatives. In contrast to mutual funds they face fewer investment restrictions.

**3. Private equity funds:** Private equity (PE) funds make medium- to long-term equity investments in both listed and unlisted corporations. Typically, the PE fund's aim is to take an active role in managing the firm and to fix issues and improve the firm's profitability. Typically, PE firms will aim to achieve a controlling stake in an investment where they seek to significantly influence management. Once performance is improved, PE funds aim

to offload their investments, either through a sale to another firm, or through an IPO at a higher valuation, generating superior returns.

**4. Venture capital funds:** Venture capital (VC) funds also largely make equity investments. While similar to PE investments in many ways, venture capital is provided at a much earlier stage than typical private equity investments, usually to promising start-up businesses with little or no revenues; thus there is a high degree of risk associated with venture investing.

### **Financial Intermediaries**

Financial intermediaries enable capital markets to operate across the full breadth of products, facilitating the matching of the specific needs of investors and issuers. The main categories of intermediaries in capital markets are: banks (investment banks), broker-dealers, exchanges and clearing organizations, central securities depositories, and custodians. Apart from banks and broker-dealers, these intermediaries are also known as market infrastructure.

**Banks (Investment Banks)** We've already discussed the function of banks as investors and issuers. Banks also play two further significant functions in capital markets. These include the investment banking function (discussed here) and the broker-dealer function (discussed in the next section).

The investment banking function supports firms to raise funding from capital markets and to also broker mergers and acquisitions deals between firms. There are three broad subfunctions within investment banking:

**1. Equity capital markets (ECM):** The ECM division of an investment bank is responsible for supporting issuers to raise funds through the issue of equities to the public. ECM teams are usually specialized by industry to enable them to effectively determine the value of the issuing firm and its securities. ECM divisions also maintain large networks of potential investors to support the distribution of the securities. ECM teams also support firms in ongoing equity capital raisings, through rights issues, for example. As part of the ECM function, investment banks often underwrite the securities, or agree to buy a pre-agreed level of the securities if they fail to attract sufficient interest from investors.

**2. Debt capital markets (DCM):** The DCM division supports issuers to raise debt financing for corporate and government issuers. Similar to ECM teams, they are often specialized to ensure they can accurately determine the right structure and pricing for debt issuances based on the unique characteristics of the issuer and the prevailing market conditions. In certain markets, some of the largest dealers are also denoted, typically by the Department of

Treasury, as primary dealers. These dealers represent the only dealers that may directly transact with the Treasury department or national central bank in government securities. Typically only the largest and most well-managed dealers are allowed this privilege.

**3. Mergers and acquisitions (M&A):** M&A teams support clients in merging with or acquiring other firms, and also divesting parts of their business. While not directly a capital markets activity, M&A transactions often require significant financing and often collaborate with ECM and DCM teams.

**Broker-Dealers** Broking (brokering) and dealing are two separate functions, although they are often discussed together given that their core functions are complementary and often offered in an integrated manner. Brokering essentially involves the execution of capital market transactions without taking on any risk. It is also called acting on an agency basis when dealing in equities and riskless principal when dealing in the fixed-income markets. In essence, brokers connect two parties to a transaction, either through a trading medium such as an exchange, or directly as in over-the-counter transactions. For this service they charge a commission.

Dealers, in contrast, act on a principal basis, willing to use their own balance sheet to make a market for clients (known as market-making). Dealers quote a spread for each security they are willing to trade in. The spread refers to the difference in the price they would be willing to buy or sell a security at. Dealers thus may have to sometimes serve as the counterparty to a trade until a further counterparty is found. Banks can now largely only undertake such principal transactions for their clients under the Volcker Rule in the United States and its equivalents elsewhere. These rules prevent banks from putting their own capital at risk in high-risk, short-term trading transactions that are not directly related to benefiting their clients (known as proprietary trading) to increase profits.

A subset of brokers are inter-deal-brokers, who only look to serve broker-dealers themselves as their clients.

Broker-dealers also provide advice to their clients on which investments to make, often supported by teams of research analysts. The research reports of broker-dealers are highly important in supporting investor participation through the dissemination of trade ideas while also keeping a close check on the performance of issuers. Research has generally been bundled into brokers' trading commissions and thus not charged for separately, although recent reforms under Europe's MiFID II have seen research unbundled and charged for separately to minimize potential conflicts of interest and increase transparency for end investors.

