Solutions for Multinational Business Finance 15th Edition by Eiteman

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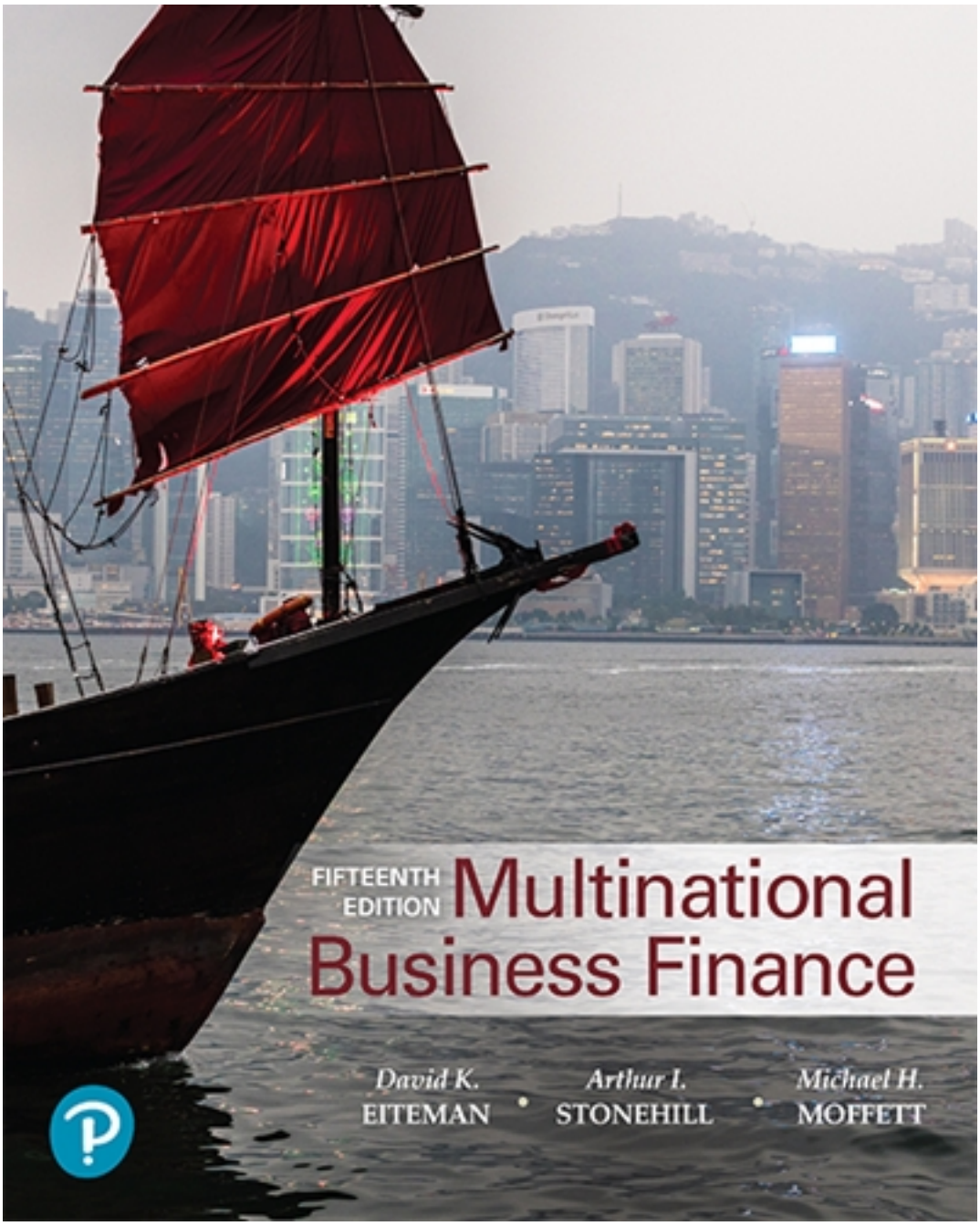


Solutions

CHAPTER 2

THE INTERNATIONAL MONETARY SYSTEM

1. **The Rules of the Game**. Under the gold standard, all national governments promised to follow the "rules of the game." What did this mean?

   A country's money supply was limited to the amount of gold held by its central bank or treasury. For example, if a country had 1,000,000 ounces of gold and its fixed rate of exchange was 100 local currency units per ounce of gold, that country could have 100,000,000 local currency units outstanding. Any change in its holdings of gold needed to be matched by a change in the number of local currency units outstanding.

2. **Defending a Fixed Exchange Rate.** What did it mean under the gold standard to 'defend a fixed exchange rate', and what did this imply about a country's money supply?

   Under the gold standard a country's central bank was responsible for preserving the exchange value of the country's currency by being willing and able to exchange its currency for gold reserves upon the demand by a foreign central bank. This required the country to restrict the rate of growth in its money supply to a rate which would prevent inflationary forces from undermining the country's own currency value.

3. **Bretton Woods**. What was the foundation of the Bretton Woods international monetary system, and why did it eventually fail?

   Bretton Woods, the fixed exchange rate regime of 1945-1973, failed because of widely diverging national monetary and fiscal policies, differential rates of inflation, and various unexpected external shocks. The U.S. dollar was the main reserve currency held by central banks and was the key to the web of exchange rate values. The United States ran persistent and growing deficits in its balance of payments requiring a heavy outflow of dollars to finance the deficits. Eventually the heavy overhang of dollars held by foreigners forced the United States to devalue the dollar because the U.S. was no longer able to guarantee conversion of dollars into its diminishing store of gold.

4. **Technical Float**. Speaking very specifically – technically, what does a floating rate of exchange mean? What is the role of government?

   A truly floating currency value means that the government does not set the currency's value or intervene in the marketplace, allowing the supply and demand of the market for its currency to determine the exchange value.

5. **Fixed versus Flexible.** What are the advantages and disadvantages of fixed exchange rates?

   - Fixed rates provide stability in international prices for the conduct of trade. Stable prices aid in the growth of international trade and lessen risks for all businesses.

   - Fixed exchange rates are inherently anti-inflationary, requiring the country to follow restrictive monetary and fiscal policies. This restrictiveness, however, can often be a burden to a country wishing to pursue policies that alleviate continuing internal economic problems, such as high unemployment or slow economic growth.

   - Fixed exchange rate regimes necessitate that central banks maintain large quantities of international reserves (hard currencies and gold) for use in the occasional defense of the fixed rate. As international currency markets have grown rapidly in size and volume, increasing reserve holdings has become a significant burden to many nations.

   - Fixed rates, once in place, may be maintained at rates that are inconsistent with economic fundamentals. As the structure of a nation's economy changes, and as its trade relationships and balances evolve, the exchange rate itself should change. Flexible exchange rates allow this to happen gradually and efficiently, but fixed rates must be changed administratively—usually too late, too highly publicized, and at too large a one-time cost to the nation's economic health.

6. ***De facto* and *de jure***. What do the terms *de facto* and *de jure* mean in reference to the International Monetary Fund's use of the terms?

   A country's actual exchange rate practices, is the *de facto* system. This may or may not be what the "official" or publicly and officially system commitment, the *de jure* system.

7. **Crawling Peg**. How does a crawling peg fundamentally differ from a pegged exchange rate?

   In a *crawling peg* system, the government will make occasional small adjustments in its fixed rate of exchange in response to changes in a variety of quantitative indicators such as inflation rates or economic growth. In a truly *pegged exchange rate regime* no such changes or adjustments are made to the official fixed rate of exchange.

8. **Global Eclectic**. What does it mean to say the international monetary system today is a global eclectic?

   The current global market in currency is dominated by two major currencies, the U.S. dollar and the European euro, and after that, a multitude of systems, arrangements, currency areas, and zones.

9. **The Impossible Trinity**. Explain what is meant by the term *impossible trinity* and why it is in fact "impossible."

   - Countries with floating rate regimes can maintain monetary independence and financial integration but must sacrifice exchange rate stability.
   - Countries with tight control over capital inflows and outflows can retain their monetary independence and stable exchange rate, but surrender being integrated with the world's capital markets.
   - Countries that maintain exchange rate stability by having fixed rates give up the ability to have an independent monetary policy.

10. **The Euro**. Why is the formation and use of the euro considered to be of such a great accomplishment? Was it really needed? Has it been successful?

    The creation of the euro required a near-Herculean effort to merge the monetary institutions of separate sovereign states. This required highly disparate cultures and countries to agree to combine, giving up a large part of what defines an independent state. Member states were so highly integrated in terms of trade and commerce, maintaining separate currencies and monetary policies was an increasing burden on both business and consumers, adding cost and complexity which added sizeable burdens to global competitiveness. The euro is widely considered to have been extremely successful since its launch.

11. **Currency Board or Dollarization**. Fixed exchange rate regimes are sometimes implemented through a *currency board* (Hong Kong) or *dollarization* (Ecuador). What is the difference between the two approaches?

    In a *currency board* arrangement, the country issues its own currency but that currency is backed 100% by foreign exchange holdings of a hard foreign currency – usually the U.S. dollar. In *dollarization*, the country abolishes its own currency and uses a foreign currency, such as the U.S. dollar, for all domestic transactions.

12. **Argentine Currency Board**. How did the Argentine currency board function from 1991 to January 2002 and why did it collapse?

    Argentina's currency board exchange regime of fixing the value of its peso on a one-to-one basis with the U.S. dollar ended for several reasons:

    - As the U.S. dollar strengthened against other major world currencies, including the euro, during the 1990s, Argentine export prices rose vis-à-vis the currencies of its major trading partners.
    - This problem was aggravated by the devaluation of the Brazilian real in the late 1990s.

- These two problems, in turn, led to continued trade deficits and a loss of foreign exchange reserves by the Argentine central bank. (4) This problem, in turn, led Argentine residents to flee from the peso and into the dollar, further worsening Argentina's ability to maintain its one-to-one peg.

13. Special Drawing Rights. What are Special Drawing Rights?

The Special Drawing Right (SDR) is an international reserve asset created by the IMF to supplement existing foreign exchange reserves. It serves as a unit of account for the IMF and other international and regional organizations, and is also the base against which some countries peg the exchange rate for their currencies.

Defined initially in terms of a fixed quantity of gold, the SDR has been redefined several times. It is currently the weighted value of currencies of the five IMF members having the largest exports of goods and services. Individual countries hold SDRs in the form of deposits in the IMF. These holdings are part of each country's international monetary reserves, along with official holdings of gold, foreign exchange, and its reserve position at the IMF. Members may settle transactions among themselves by transferring SDRs.

14. The Ideal Currency. What are the attributes of the ideal currency?

If the ideal currency existed in today's world, it would possess three attributes, often referred to as *The Impossible Trinity*:

1. **Exchange rate stability**. The value of the currency would be fixed in relationship to other major currencies so traders and investors could be relatively certain of the foreign exchange value of each currency in the present and into the near future.

2. **Full financial integration**. Complete freedom of monetary flows would be allowed, so traders and investors could willingly and easily move funds from one country and currency to another in response to perceived economic opportunities or risks.

3. **Monetary independence**. Domestic monetary and interest rate policies would beset by each individual country to pursue desired national economic policies, especially as they might relate to limiting inflation, combating recessions, and fostering prosperity and full employment.

The reason that it is termed *The Impossible Trinity* is that a country must give up one of the three goals described by the sides of the triangle, monetary independence, exchange rate stability, or full financial integration. The forces of economics do not allow the simultaneous achievement of all three.

15. Emerging Market Regimes. High capital mobility is forcing emerging market nations to choose between free-floating regimes and currency board or dollarization regimes. What are the main outcomes of each of these regimes from the perspective of emerging market nations?

