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The Euro and the U.S. Dollar: Reserve Currency Rivalry in the 21st Century - A Review

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Abstract
This article offers a historical overview of the introduction of the euro as a common currency and an in-depth analysis of its process of internationalization, which led it to become the second most widely used reserve currency, after the U.S. dollar. It presents a systematic literature review using a narrative approach to analyze historical data and statistics. Its objective is to determine whether the Euro has become not only an international currency but also a reserve currency capable of challenging the hegemony of the U.S. dollar as the world's primary reserve currency since WWII. The findings suggest that the U.S. dollar's status is shaped by a variety of political, economic, fiscal, military, and social factors that impact its global position. Consequently, if the U.S. government were to implement policies that would undermine this standing, the euro could potentially become the reserve currency of the world.

Keywords: Euro, U.S. dollar, International currency, Reserve currency

JEL classification: E42, E49, N14.

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1. Introduction

Since the creation of the Economic and Monetary Union (EMU) and the introduction of the euro, experts have been debating whether the euro would transform into a unified currency for European Union (EU) member states, while also evolving into a global currency robust enough to serve as a reserve currency that could rival the U.S. dollar's dominance as the world's primary reserve currency.

Monetary history shows that few currencies have been considered international currencies, being in the 19th and first half of the 20th century the pound sterling of the British Empire was the most important international reserve currency. The British pound became the first international currency of the modern Western world helped by the financial and economic power of the United Kingdom (UK) during the Industrial Revolution, coupled with the influence of the Commonwealth Empire, facilitated the global adoption of the British Pound, ultimately enabling it to become the world's first reserve currency. According to Dalio (2021), eight measures help nations become an economic powerhouse and the currency to become an international reserve currency. Dalio explains that the British empire was born in the 1600s as it was building its competitiveness, education, innovation, and technology levels which paid off as the ¨UK´s output, share of world trade, and military expanded together. With the typical lag, the development of Britain´s financial markets and its financial center (London) to become world leaders followed, and, with a great lag, the pound overtook the guilder as the world's reserve currency" (292). However, the decreasing competitiveness, growing inequality, and the rise of new geopolitical challengers led to the decline of both the British Empire and the pound, paving the way for the emergence of the United States and the U.S. dollar as the next world's leading empire and reserve currency.

The U.S. dollar began its international recognition after the hyperinflation of the Weimar Republic after the Treaty of Versailles when Germany had to repay the war cost in gold. Major industrial countries meet at the Genoa Conference in Italy (1922) to consider the introduction of a new gold exchange standard to return monetary stability to Germany. However, Rickards (2011) explains that this gold standard will not be the true gold standard used before 1914, when paper notes coexisted in a fixed relationship with gold. This time, gold was introduced more flexibly with central banks having tighter control and both assets circulating side by side and freely convertible into the other. Thus, countries participating in this new gold standard agreed that central bank reserves could be held in both gold and in the currency of other nations. The United States chose to be responsible for maintaining the gold value of gold at $20.67 per ounce as the U.S. was the only country that held and maintained convertibility to gold during World War I (WWI). This new gold standard allowed countries to accumulate large balances of any foreign currency before redeeming those into gold bullion which could not circulate freely as before WWI. This way, paper money became ¨as good as gold¨ and particularly, the U.S. dollar became as good as gold which helped its internalization process. This gold system was in place until March 1933, when U.S. President F.D. Roosevelt abandoned it. Regardless, this gold standard planted the seed for the U.S. dollar to become the next world reserve currency as not only economies and markets in Europe were destroyed, but also certain national policies undermined the trust in European currencies, leaving gold and the U.S. dollar as the only safe haven of the times. However, after World War II, to create a stable monetary system and a new world order, the Bretton Woods International Monetary Agreement of 1944 introduced a third gold standard system. This time around countries preferred to settle their balances with the U.S. dollar, making it not only a de-facto international currency but most importantly, the world´s reserve currency. However, it was President Nixon and his New Economic Policy together with the Truman Doctrine the factors which helped launch the full internalization of the U.S. dollar and its rise as the world's reserve currency, unchallenged ever since.

Following a decade of meticulous preparation and economic convergence, the euro was nominally launched on January 1st, 1999, as the common currency for several European Union members and the birth of the Eurozone as a sub-region within the EU member states. The euro became an international currency, which greatly changed the functioning of the financial markets worldwide (Bernanke, 2010).

Since its inception, the euro was viewed as a possible challenging factor for the established status quo of the international monetary system introduced at the end of Bretton Woods. The initial strength, breadth, and liquidity of the euro's financial market has almost reached those of the U.S. dollar markets. The strength of the euro, as an international currency, shook the reserve currency composition of most countries and eroded the preeminence of the U.S. dollar as the world reserve currency. However, Arslanalp et al. (2024) say that recent data shows a "gradual decline in the dollar's share of allocated foreign reserves of central banks and governments" (2). Nevertheless, the reduced role of the U.S. dollar as a reserve currency over the last two decades has not been matched by an increase in share by the euro as was expected. These authors explain that the rise has been in "the share of what we have called nontraditional reserve currencies, including the Australian dollar, Canadian dollar, Chinese renminbi, South Korean won, Singaporean dollar, and the Nordic currencies" (2). However, the Great Recession of 2008, the Brexit referendum, and the Covid-19 pandemic have destabilized the European Union's economic outlook and the euro's position, influencing both its internationalization process and its status as a reserve currency that could truly challenge the U.S. dollar.