**Exchanges, Clearinghouses, and Central Counterparties (CCPs)** Exchanges are venues where buyers and sellers of securities meet to transact/trade in those securities. Today, most exchanges, particularly for equities, are almost completely virtual; however, some still maintain trading floors where traders representing the brokers of buyers and sellers physically meet and agree to trades. Historically exchanges specialized in certain asset classes, the most well-known of which are stock exchanges where equities are traded. Other key exchanges include commodities exchanges such as the Chicago Mercantile Exchange (CME). Increasingly, exchanges have been diversifying over the past decade, with credit fixed-income products, exchange-traded funds, and a host of derivatives offered on exchanges.

Following the execution of a trade, there are two key post-trade processes conducted: Clearing and settlement. In the United States, all equities are cleared through the Depository Trust and Clearing Corporation (DTCC) group centrally, while multiple clearinghouses exist for other securities and derivatives, including CME Clearing and ICE Clear.

Clearinghouses assume the role of intermediary between buyers and sellers of financial instruments. They take the opposite position of each side of a trade, which helps to minimize some netting exposure, thus improving the efficiency of the markets, and adds stability to the financial system. Netting refers to the process of consolidating multiple trades into a single trade, resulting in each party only having to make a single transaction based on the net value of multiple transactions. The benefits from netting alone can be very large, substantially affecting the economics of a trade.

**Central Securities Depositories** Central securities depositories (CSDs) are registrars responsible for maintaining the original ownership records for securities and facilitating the settlement and transfer of securities between owners. Traditionally, securities were issued on paper with the owners' names registered and stored in large safes by the owners. Trading was complex with certificates having to be physically delivered. As trading volumes increased, storage of the certificates was first centralized and then digitized, and today almost all securities globally are stored in electronic databases maintained by CSDs. Transfers of securities are now done through electronic book-entry, that is, changing the ownership of securities electronically without moving physical documents.

**Custodians** Custodians are banks responsible for holding assets such as capital markets securities on behalf of investors. In their safe-keeping or custody role, custodians ensure that the assets of clients managed by large investment firms are held safely and accurately in their names. In their asset-servicing

role, custodians also support the clearing process, corporate actions processing (such as dividends and stock splits), and also assist with transaction accounting and reporting. Typically, investment fund assets and collateral for trades are safeguarded by a third party so that they are separated from the assets of the investment manager protecting the underlying investors and are transacted within the bounds of their various investment mandates. There are two types of custodians:

- **Global custodians** safeguard assets for their clients in multiple jurisdictions around the world and are generally the first level through which institutional investors and broker-dealers engage in the clearing and settlement process. Global custodians maintain accounts at multiple local CSDs and/or sub-custodians, covering most geographical markets, or link to local sub-custodians. Global custodians also offer several value-added services, including the optimization of client collateral, collateral processing, and reporting.

- **Sub-custodians** offer similar services to global custodians except that they are typically limited to one or a few local markets. They thus can facilitate access to local markets to clients using global custodians, which have limited local presence. Market participants could connect to sub-custodians either directly or through global custodians with their role being protected by local regulations. Sub-custodians also provide more customized local services, including the handling of localized withholding taxes.

### **Supporting Infrastructure and Information Providers**

Several other important institutions also exist that support the smooth operation of the capital markets. Some of these institutions include:

- **Order and trade processing system providers:** These systems support market participants in making and then managing trade orders. They also support the processing of the trade order, including matching orders between the buy- and sell-side, completing order information, and confirming settlement details to settle and complete the trade. Given the complexity and volumes of trades, particularly in over-the-counter (OTC) markets where trading is highly customized, these systems are essential. A host of firms offer varying solutions, with most solutions offering highly specialized services catering to one part of the trade value chain for certain participants and for a subset of securities. There has been a trend for broadening of solutions across the value chain in recent years and hence some consolidation as participants seek to minimize complexity.