Highly restrictive regimes like currency boards and dollarization require a country to give up the majority of its discretionary ability over its own currency's value. Currency boards, like that used by Argentina in the 1990s, restricted the rate of growth in the country's monetary policy in order to preserve a fixed exchange rate regime. This proved to be a very high price for Argentine society to pay, and in the end could not be maintained. Dollarization, an even more radical extreme in the adoption of another country's currency for all exchange, removes one of a government's major attributes of sovereignty.

A free-floating rate of exchange is, however, in many ways not that different from the highly restrictive choices just mentioned. In a free-floating regime the government allows the foreign currency markets to determine the currency's value, although the government does maintain sovereignty over its own monetary policy which in turn has significant direct impacts on the currency's value.

16. Globalizing the Yuan. What are the major changes and developments that must occur for the Chinese yuan to be considered 'globalized'?

First, the yuan must become readily accessible for trade transaction purposes. This is the fundamental and historical use of currency. Secondly, it then needs to mature towards a currency easily and openly useable for international investment purposes. The third and final stage of currency globalization is when the currency itself takes on a role as a reserve currency, currency held by central banks of other countries as a store of value and a medium of exchange for their own currencies.

17. Triffin Dilemma. What is the Triffin Dilemma? How does it apply to the development of the Chinese yuan as a true global currency?

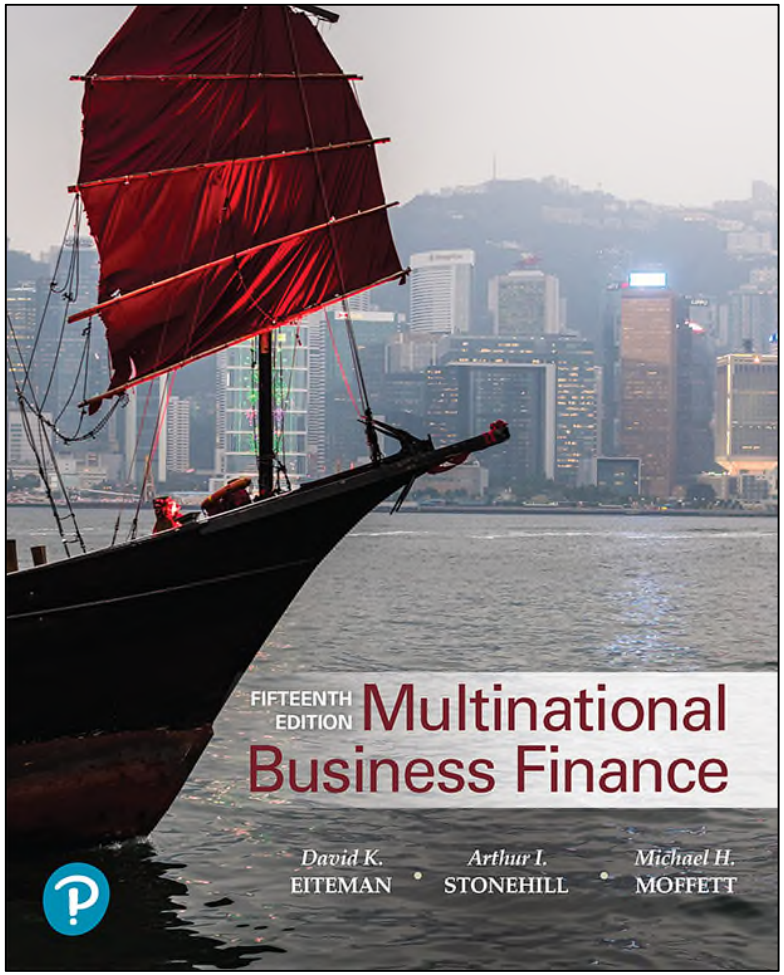
The *Triffin Dilemma* is the potential conflict in objectives that may arise between domestic monetary and currency policy objectives and external or international policy objectives when a country's currency is used as a reserve currency. Domestic monetary and economic policies may on occasion require both contraction and the creation of a current account surplus (balance on trade surplus).

18. China and the Impossible Trinity. What choices do you believe that China will make in terms of the Impossible Trinity as it continues to develop global trading and use of the Chinese yuan?

This is purely speculative opinion, but many believe China will continue to move the yuan toward globalization rapidly. As Chinese financial institutions and policies become more mature, and policies more consistent with those of other major country financial markets, the yuan will grow as a medium of exchange for both commercial trade and capital investment transactions. The gradual opening of the Chinese economy to foreign investment is a critical component of this process.

Multinational Business Finance

Fifteenth Edition



Chapter 2

The International Monetary System

Learning Objectives (1 of 2)

2.1 Explore how the international monetary system has evolved from the days of the gold standard to today's eclectic currency arrangement

2.2 Examine how the choice of fixed versus flexible exchange rate regimes is made by a country in the context of its desires for economic and social independence and openness

2.3 Describe the tradeoff a nation must make between a fixed exchange rate, monetary independence, and freedom of capital movements—the impossible trinity

Learning Objectives (2 of 2)

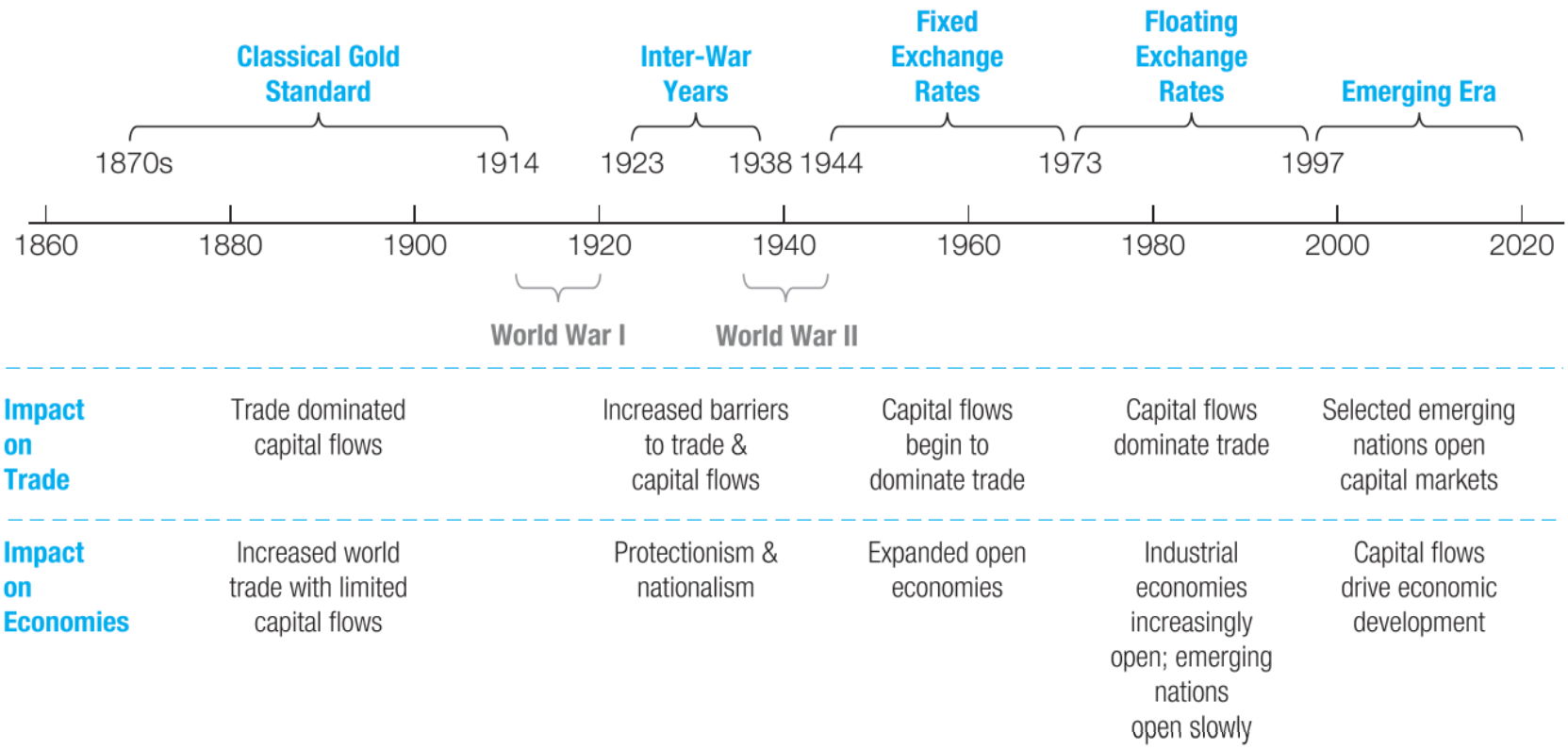
2.4 Explain the dramatic choices the creation of a single currency for Europe—the euro—required of the European Union's member states

2.5 Study the complexity of exchange rate regime choices faced by many emerging market countries today including China

History of the International Monetary System (1 of 8)

- The Gold Standard (1876-1913)
  - Gold has been a medium of exchange since 3000 BC
  - “Rules of the game” were simple, each country set the rate at which its currency unit could be converted to a weight of gold
  - Currency exchange rates were in effect “fixed”
  - Expansionary monetary policy was limited to a government’s supply of gold
  - Was in effect until the outbreak of WWI when the free movement of gold was interrupted

Exhibit 2.1 The Evolution and Eras of the Global Monetary System



For long description, see slide 42: Appendix 1

History of the International Monetary System (2 of 8)

- The Inter-War Years & WWII (1914-1944)
  - During this period, currencies were allowed to fluctuate over a fairly wide range in terms of gold and each other
  - Increasing fluctuations in currency values became realized as speculators sold short weak currencies
  - The U.S. adopted a modified gold standard in 1934
  - During WWII and its chaotic aftermath the U.S. dollar was the only major trading currency that continued to be convertible

History of the International Monetary System (3 of 8)

- Bretton Woods and the International Monetary Fund (1944)
  - As WWII drew to a close, the Allied Powers met at Bretton Woods, New Hampshire to create a post-war international monetary system
  - The Bretton Woods Agreement established a U.S. dollar-based international monetary system and created two new institutions the International Monetary Fund (IMF) and the World Bank

History of the International Monetary System (4 of 8)

- The International Monetary Fund is a key institution in the new international monetary system and was created to:
  - Help countries defend their currencies against cyclical, seasonal, or random occurrences
  - Assist countries having structural trade problems if they promise to take adequate steps to correct these problems
  - Special Drawing Right (SDR) is the IMF reserve asset, currently a weighted average of four currencies
- The International Bank for Reconstruction and Development (World Bank) helped fund post-war reconstruction and has since then supported general economic development

History of the International Monetary System (5 of 8)

- Fixed Exchange Rates (1945-1973)
  - The currency arrangement negotiated at Bretton Woods and monitored by the IMF worked fairly well during the post-WWII era of reconstruction and growth in world trade
  - However, widely diverging monetary and fiscal policies, differential rates of inflation and various currency shocks resulted in the system's demise
  - The U.S. dollar became the main reserve currency held by central banks, resulting in a consistent and growing balance of payments deficit which required a heavy capital outflow of dollars to finance these deficits and meet the growing demand for dollars from investors and businesses