This overview helps us understand the importance of international currencies because of their impact on the stability of global economics. The strength of both the U.S. dollar and the euro as international and reserve currencies has significant importance to understand the balance of economic power. Shifts in this balance will affect reserve currency preferences that directly affect capital flow, exchange rates, and foreign reserves among others. Understanding the new relationship between the U.S. dollar and the euro after recent economic disruptions such as the Great Recession, Brexit, and the Covid-19 pandemic is a must. Understanding these dynamics and understanding the new balance of power between these two reserve currencies is vital for policymakers, economists, and financial institutions to navigate the multipolar economic landscape in the 21st century.

The purpose of this article is to present a general review of the introduction of the euro, its evolution as a common currency, and its rise as the second reserve currency in the world. This research provides an historical review of the origins of the euro as a common currency for the Eurozone. It also analyzes the evolution of the euro to become the second most important reserve currency at the turn of the century. Our research presents the strengths and weakness faced by the euro to challenge the hegemony of the U.S. dollar. Finally, this research assesses the existence of a broader reserve currency landscape with the recent rise of nontraditional reserve currencies, and how this will impact the balance of power between the U.S. dollar and the euro.

Considering all this, this research paper is divided into four parts. First, we present a brief introduction to the origins of the euro. This introduction is followed by a second section in which we present a deep analysis of the evolution of the euro from a common currency to an international currency, as well as its role as a reserve currency. To elaborate on these two sections, we present a vast literature review about the meaning of money and currency, the implications of international currencies, and the importance of reserve currencies. All this preliminary analysis is necessary to answer the research question that gave birth to this study: will the euro dethrone the U.S. dollar as the world's reserve currency? To conclude presenting the findings to what level the euro has become a challenging reserve currency for the hegemony of the U.S. dollar.

2. On the origins of the Euro: a brief review

The inception of the euro, its consolidation as a successful common currency, and its rise as a reserve currency have spurred a vast literature as well as wide areas of research; however, this review is focused on literature only relevant to the internationalization process of the euro and limited by the availability and quality of the source.

To better understand the disruption of the euro it is necessary to understand the well-established monetary system that was put in place after the collapse of the Bretton Woods system and that with the introduction of the euro at the turn of the 21st century, a "new world monetary order" was created.[1]

Barbezat (2009) explained that the introduction of the euro was the most important step envisioned to allow the economic and monetary integration necessary to create the Eurozone which will become the core of this project which, according to Morlon-Druol (2018) was expected to bring not only economic and political vitality to the European Union (EU) but also foster political and social unity among member states.

The convulsive first half of the 20th century led to a change in paradigms. After World War II (WWII), the world understood the importance of international cooperation which required a restructuring of the economic and monetary system. (Office of the Historians 2023) The Treaty of Versailles demonstrated the importance of addressing imbalances in the currency to foster monetary stability and economic growth. After WWI, nations experimented with various monetary standards resting in different types of gold standards, until breakdown of the Bretton Woods system in 1971 that nations embraced the fiat money system which introduced a transformative framework for the global economic and monetary system.

For the European Union, the road to the Economic and Monetary Union (EMU) and the introduction of the euro faced many challenges (Pringel, 2019) and previous attempts at monetary integration that foreshadowed the complexities of achieving a monetary union. The two most significant precursors are the Vienna Monetary Treaty with the official name "Monetary Treaty Between the German States of 24 January 1857" which was dissolved in 1866 and was the direct precursor of the Monetary Convention of 23 December 1865 referred to as the "Latin Monetary Unions" (LMU) disbanded in 1926. Further, attempts in 1969 during the Den Haag Summit and, in 1979, with the introduction of the European Monetary System, represented early efforts that helped pave the way to the introduction of the euro. Despite all these failed attempts, the Delors´ Report (1989) helped establish the Economic and Monetary Union (EMU) and the introduction of the euro were drafted in the Delors' Report (1989) which outlined a three-stage plan that materialized the inception of the euro as a common currency on January 1, 1999 (Chi, 2022; Euronews, 2019; European Commission, 2008a).

On January 1st, 1999, eleven EU countries freely adopted the euro, and the eurozone was created. Greece adopted the euro in 2001; however, Denmark and Sweden stayed within the EMU but did not join the eurozone, while the United Kingdom opted out of adopting the euro and later exited the EU in 2022 (Galati and Wooldridge, 2008, European Commission, 2008). This brief systematic historical review of the introduction of the euro underscores the complex history of European integration represented by the ultimate success of the EMU and the introduction of the euro both nominally in 1999 and physically in 2002 (Verdun 1999). The ongoing commitment of member states to meet convergence criteria highlights the continual evolution of the eurozone, emphasizing the enduring quest for economic and monetary cohesion in Europe (Heise, 2013).