- **Data providers:** Significant volumes of data are required for markets to operate efficiently and effectively. Numerous data providers exist and



support data requirements across the full value chain of capital markets from client onboarding and due diligence, to economic and market research, to trade price discovery and portfolio management. Several providers exist, often specializing based on the types of markets and securities covered. Some of the most well-known names include Bloomberg, Standard & Poor's Capital IQ, and Thomson Reuters.

- **Trade repositories:** OTC markets have traditionally been highly opaque given the lack of a central exchange. Given that trades can also take days to settle and the frequency of trading, tracing the true final owners of securities can be complex as securities change hands. An example was during the 2008 financial crisis when large defaults such as that of Lehman Brothers highlighted that often the total outstanding values of OTC positions were difficult to estimate and that all counterparties were also difficult to immediately identify. Trade repositories were introduced to centralize the collection and reporting of trade data. Trade repositories store information on all outstanding OTC trades with reporting increasingly mandated globally, allowing regulators and counterparties to have clear, verified, and comprehensive information.

- **Ratings agencies:** Ratings agencies assess the risk of a default on borrowings (credit risk) of borrowers. These agencies play a vital role in capital markets, assisting investors with guidance on the risk that an issuer may default. Ratings are primarily expressed as a grade based on the probability of default, and while primarily applied to debt markets, are also very helpful for equity markets. Ratings are applied at the issuer level (i.e., corporations) and can also be generated for individual debt securities based on the structure and terms and class of the security. Issuers pay close attention to their credit rating as the costs of borrowing are closely related to their rating, and also as some investors may only be permitted to invest in rated and more favorably rated securities (e.g., investment grade).

## **TYPES OF MARKETS**

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### **Primary and Secondary Markets**

Primary markets refer to the initial issuance of equity and debt securities, where the securities are newly created (or originated) and then issued to the market for subscription. The processes for issuance of equities, credit, and government securities were discussed earlier.

Following the initial creation of the securities, subscriptions, and their listing, the ongoing trading of securities on exchanges is referred to as the secondary market. The primary and secondary markets can be seen as substitutes in some ways, as investors can choose to invest in newly created

securities or buy existing traded securities. However, each security type can differ considerably.

Secondary market volumes drastically exceed primary markets as they represent the ongoing trading of securities over time for equities. This also holds for many classes of bonds although many bonds are usually held to maturity. Both primary and secondary market volumes can fluctuate significantly. Primary market issuance in equities, for example, is highest when economic conditions are best and when issuing companies can demand a higher price. Primary equity markets can sometimes virtually shut down when economic times are challenging. Secondary market volumes, both for equities and fixed income, can also change drastically during periods of economic uncertainty when market participants are changing their expectations and making significant shifts to their portfolios.

### **Exchange and Over-the-Counter (OTC) Markets**

Exchange markets are those where securities are traded over an exchange serving as an intermediary to match buyers and sellers of securities. These include stock, futures, commodities, and other products. Exchanges provide real-time data on the demand and supply for each listed security in their order books, which display the volume of each security type available for sale/purchase and the corresponding prices asked/offered. Trades are made when there are matching prices from buyers and sellers. Securities listed on exchanges are standardized in that there are generally only a few classes of securities for each issuer. Given the level of standardization, securities transactions are typically settled electronically within three days of the trade and bid, and offer prices are visible and published; thus there is a high degree of price transparency.

OTC markets refer to the trading of securities or contracts through a dealer network as opposed to on a centralized exchange. OTC contracts are typically highly customized (non-standardized) and there is a broad array of securities available within each asset class. The most common types of OTC-traded securities are fixed-income securities, non-exchange traded equity securities and certain OTC derivatives on securities.

A single listed corporation, for example, may have fixed-income instruments issued, each issued at a different time, for a differing term, with a differing face value and coupon payment. As a result, liquidity is more dispersed and less suitable to a central order book approach.

Derivatives can trade on an exchange—like equity options or future—or can trade in the OTC markets. Typically, customized derivatives trade in the OTC markets. Given the high degree of customization, varied liquidity, and large trade sizes in OTC markets, pricing can have wider

bid-offer spreads and rely on complex formulas together with significant judgment.