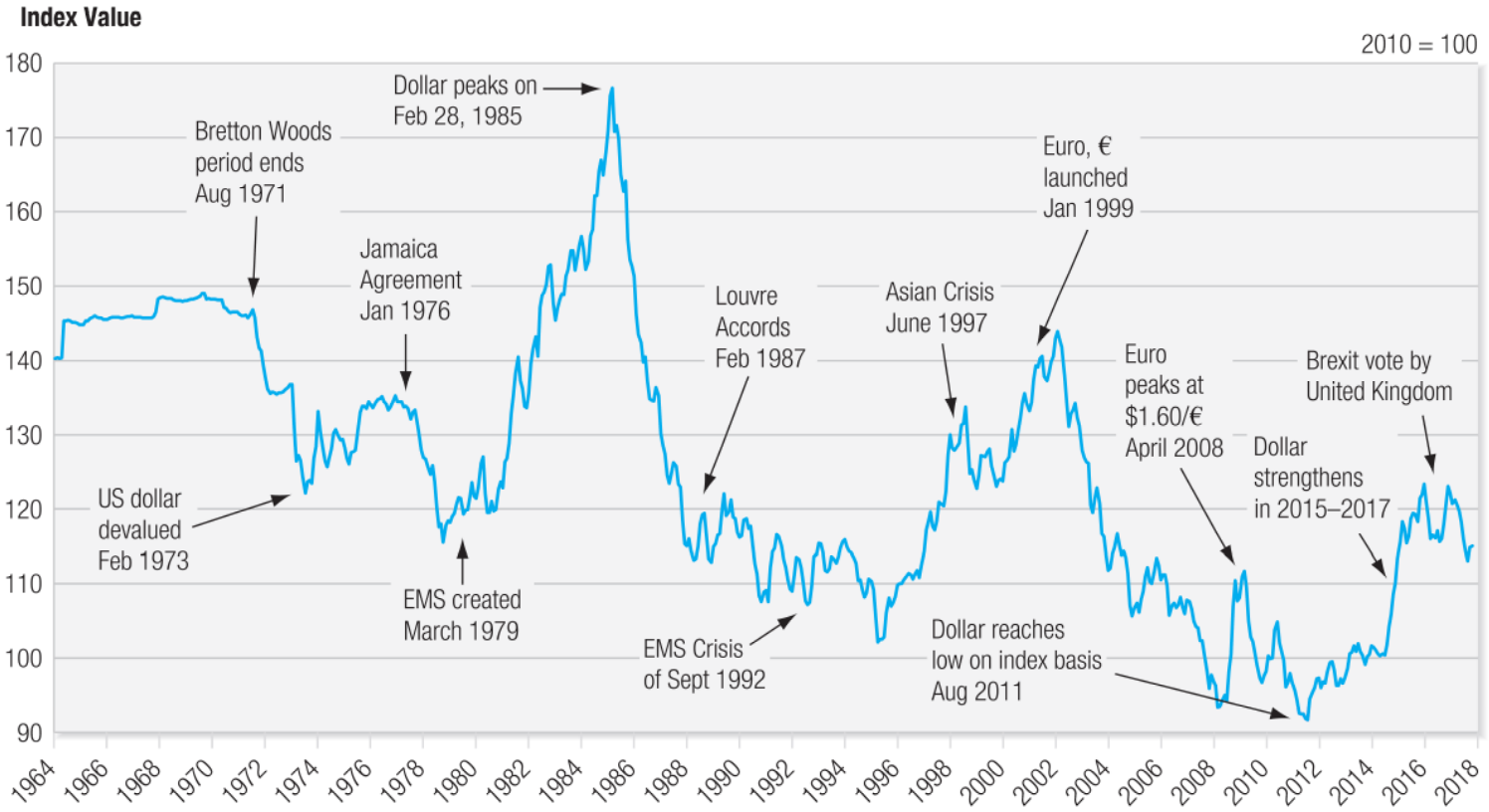
History of the International Monetary System (6 of 8)

- Eventually, the heavy overhang of dollars held by foreigners resulted in a lack of confidence in the ability of the U.S. to met its commitment to convert dollars to gold
- The lack of confidence forced President Richard Nixon to suspend official purchases or sales of gold by the U.S. Treasury on August 15, 1971
- This resulted in subsequent devaluations of the dollar
- Most currencies were allowed to float to levels determined by market forces as of March 1973

History of the International Monetary System (7 of 8)

- The Floating Era (1973-1997)
  - Since March 1973, exchange rates have become much more volatile and less predictable than they were during the “fixed” period
  - There have been numerous, significant world currency events over the past 30 years
  - The volatility of the U.S. dollar exchange rate index is illustrated in Exhibit 2.2

Exhibit 2.2 Bank for International Settlements Index of the Dollar



For long description, see slide 44: Appendix 2

Source: BIS.org. Nominal exchange rate index (narrow definition) for the U.S. dollar (NNUS).

History of the International Monetary System (8 of 8)

- The Emerging Era (1997-present)
  - Emerging market economics are multiplying in number and growing in complexity
  - This results in a growing number of emerging market currencies

IMF Classification of Currency Regimes (1 of 3)

- Exhibit 2.3 presents the IMF's regime classification methodology in effect since January 2009
- Category 1: Hard Pegs
  - Countries that have given up their own sovereignty over monetary policy
  - E.g., dollarization or currency boards
- Category 2: Soft Pegs
  - AKA fixed exchange rates, with five subcategories of classification

IMF Classification of Currency Regimes (2 of 3)

- Category 3: Floating Arrangements
  - Mostly market driven, these may be free floating or floating with occasional government intervention
- Category 4: Residual
  - The remains of currency arrangements that do not fit the previous categorizations

Exhibit 2.3 IMF Exchange Rate Classifications (1 of 4)

Rate Classification	2009 de facto System	Description and Requirements
Hard Pegs	Arrangement with no Separate legal tender	The currency of another country circulates as the sole legal tender (formal dollarization), as well as members of a monetary or currency union in which the same legal tender is shared by the members.
Hard Pegs	Currency board arrangement	A monetary arrangement based on an explicit legislative commitment to exchange domestic currency for a specific foreign currency at a fixed exchange rate, combined with restrictions on the issuing authority. Restrictions imply that domestic currency will be issued only against foreign exchange and that it remains fully backed by foreign assets.

Exhibit 2.3 IMF Exchange Rate Classifications (2 of 4)

Rate Classification	2009 de facto System	Description and Requirements
Soft Pegs	Conventional pegged arrangement	A country formally pegs its currency at a fixed rate to another currency or a basket of currencies of major financial or trading partners. Country authorities stand ready to maintain the fixed parity through direct or indirect intervention. The exchange rate may vary ±1% around a central rate, or may vary no more than 2% for a six-month period.
Soft Pegs	Stabilized arrangement	A spot market rate that remains within a margin of 2% for six months or more and is not floating. Margin stability can be met by either a single currency or basket of currencies (assuming statistical measurement). Exchange rate remains stable as a result of official action.
Soft Pegs	Intermediate pegs: Crawling peg	Currency is adjusted in small amounts at a fixed rate or in response to changes in quantitative indicators (e.g., inflation differentials).

Exhibit 2.3 IMF Exchange Rate Classifications (3 of 4)

Rate Classification	2009 de facto System	Description and Requirements
Soft Pegs	Crawl-like arrangement	Exchange rate must remain with a narrow margin of 2% relative to a statistically defined trend for six months or more. Exchange rate cannot be considered floating. Minimum rate of change is greater than allowed under a stabilized arrangement.
Soft Pegs	Pegged exchange rate within horizontal bands	The value of the currency is maintained within 1% of a fixed central rate, or the margin between the maximum and minimum value of the exchange rate exceeds 2%. This includes countries that are today members of the Exchange Rate Mechanism II (ERM II) system.
Floating Arrangements	Floating	Exchange rate is largely market determined without an ascertainable or predictable path. Market intervention may be direct or indirect, and serves to moderate the rate of change (but not targeting). Rate may exhibit more or less volatility.

Exhibit 2.3 IMF Exchange Rate Classifications (4 of 4)

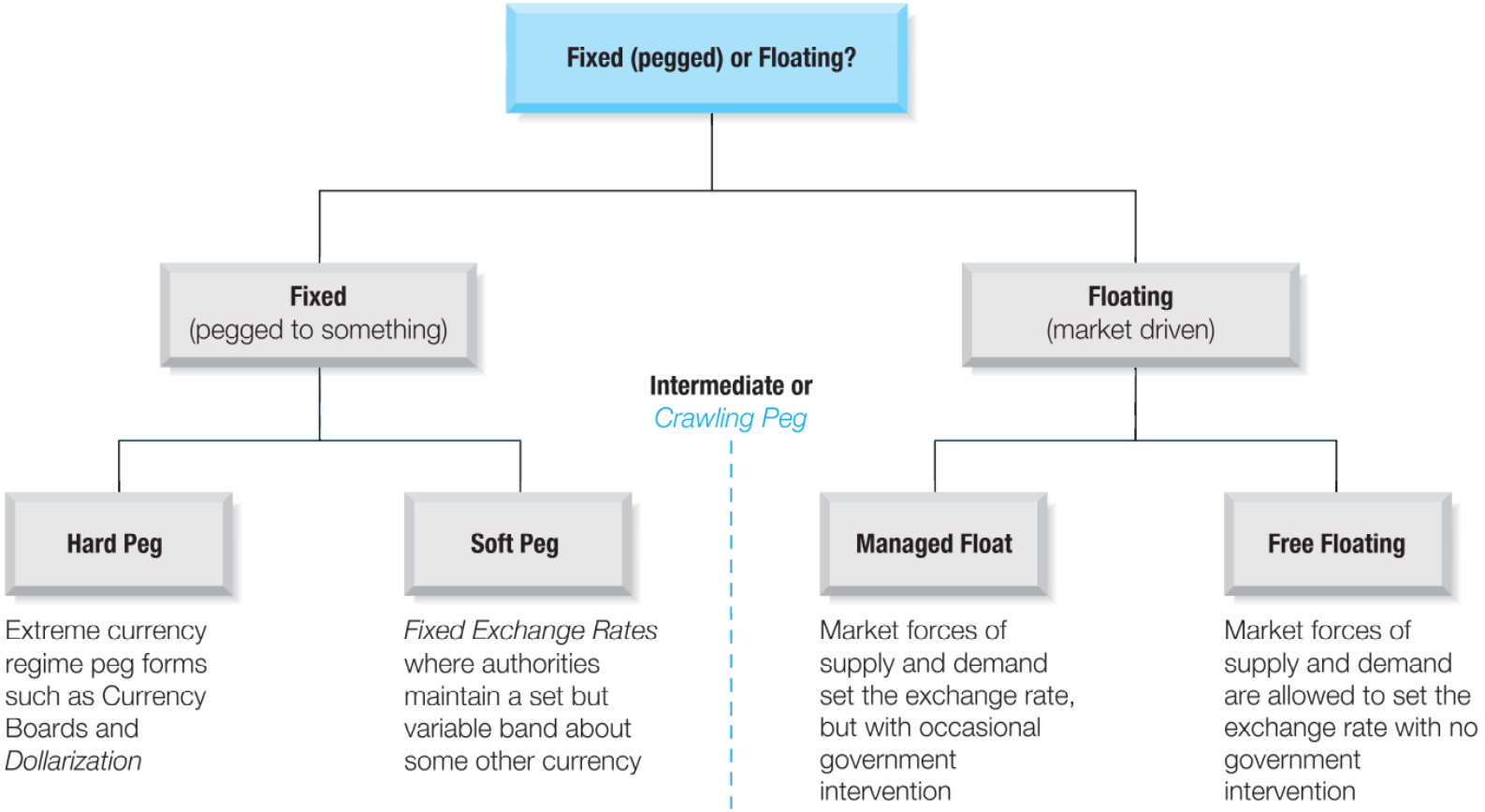
Rate Classification	2009 de facto System	Description and Requirements
Floating Arrangements	Free floating	A floating rate is freely floating if intervention occurs only exceptionally, and confirmation of intervention is limited to at most three instances in a six-month period, each lasting no more than three business days.
Residual	Other managed arrangements	This category is residual, and is used when the exchange rate does not meet the criteria for any other category. Arrangements characterized by frequent shifts in policies fall into this category.

Source: "Revised System for the Classification of Exchange Rate Arrangements," by Karl Habermeier, Annamaria Kokenyne, Romain Veyrune, and Harald Anderson, IMF Working Paper WP/09/211, International Monetary Fund, November 17, 2009.

IMF Classification of Currency Regimes (3 of 3)

- Exhibit 2.4 shows how these major regime categories translate in the global market.
- The vertical dashed line, the **crawling peg**, is the zone some currencies move into and out of depending on their relative currency stability.

Exhibit 2.4 Taxonomy of Exchange Rate Regimes

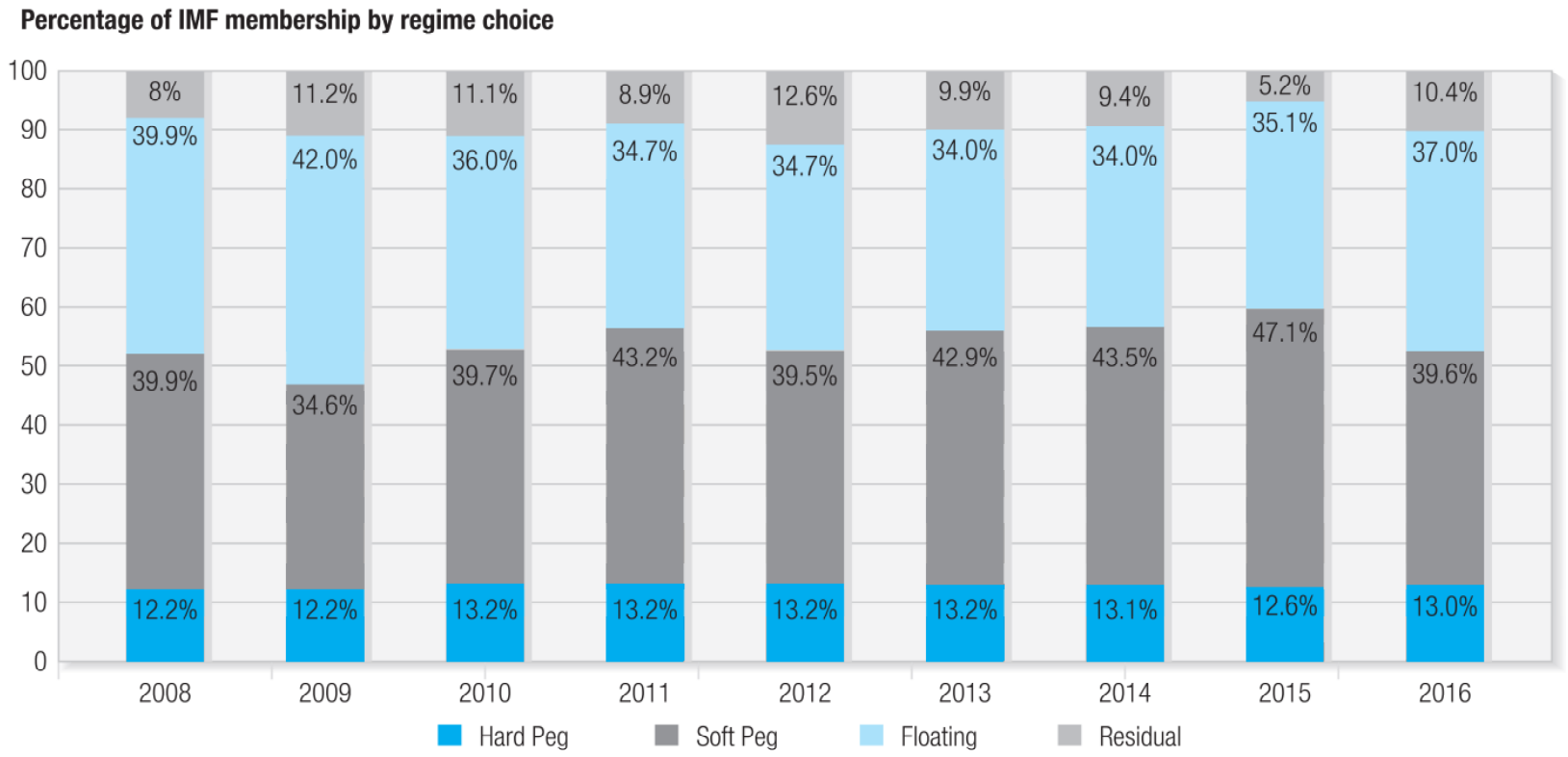


For long description, see slide 46: Appendix 3

A Global Eclectic

- As illustrated by Exhibit 2.5, the proportion of IMF member countries with floating regimes has been increasing.
- Soft pegs declined dramatically in 2016.
- Although the contemporary international monetary system is typically referred to as a “floating regime,” it is clearly not the case for the majority of the world’s nations.

Exhibit 2.5 IMF Membership Exchange Rate Regime Choices



For long description, see slide 47: Appendix 4

Source: Data drawn from **Annual Report on Exchange Arrangements and Exchange Restrictions 2016**, International Monetary Fund, 2014, Table 3, Exchange Rate Arrangements 2008–2016.

Fixed Versus Flexible Exchange Rates (1 of 2)

- A nation's choice as to which currency regime to follow reflects national priorities about all facets of the economy, including:
  - inflation,
  - unemployment,
  - interest rate levels,
  - trade balances, and
  - economic growth.
- The choice between fixed and flexible rates may change over time as priorities change.

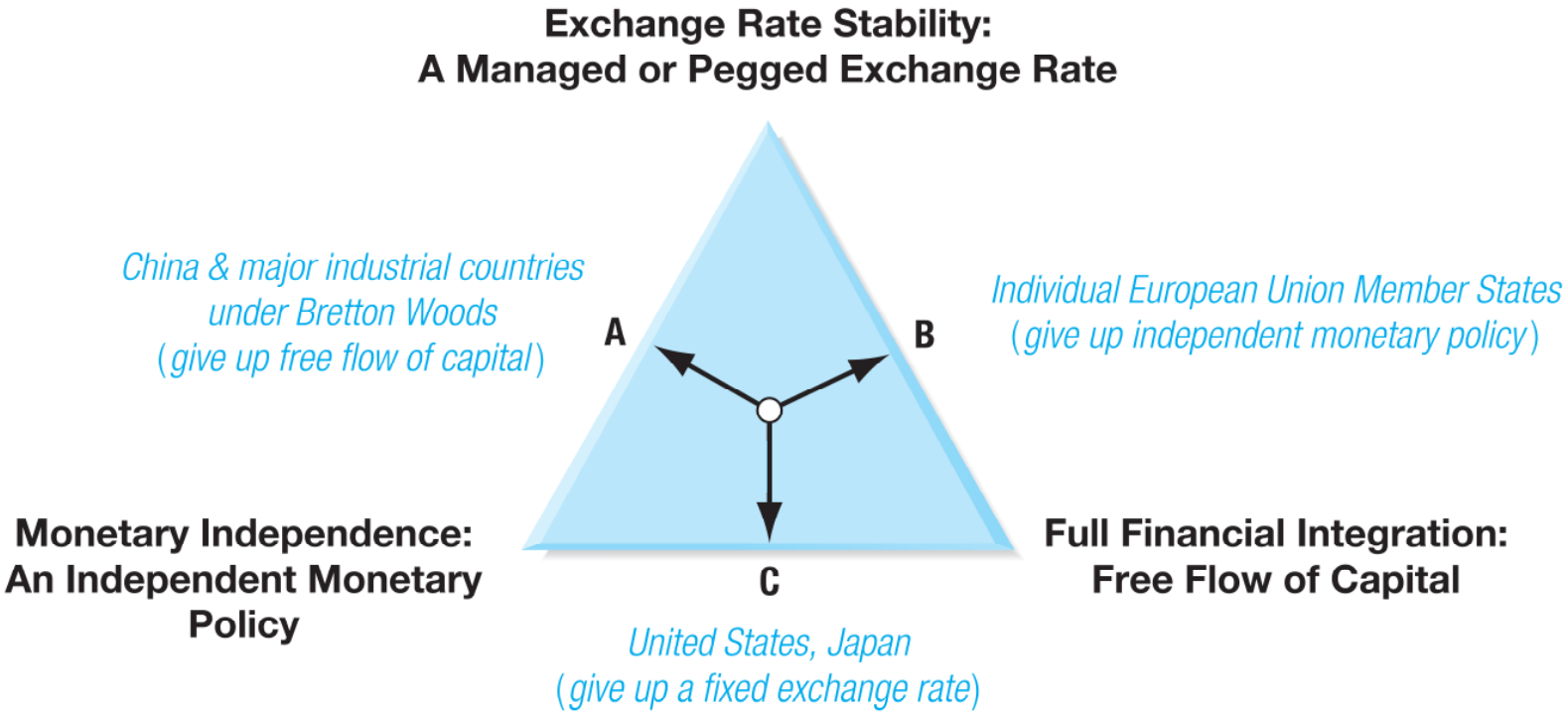
Fixed Versus Flexible Exchange Rates (2 of 2)

- Countries would prefer a fixed rate regime for the following reasons:
  - stability in international prices
  - inherent anti-inflationary nature of fixed prices
- However, a fixed rate regime has the following problems:
  - Need for central banks to maintain large quantities of hard currencies and gold to defend the fixed rate
  - Fixed rates can be maintained at rates that are inconsistent with economic fundamentals

Attributes of the “Ideal” Currency

- If the ideal currency existed, it would possess three attributes, often referred to as the **Impossible Trinity:**
  - Exchange rate stability
  - Full financial integration
  - Monetary independence
- The forces of economics do not allow the simultaneous achievement of all three.
- Exhibit 2.6 illustrates how pursuit of one element of the trinity must result in giving up one of the other elements.

Exhibit 2.6 The Impossible Trinity



For long description, see slide 48: Appendix 5

Nations must choose in which direction to move from the center—toward points A, B, or C. Their choice is a choice of what to pursue and what to give up —that of the opposite point of the pyramid. Marginal compromise is possible, but only marginal.

A Single Currency for Europe: The Euro (1 of 2)

- In December 1991, the members of the European Union met at Maastricht, the Netherlands, to finalize a treaty that changed Europe's currency future.
- This treaty set out a timetable and a plan to replace all individual ECU currencies with a single currency called the euro.

A Single Currency for Europe: The Euro (2 of 2)

- To prepare for the EMU, a convergence criteria was laid out whereby each member country was responsible for managing the following to a specific level:
  - Nominal inflation rates
  - Long-term interest rates
  - Fiscal deficits
  - Government debt
- In addition, a strong central bank, called the European Central Bank (ECB), was established in Frankfurt, Germany in 1998.