Given the high degrees of customization and involvement of significant manual effort in the execution of OTC transactions, trades can typically take longer to settle. Significant amounts of manual verification work are required for trades to be processed, including for the details of counterparties to be exchanged, for trade contract details to be verified, for payments to be processed, and for the trade to be recorded.

One factor that exacerbated the effects of the 2008 financial crisis was that, facing default, several banks and other market participants struggled to identify the final counterparties to many of their OTC derivatives transactions and struggled to settle outstanding trades. This led to the virtual freezing of market trading activity, increasing risk to all participants. A key pillar of reform efforts since the crisis has focused on increasing automation of trade processing, mandatory clearing (through a central counterparty), improved (and increasingly mandated) trade recording, and the centralization of trade, counterparty, and settlement details. As an example, the bulk of interest rates and credit default swaps are now traded on Swap Execution Facilities (SEFs) and centrally cleared with regulations introducing penalties for uncleared swaps in the form of increased and/or mandatory exchange of margin. While exchange trading is virtually electronic at this time, OTC trading is becoming increasingly standardized and electronic to reduce risks and to increase speed and accuracy.

Dark pools are another category of markets. Dark pools are a type of alternative trading system (ATS). Dark pools are a type of exchange where traders can buy and sell securities privately without revealing their identities and without revealing transactions to the public. Dark pool trading has increased significantly in recent years, rising to over 30% of trading by some estimates in the United States. Supporters of dark pools argue that they allow for larger trades without disrupting regular markets, and improve liquidity for larger orders. Conversely, opponents of dark pools argue that they reduce transparency and reduce liquidity, thus leading to pricing impairments.

## **CAPITAL MARKETS DEVELOPMENT**

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As discussed throughout this chapter, capital markets can provide an important source of funding for several types of issuers, thus supporting their economic activities and growth. Capital markets can provide a diverse range of investment opportunities, helping investors achieve increased portfolio diversification.

This section provides a brief overview of the drivers of capital markets development through a recent work completed by Oliver Wyman and the World Economic Forum on capital markets development.

In sum, capital markets development rests on three pillars:

**1. The breadth and depth of investment opportunities available (issuer side):** This refers to the level of participation in capital markets by issuers and the extent to which they utilize capital markets versus other forms of funding (e.g., bank loans, private funding, and retained earnings). The broader the issuer base (across types of issuers, types of projects, variety of industries, levels of maturity) the broader the range of investment opportunities in the market. Advanced markets like the United States provide a wide range of such opportunities. Individual investors, for example, can choose to invest in almost any sector through the stock market and in firms with varying levels of maturity. They can also invest in a variety of government debt (largely through fund managers), and also in infrastructure projects through a variety of methods.

**2. The breadth and depth of the investor base:** This addresses the range of investors available to provide funds to issuers through capital markets and the size of investible assets. As discussed earlier, investors have a broad range of preferences across risk, return, term, cash flow, and so on. The broader the investor base, and the larger the availability of funds to invest, the larger the range of investment opportunities that can be supported.

**3. The strength of supporting market infrastructure, regulations, and supervision:** Effective capital markets require a strong regulatory and legal framework given the complexity of products and their economic significance. These frameworks guide standards around disclosure, issuance criteria, and investment manager duties, for example. They are vital for building trust across the numerous participants and standards to understand the products available with consistency. Furthermore, they facilitate the development of strong, reliable market infrastructure, including stock exchanges and other trading venues, ratings agencies, and data sharing.

## **REGULATORY AND SUPERVISORY FRAMEWORK**

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Needless to say, a strong regulatory and supervisory framework with clear, fair, and prudent standards for governing capital markets is fundamental. As discussed earlier, capital markets involve a multitude of supporting infrastructure, from exchanges to ratings agencies, from data providers to custodians. Trust is a fundamental characteristic and ensuring the stability and robustness of each of these institutions, together with ensuring the highest

standards of their work, is fundamental for strong capital markets. As mentioned earlier, even the most advanced economies are still continuing to refine their capital markets frameworks. This process is unlikely to pause as markets, their products, and their participants evolve. The details of governance, regulation, and supervision will be covered in subsequent chapters.

**NOTE**

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1. Moody's "Sovereign Default and Recovery Rates, 1983–2013," April 11, 2014.

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