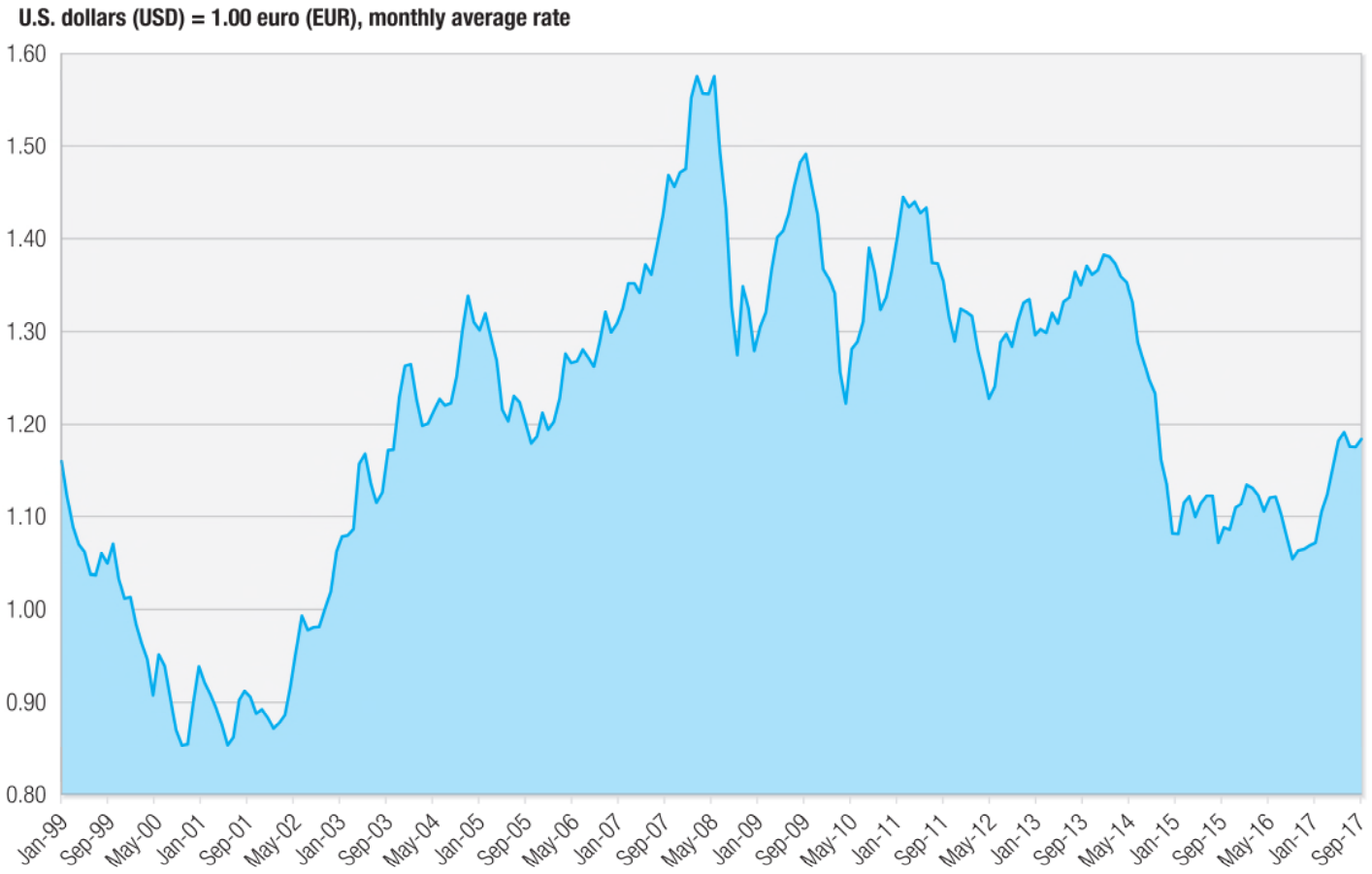
The Launch of the Euro (1 of 3)

- The euro affects markets in three ways:
  - Cheaper transaction costs in the **eurozone**
  - Currency risks and costs related to uncertainty are reduced
  - All consumers and businesses both inside and outside the eurozone enjoy price transparency and increased price-based competition

The Launch of the Euro (2 of 3)

- If the euro is to be successful, it must have a solid economic foundation.
- The primary driver of a currency's value is its ability to maintain its purchasing power.
- The single largest threat to maintaining purchasing power is inflation, so the job of the EU has been to prevent inflationary forces from undermining the euro.
- Exhibit 2.7 shows how the euro has trended against the USD since 1999.

Exhibit 2.7 The U.S. Dollar-European Euro Spot Exchange Rate

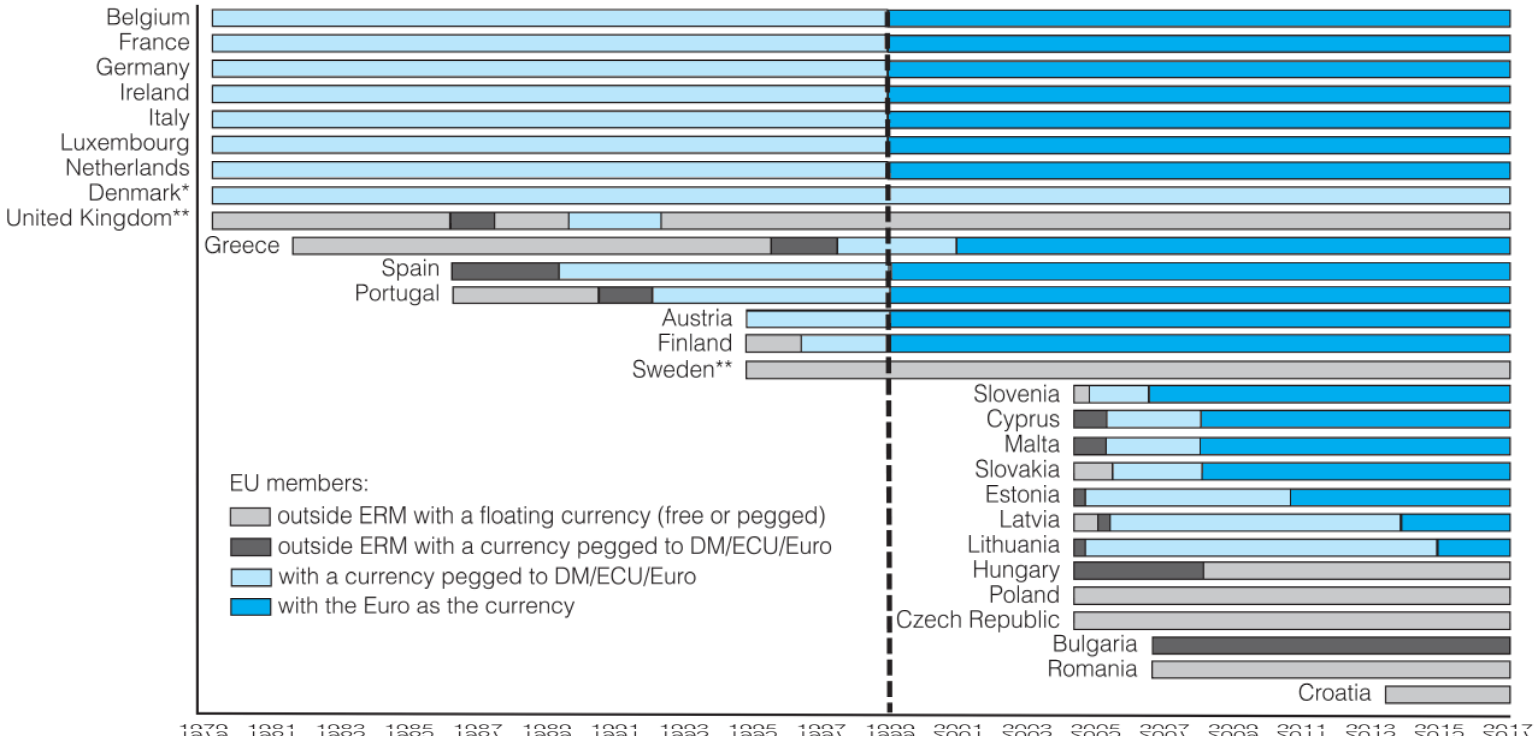


For long description, see slide 49: Appendix 6

The Launch of the Euro (3 of 3)

- Exhibit 2.8 shows that all initial euro adopters (except UK and Denmark) had pegged their currency to the ECU for the previous 20 years aided in the initial success of the euro.
- All members of the EU are expected eventually to replace their currencies with the euro, but debate exists as to how far euro-expansion can feasibly extend.
- The UK has always been outside the euro and The Brexit vote in June 2016 did not change that relationship.

Exhibit 2.8 Exchange Rate Regimes of European Union Members



For long description, see slide 50: Appendix 7

Source: Based on data from the European Union's Convergence Reports.

Notes: *ERM II participant; **Non-ERM participant; ERM = Exchange Rate Mechanism; ECU = European Currency Unit; DM = Deutsche mark.

In June 2016 the United Kingdom voted to leave the European Union.

Emerging Markets and Regime Choices (1 of 2)

- A **currency board** exists when a country's central bank commits to back its monetary base—its money supply—entirely with foreign reserves at all times.
- This means that a unit of domestic currency cannot be introduced into the economy without an additional unit of foreign exchange reserves being obtained first.
  - Argentina moved from a managed exchange rate to a currency board in 1991
  - In 2002, the country ended the currency board as a result of substantial economic and political turmoil

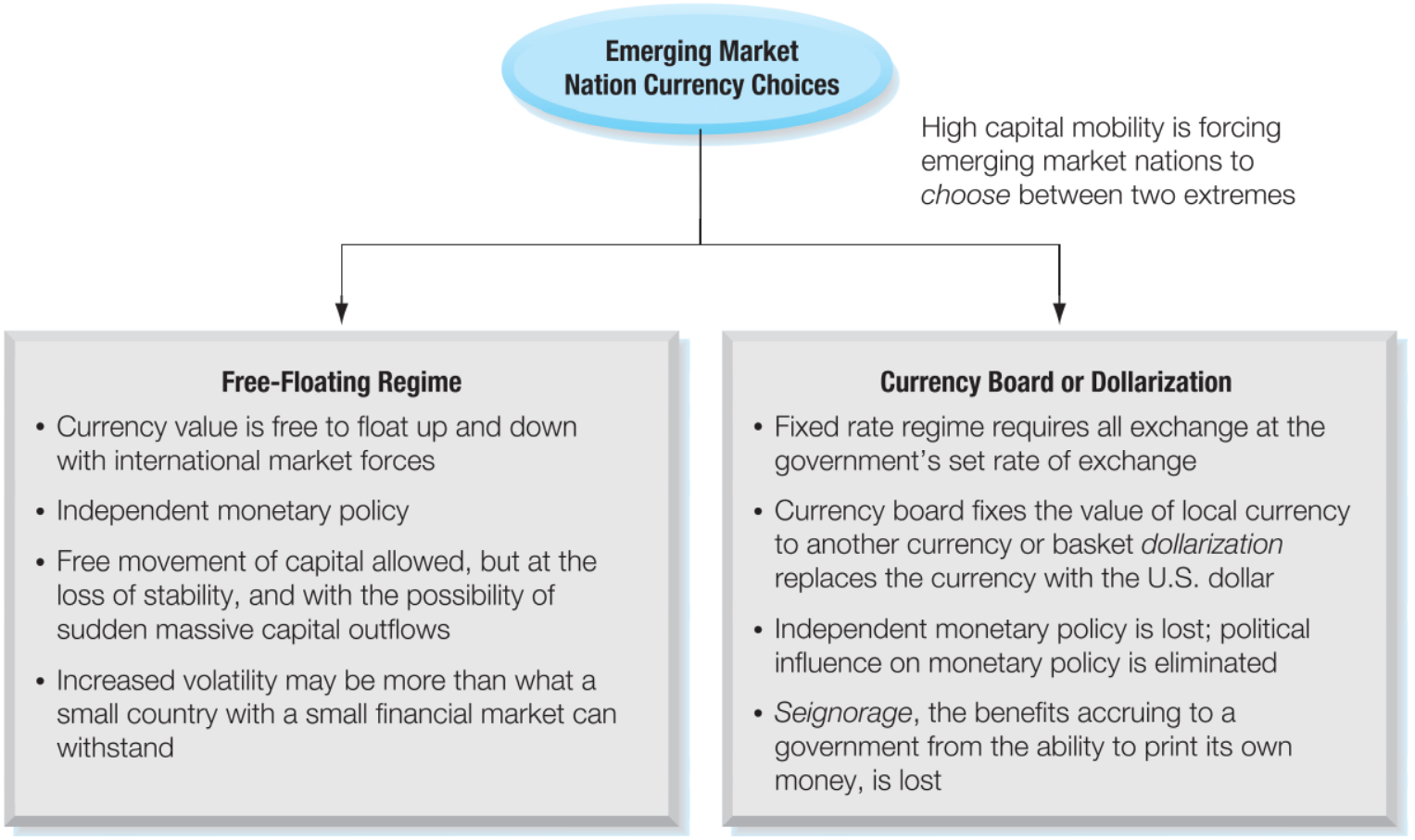
Emerging Markets and Regime Choices (2 of 2)

- **Dollarization** is the use of the U.S. dollar as the official currency of the country.
- One attraction of dollarization is that sound monetary and exchange-rate policies no longer depend on the intelligence and discipline of domestic policymakers.
  - Panama has used the dollar as its official currency since 1907
  - Ecuador replaced its domestic currency with the U.S. dollar in September 2000

Currency Regime Choices for Emerging Markets

- Some experts suggest countries will be forced to extremes when choosing currency regimes—either a hard peg or free-floating (Exhibit 2.9)
- Three common features that make emerging market choices difficult:
  1. weak fiscal, financial, and monetary institutions
  2. tendencies for commerce to allow currency substitution and the denomination of liabilities in dollars
  3. the emerging market's vulnerability to sudden stoppages of outside capital flows

Exhibit 2.9 Currency Regime Choices for Emerging Market Nations

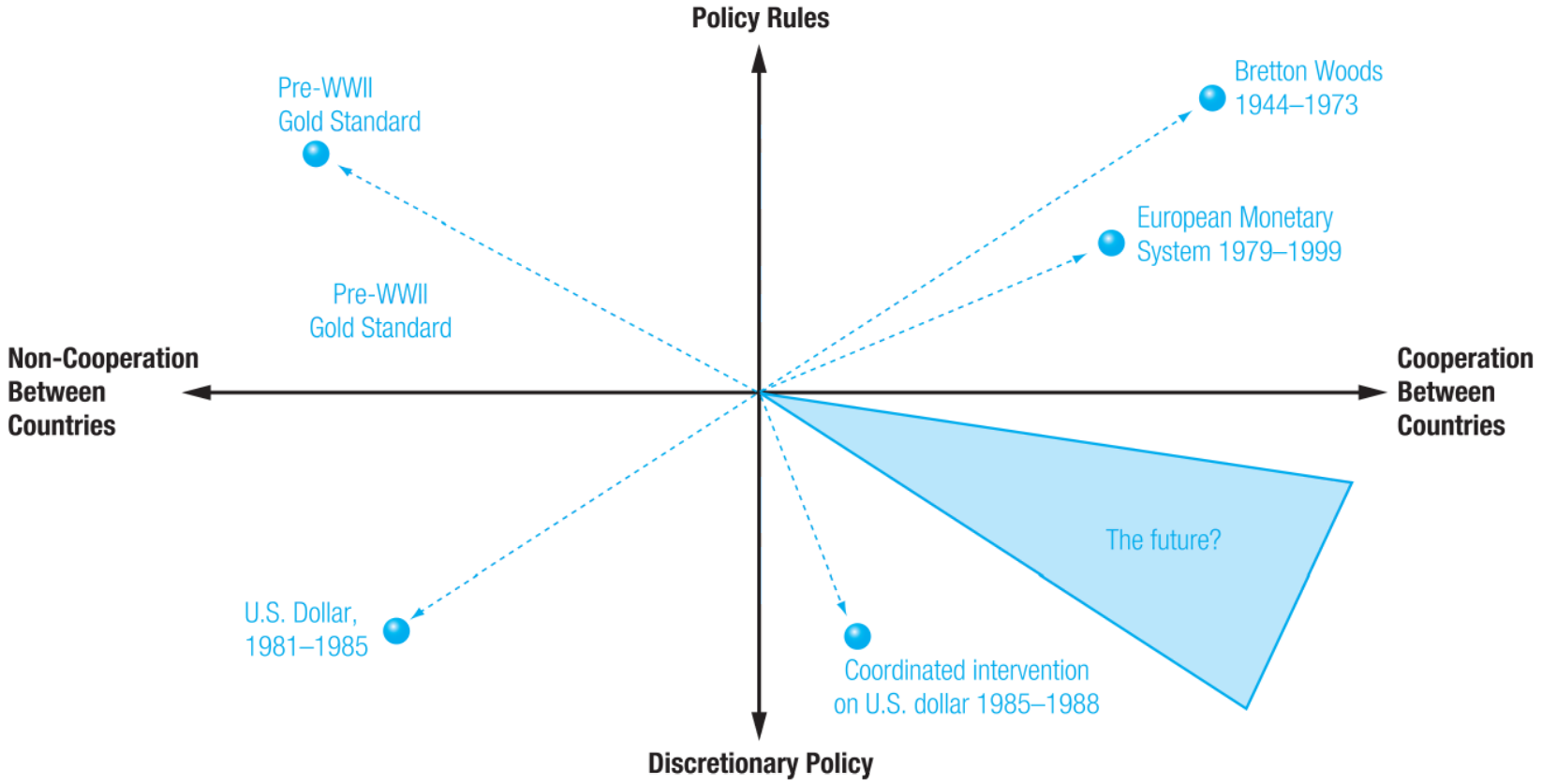


For long description, see slide 54: Appendix 8

Exchange Rate Regimes: What Lies Ahead?

- All exchange rate regimes must deal with the tradeoff between rules and discretion (vertical), as well as between **cooperation** and **independence** (horizontal) (see Exhibit 2.10)
- The pre WWI Gold Standard required adherence to rules and allowed independence
- The Bretton Woods agreement (and to a certain extent the EMS) also required adherence to rules in addition to cooperation
- The present system is characterized by no rules, with varying degrees of cooperation
- Many believe that a new international monetary system could succeed only if it combined cooperation among nations with individual discretion to pursue domestic social, economic, and financial goals

Exhibit 2.10 Exchange Rate Regime Tradeoffs



For long description, see slide 55: Appendix 9

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Appendix 1 (1 of 2)

Long Description for a diagram describing the evolution and eras of the global monetary system.

The diagram describes the various eras of the global monetary system as well as their impact on trade and the economy.

- The diagram describes the detailed eras of the monetary system beginning in 1860.
- The first was the classical gold standard, which persisted between 1870s and 1914.
- The next stage was the inter war years stretching from 1923 to 1938.
- The third stage was the fixed exchange era beginning in 1944 and concluding in 1973.
- The floating exchange rate era started in 1973 and culminated in 1997.
- The final stage was the emerging era which commenced in 1997 and continues to this day.
- Amid these monetary system eras were the two world wars, between 1914 and 1919 and in the 1940s.

Appendix 1 (2 of 2)

The data in the diagram is explained in the table below.

A table has 2 rows and 6 columns. The columns have the following headings from left to right. Impact, Classical Gold Standard, Inter War Years, Fixed Exchange Rates, Floating Exchange Rates, Emerging Era. The row entries are as follows. Row 1. Impact, Impact on Trade. Classical Gold Standard, Trade dominated capital flows.. Inter War Years, Increased barriers to trade & capital flows. Fixed Exchange Rates, Capital flows begin to dominate trade. Floating Exchange Rates, Capital flows dominate trade . Emerging Era, Selected emerging nations open capital markets. Row 2. Impact, Impact on Economies. Classical Gold Standard, Increased world trade with limited capital flows. Inter War Years, Protectionism & nationalism. Fixed Exchange Rates, Expanded open economies. Floating Exchange Rates, Industrial economies increasingly open, emerging nations open slowly. Emerging Era, Capital flows drive economic development.

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Appendix 2 (1 of 2)

Long Description for the graph illustrates the swings exhibited by the nominal exchange rate index, BIS Index, of the US dollar.

The diagram is a graph that shows the ups and down of the US dollar index beginning in 1964 up to 2016.

- The X axis shows the time period from 1964 to 2018 measured in multiples of 2. The Y axis shows the index value from 90 to 180.
- The curve began from 140 in the year 1964.
- It stayed at the same level until 1971, the end of the Bretton Woods period.
- After this, there was a sharp drop to 125 when the dollar was devalued in 1973.
- The next peak of 130 occurred in 1976 due to the Jamaica agreement.
- A drop in 1979 to 118 in the aftermath of the creation of the European Monetary System, EMS, preceded a period of sustained rise of the index.

Appendix 2 (2 of 2)

- It peaked in 1985 to a level of 175 before dropping sharply again.
- A low of 115 was reached during the Louvre Accords in 1987, but it was during the EMS crisis of 1992 that the dollar dropped below 110.
- After a brief period of horizontal movement, the dollar rose again to 130 during the Asian crisis of 1997.
- Another fillip to its rise was the launch of the euro in 1999, at which point the index jumped to 140.
- However, the drop came swiftly and the index plunged in the first decade of the twenty first century, falling below 100 in the aftermath of the financial crisis in 2008.
- A brief respite of a rise to 110 came in 2010, despite which the euro peaked, getting valued at 1.6 dollars for each euro.
- Another drop in 2012 led to the index plunging to 90, but it recovered since then, strengthening to 120 in the aftermath of the Brexit vote.

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Appendix 3

Long Description for a diagram showing the taxonomy of exchange rate regimes.

The diagram shows how the major exchange rate regime categories translate in the global market. The diagram begins with two options for exchange rates. fixed or floating. If the rate is fixed or pegged to something, it can be either a hard peg or a soft peg. Instances of hard pegs include currency boards and dollarization Soft pegs can be a situation of fixed exchange rates where authorities maintain a set but variable band about some other currency. Intermediate or crawling pegs are between fixed and floating pegs. Floating pegs are market driven and they include managed float and free floating currencies. Managed float means market forces of supply and demand set the exchange rate, but with occasional government intervention. Free floating means market forces of supply and demand are allowed to set the exchange rate with no government intervention.

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Appendix 4

Long Description for a graph displaying the proportion of IMF member countries' regime choice.

The graph displays the variation in the proportion of different IMF member nations' regime choices. The X axis denotes the years beginning with 2008 and continuing to 2016.

The Y axis shows the percentage of IMF membership by regime choice.

The data from the graph is displayed in the table below on a yearly basis.

A table has 4 rows and 10 columns. The columns have the following headings from left to right. Pegs , 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016. The row entries are as follows. Row 1. Pegs , Hard Peg. 2008, 12.2. 2009, 12.2. 2010, 13.2. 2011, 13.2. 2012, 13.2. 2013, 13.1. 2014, 13.1. 2015, 12.6. 2016, 13. Row 2. Pegs , Soft Peg. 2008, 39.9. 2009, 34.6. 2010, 39.7. 2011, 43.2. 2012, 39.5. 2013, 42.9. 2014, 43.5. 2015, 47.1. 2016, 39.6. Row 3. Pegs , Floating. 2008, 39.9. 2009, 42. 2010, 36. 2011, 34.7. 2012, 34.7. 2013, 34. 2014, 34. 2015, 35.1. 2016, 37. Row 4. Pegs , Residual. 2008, 8. 2009, 11.2. 2010, 11.1. 2011, 8.9. 2012, 12.6. 2013, 9.9. 2014, 9.4. 2015, 5.2. 2016, 10.4.

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Appendix 5

Long Description for a diagram illustrating the ideal attributes for a currency.

The diagram illustrates the trilemma of international finance or the ideal attributes for a currency.

- The diagram has a triangle at its center. The top represents Exchange Rate Stability. A Managed or Pegged Exchange Rate. The left vertex is Monetary Independence. An Independent Monetary Policy. The right vertex is Full Financial Integration. Free Flow of Capital.
- Nations must choose in which direction to move from the center—toward points A, B, or C. This is depicted as three arrows leading out from the center.
- Their choice is a choice of what to pursue and what to give up—that of the opposite point of the pyramid. Marginal compromise is possible, but only marginal.
- An instance on Point A on the left is China and major industrial countries under Bretton Woods who gave up the free flow of capital.
- Point B on the right has individual European Union Member States who gave up an independent monetary policy.
- Point C at the bottom has United States and Japan who gave up a fixed exchange rate.

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Appendix 6

Long Description for a graph of the US Dollar European euro spot exchange rate.

The graph shows the US Dollar European Euro spot exchange rate between January 1999 and September 2017. The X axis denotes the time period and the Y axis the dollar to euro exchange rate, which ranges from 0.8 to 1.6. The following list provides the fluctuations in the exchange rate, as represented by the graph. All values are estimated.

- The rate began at 1.15 in January 1999. It then gradually dropped to below 0.9 from 2000 to 2002.
- After May 2002, the rate steadily rose to reach 1.25 in the early part of 2005.
- The rate crossed 1.37 in the second half of 2005, before marginally dropping to 1.2 during May 2006.
- From this point on, the rate rose to reach highs of nearly 1.6 in 2008.
- A drop to 1.3 in mid 2009 was temporary, and the rate rose once again to 1.5 in May 2010.
- The rate hovered between 1.2 and 1.45 for the next four years, rising to 1.4 in May 2014. At this point, there was a gradual drop to reach 1.1 in 2015 and the exchange rate remained at these levels until 2016.
- In January 2017, the rate dropped again to around 1.05, before rising to highs near 1.18 in September 2017.

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Appendix 7 (1 of 4)

Long Description for a diagram highlighting the exchange rate regimes of European Union members.

The diagram illustrates the exchange rate regimes of European Union, EU members. While 8 of the EU members had their currencies pegged to the ECU or European Currency Unit since 1979, the remaining followed an orderly transition to adopting the euro. The table below shows whether the EU members had a currency pegged to DM, ECU, Euro, had the Euro as the currency, were outside ERM with a floating currency, free or pegged, or were outside ERM with a currency pegged to DM, ECU, Euro.

A table has 28 rows and 5 columns. The columns have the following headings from left to right. Country, Years with a currency pegged to ECU or Euro, Years with Euro as currency, Years outside ERM with a floating currency, Years outside ERM with a currency pegged to ECU or Euro, . The row entries are as follows. Row 1. Country, Belgium. Years with a currency pegged to ECU or Euro, 1979 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 2. Country, France. Years with a currency pegged to ECU or Euro, 1979 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 3. Country, Germany. Years with a currency pegged to ECU or Euro, 1979 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 4. Country, Ireland. Years with a currency pegged to ECU or Euro, 1979 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 5. Country, Italy. Years with a currency pegged to ECU or Euro, 1979 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, blank.

Appendix 7 (2 of 4)

Row 6. Country, Luxembourg. Years with a currency pegged to ECU or Euro, 1979 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 7. Country, Netherlands. Years with a currency pegged to ECU or Euro, 1979 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 8. Country, Denmark. Years with a currency pegged to ECU or Euro, 1979 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 9. Country, United Kingdom. Years with a currency pegged to ECU or Euro, 1990 to 1992. Years with Euro as currency, blank. Years outside ERM with a floating currency, 1979 to 1987, 1988 to 1990, 1992 to 2017. Years outside ERM with a currency pegged to ECU or Euro, 1987 to 1988. Row 10. Country, Greece. Years with a currency pegged to ECU or Euro, 2001 to 2017. Years with Euro as currency, 1997 to 2001. Years outside ERM with a floating currency, 1981 to 1995. Years outside ERM with a currency pegged to ECU or Euro, 1995 to 1997. Row 11. Country, Spain. Years with a currency pegged to E C U or Euro, 1990 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, 1987 to 1990. Row 12. Country, Portugal. Years with a currency pegged to ECU or Euro, 1993 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, 1987 to 1991. Years outside ERM with a currency pegged to ECU or Euro, 1991 to 1993. Row 13. Country, Austria. Years with a currency pegged to ECU or Euro, 1996 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, blank.

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Row 14. Country, Finland. Years with a currency pegged to ECU or Euro, 1996 to 1999. Years with Euro as currency, 1999 to 2017. Years outside ERM with a floating currency, 1995 to 1996. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 15. Country, Sweden. Years with a currency pegged to ECU or Euro, blank. Years with Euro as currency, blank. Years outside ERM with a floating currency, 1995 to 2017. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 16. Country, Slovenia. Years with a currency pegged to ECU or Euro, 2004 to 2007. Years with Euro as currency, 2007 to 2017. Years outside ERM with a floating currency, 2004. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 17. Country, Cyprus. Years with a currency pegged to ECU or Euro, 2005 to 2008. Years with Euro as currency, 2008 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, 2004 to 2005. Row 18. Country, Malta. Years with a currency pegged to ECU or Euro, 2005 to 2008. Years with Euro as currency, 2008 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, 2004 to 2005. Row 19. Country, Slovakia. Years with a currency pegged to ECU or Euro, 2005 to 2008. Years with Euro as currency, 2008 to 2017. Years outside ERM with a floating currency, 2004 to 2005. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 20. Country, Estonia. Years with a currency pegged to ECU or Euro, 2005 to 2011. Years with Euro as currency, 2011 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, 2004 to 2005. Row 21. Country, Latvia. Years with a currency pegged to ECU or Euro, 2006 to 2014. Years with Euro as currency, 2014 to 2017. Years outside ERM with a floating currency, 2004 to 2005. Years outside ERM with a currency pegged to ECU or Euro, 2005 to 2006.

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Row 22. Country, Lithuania. Years with a currency pegged to ECU or Euro, 2005 to 2015. Years with Euro as currency, 2015 to 2017. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, 2004 to 2005. Row 23. Country, Hungary. Years with a currency pegged to ECU or Euro, blank. Years with Euro as currency, blank. Years outside ERM with a floating currency, 2008 to 2017. Years outside ERM with a currency pegged to ECU or Euro, 2004 to 2008. Row 24. Country, Poland. Years with a currency pegged to ECU or Euro, blank. Years with Euro as currency, blank. Years outside ERM with a floating currency, 2004 to 2017. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 25. Country, Czech Republic. Years with a currency pegged to ECU or Euro, blank. Years with Euro as currency, blank. Years outside ERM with a floating currency, 2004 to 2017. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 26. Country, Bulgaria. Years with a currency pegged to ECU or Euro, blank. Years with Euro as currency, blank. Years outside ERM with a floating currency, blank. Years outside ERM with a currency pegged to ECU or Euro, 2007 to 2017. Row 27. Country, Romania. Years with a currency pegged to ECU or Euro, blank. Years with Euro as currency, blank. Years outside ERM with a floating currency, 2007 to 2017. Years outside ERM with a currency pegged to ECU or Euro, blank. Row 28. Country, Croatia. Years with a currency pegged to ECU or Euro, blank. Years with Euro as currency, blank. Years outside ERM with a floating currency, 2013 to 2017. Years outside ERM with a currency pegged to ECU or Euro, blank.

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Appendix 8

Long Description for a diagram explaining currency regime choices for emerging market nations.

The diagram highlights the various options of currency regime choices for emerging market nations. High capital mobility is forcing emerging market nations to choose between the two extremes of free floating and fixed rate or currency board.

- Free floating currencies have the following features.
- Currency value is free to float up and down with international market forces.
- Independent monetary policy.
- Free movement of capital allowed, but at the loss of stability, and with the possibility of sudden massive capital outflows.
- Increased volatility may be more than what a small country with a small financial market can withstand.
- Fixed currencies have the following features.
- Fixed rate regime requires all exchange at the government's set rate of exchange.
- Currency board fixes the value of local currency to another currency or basket dollarization replaces the currency with the U S dollar.
- Independent monetary policy is lost, political influence on monetary policy is eliminated.
- Seignorage, the benefits accruing to a government from the ability to print its own money, is lost.

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Appendix 9

Long Description for a graph illustrating the tradeoffs between exchange rate regimes.

The graph illustrates the tradeoffs between exchange rate regimes based on rules, discretion, cooperation, and independence.

- The horizontal axis shows non cooperation between countries on the left and cooperation between countries on the right.
- The vertical axis shows policy rules on the top and discretionary policy at the bottom.
- Dotted arrows emerge from the center in all directions.
- On the top left quadrant, the arrow is titled pre WWII gold standard.
- On the bottom left quadrant, the arrow is titled U S Dollar, 1981 to 1985.
- The top right quadrant has two arrows, Bretton Woods 1944 to 1973 and European Monetary System 1979 to 1999.
- The bottom right quadrant arrow is titled coordinated intervention on U S dollar 1985 to 1988.
- The bottom right quadrant has a shaded area implying it could be the future.

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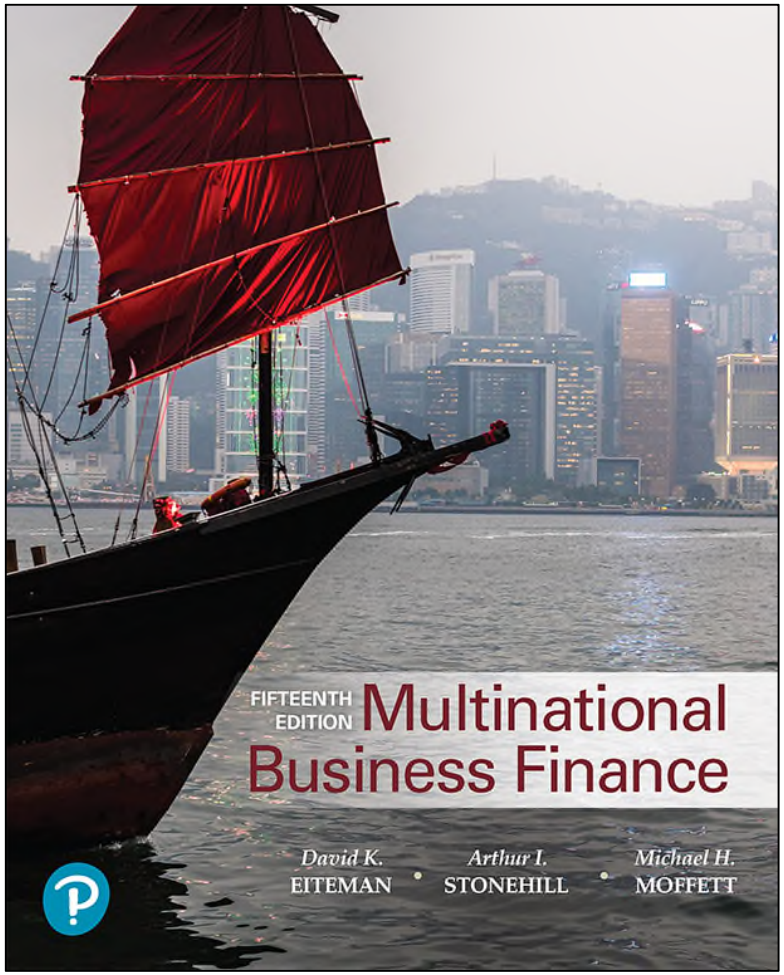
Multinational Business Finance

Fifteenth Edition



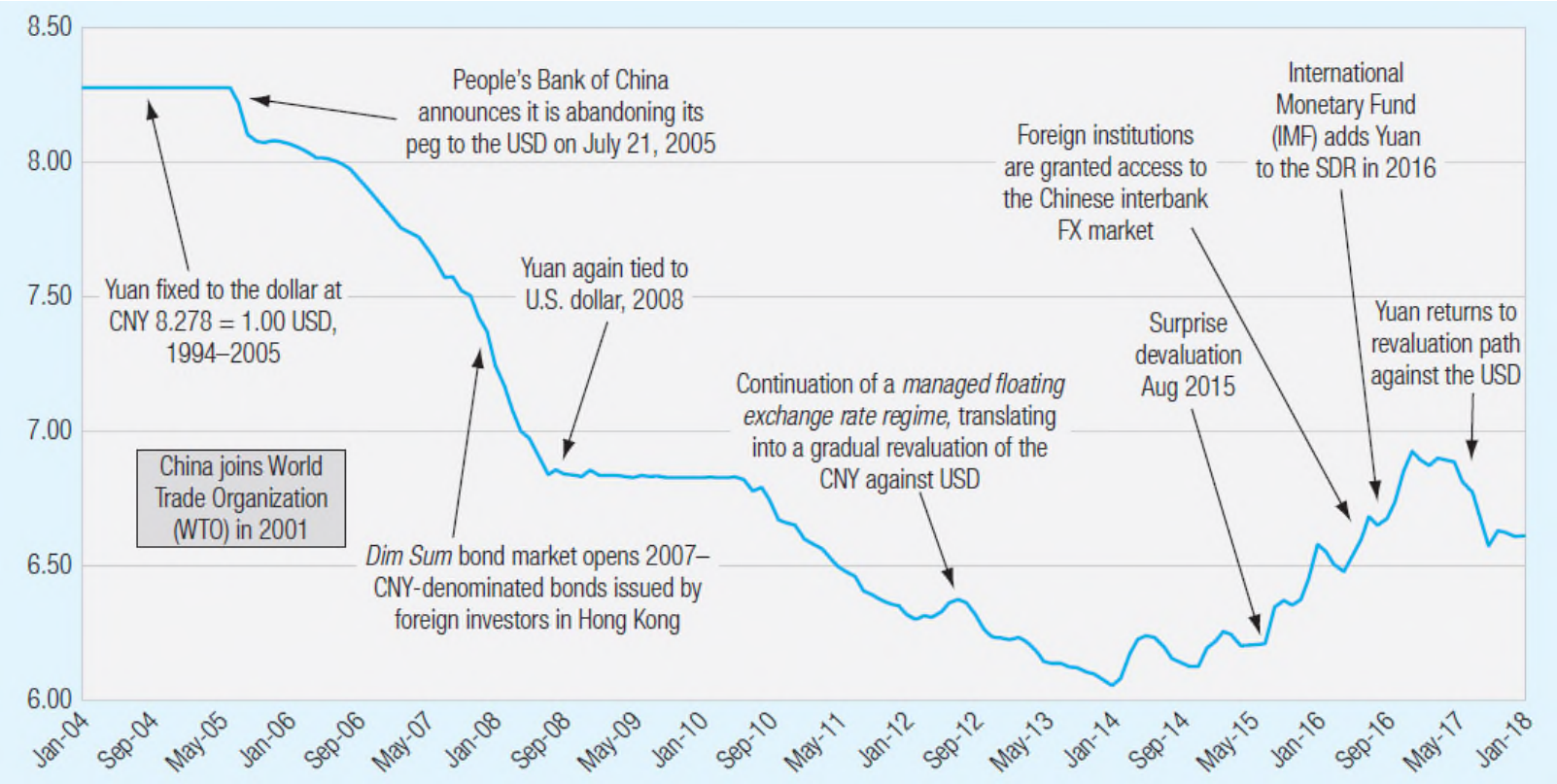
Chapter 2 Mini Case

The Internationalization (or not) of the Chinese Renminbi

Renminbi Valuation

- The RMB's value has been carefully controlled but allowed to gradually revalue against the dollar (Exhibit A)
- Despite the changing valuation and regime choices, the renminbi is still not a freely convertible currency.
- The Chinese government will not allow either volatility or rapid and rising interest rates to affect domestic economic and business conditions.

Exhibit A Chinese Renminbi (CNY) to U.S. Dollar (USD) Spot Rate (CNY = 1.00 USD)



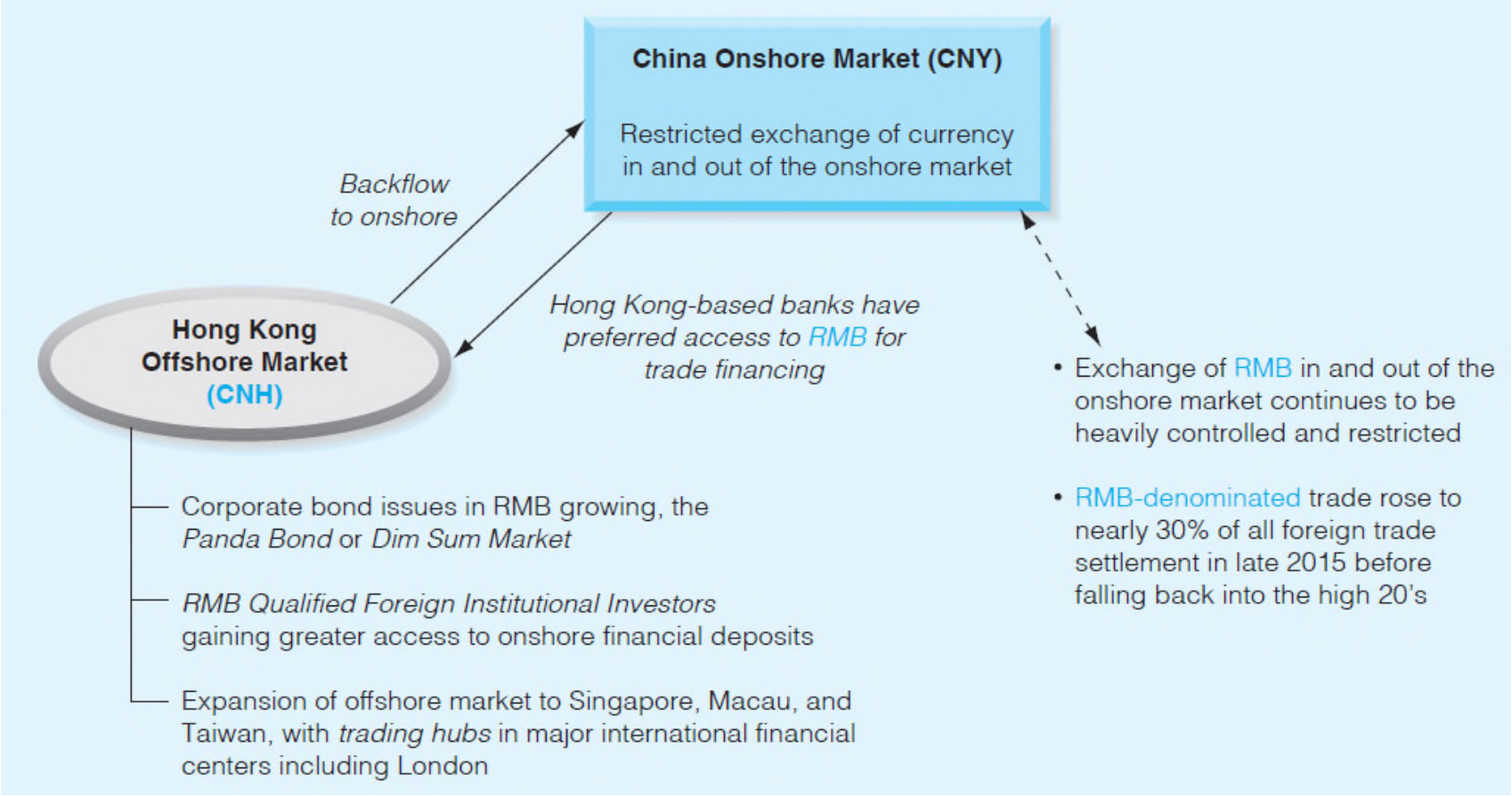
For long description, see slide 10: Appendix 1

Source: Constructed by authors.

Two-Market Currency Development

- The onshore market (RMB, CNY) is a two-tier market, with retail exchange and an interbank wholesale exchange.
  - Currency is traded through the China Foreign Exchange Trade System (CFETS), in which the People's Bank of China sets a daily central parity rate against the dollar (fixing).
  - Continues to be gradually deregulated.
- The offshore market for the RMB has grown out of a Hong Kong base (CNH, an unofficial symbol).
  - This offshore market has enjoyed preferred access to the onshore market by government regulators, both in acquiring funds and re-injecting funds (back-flow).
  - Growth in this market has been fueled by the issuance of RMB-denominated debt.

Exhibit 2.10 Structure of the Chinese Renminbi Market



For long description, see slide 11: Appendix 2

Internationalization: Theoretical Principles and Practical Concerns

- A first degree of internationalization occurs when an international currency becomes readily accessible for trade.
- A second degree of internationalization occurs with the use of the currency for international investment.
- A third degree of internationalization occurs when a currency takes on a role as a reserve currency.

The Triffin Dilemma

- The **Triffin Dilemma** is the potential conflict in objectives that may arise between domestic monetary and currency policy objectives and external or international policy objectives when a country's currency is used as a reserve currency.
- If a currency rises to the status of a global reserve currency, in which it is considered one of the two or three key stores of value on earth, other countries will require the country to run current account deficits, essentially dumping growing quantities of the currency on global markets, which many countries would prefer not to deal with.

Mini-Case Questions

1. Why would the Chinese government wish the renminbi to become a global currency? What are the costs and benefits of that greater global role?
2. What are the theoretical requirements in order for a currency to be considered internationalized or global?
3. At what stage is the Chinese renminbi in its globalization process? What is keeping it from becoming fully globalized?

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Appendix 1

Long Description for a graph plots the Chinese renminbi to US dollar spot rate from January 2014 to January 2018. CNY = 1.00 USD.

The graph provides the major spot rate trends and connected events, as outlined in the following list:

- The yuan was fixed to the dollar at CNY 8.278 = 1.00 USD from 1994 to 2005.
- On July 21, 2005, the People's Bank of China announced that it was abandoning its peg to the USD on July 21, 2005. The spot rate then fell to around 7.50 by the second half of 2007. At this time, the Dim Sum bond market opened, and foreign investors in Hong Kong issued CNY denominated bonds.
- In 2008, China once again tied the yuan to the U.S. dollar, and the rate flattened out near 6.8, remaining at this level until 2010.
- From 2010 to 2013, continuation of a managed floating exchange rate regime led to a gradual revaluation of the CNY against the USD, causing the rate to drop to near 6.1 by January of 2014.
- Despite a surprise devaluation in August 2015, the rate then generally rose to 6.7 by 2016, when foreign institutions were granted access to the Chinese interbank FX market.
- In late 2016, the International Monetary Fund, or IMF, added the yuan to the SDR, and the rate peaked near 6.9 in the first half of 2017.
- By the end of 2017, the yuan continued on the revaluation path against the USD, however, and the rate fell to near 6.6 by January 2018.

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Appendix 2

Long Description for the structure of the Chinese renminbi market.

The diagram illustrates the two market structure of the Chinese renminbi. The China onshore market, or CNY, has restricted exchange of currency in and out of the onshore market. The exchange of the RMB in and out of the onshore market continues to be heavily controlled and restricted, and RMB denominated trade rose to nearly 30% of all foreign trade settlement in late 2015 before falling back into the high twenties. Banks in the Hong Kong offshore market, or CNH, have preferred to access RMB for trade financing. Corporate bond issues in RMB, such as the Panda Bond or Dim Sum Market, are growing. RMB qualified foreign institutional investors are gaining greater access to onshore financial deposits, and the offshore market is expanding to Singapore, Macau, and Taiwan, with trading hubs in major international financial centers including London.

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