The process that led to the creation of the European Union, the introduction of the euro, and the eurozone is considered a path and a blueprint for integration, despite criticism that suggests that this is a suboptimal design driven only by geopolitical motives (Cabral and Louca, 2019). The success of the euro, as emphasized by Rose (2000), highlights the many advantages of a shared common currency although the relationship between economic, monetary, and political integration

[1] Appendix 1shows a table which summarizes the reviewed literature on the origins of the Euro.

is debated and the need for a true political union in the European Union and at the eurozone's is always remarked (De Grauwe, 2003 and 2006). Nevertheless, efforts are continuously enhancing political integration within the EU, building upon prior successes in economic and monetary integration.

The Economic and Monetary Union (EMU) relies on two key elements. First, the economic union rests on the Stability and Growth Pact (SGP), which specific fiscal guidelines regarding the level of government debt and deficit that EMU member states must maintain as these specific levels bring fiscal stability. The second element is the monetary union set by the European Central Bank (ECB) with the mandate to maintain the inflation rate within the stablished targeted level (Pringel, 2019; De Grauwe, 2003 and 2006). The economic and monetary synchronization and harmonization of the business cycle—measured by the behavior of the Gross Domestic Product (GDP) (Figure 1)—of member states has been possible because of the common monetary policy implemented by the ECB and the fiscal policy requirements embedded in the SGP. Further, Rose (2000) believes that business cycles are more correlated between members of the eurozone than between those EU countries which still maintain their sovereign currencies.

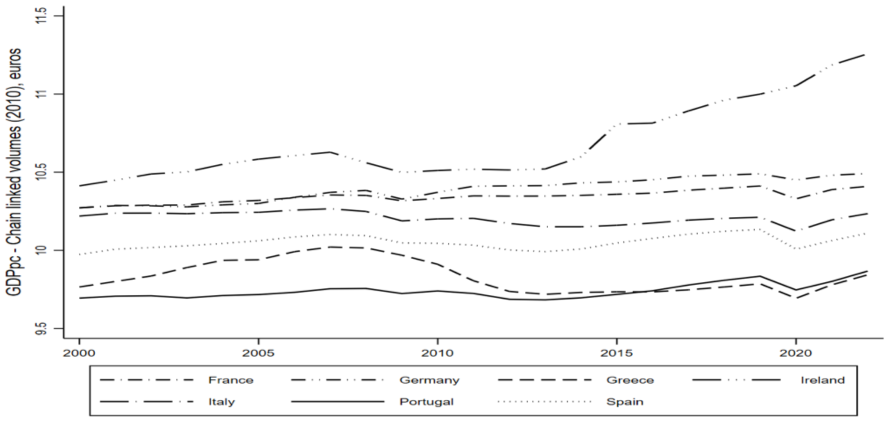


Figure 1 – Log values of GDP per Capita at Market Prices, Chain Linked Volumes (2010 Euros)

Nonetheless, the ECB (2023) explains that since the introduction of the euro, the economic growth between the EU and the US has narrowed as is represented in Figure 2.

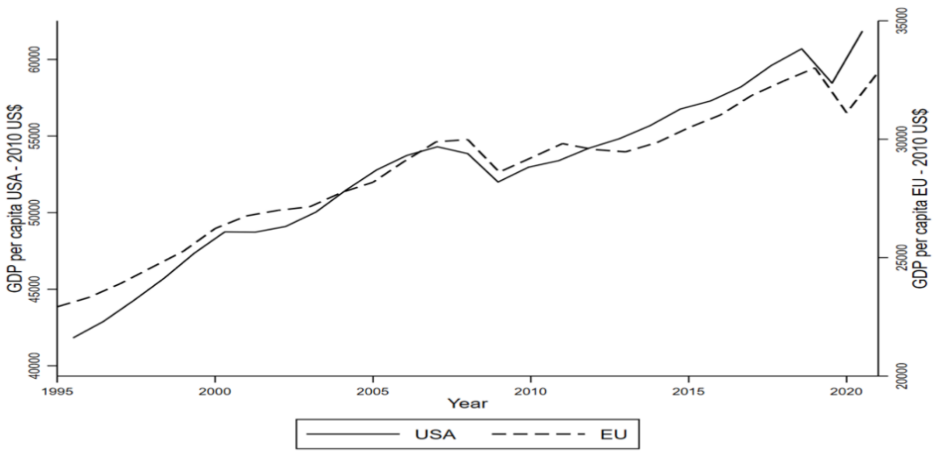


Figure 2 – GDP per Capita USA and EU (in 2010 US$)

3. Understanding the evolution from money to international and reserve currency: the case of the Euro

The introduction of the euro impacted the monetary order of the second half of the 21st century forcing an assessment of its evolution as both money and currency, two distinct concepts (Papaioannou et al., 2006). The euro has expanded its roles from being a common currency for several nations that seek economic and monetary stability to an international currency with a comprehensive role as a reserve currency. Thus, to better appreciate the evolution of the Euro it is a priority to review recent, seminal, and relevant works on the topic to provide a nuanced analysis and understanding of the literature on the euro's multifaceted significance.

Traditionally, the terms money and currency are used interchangeably and are assumed to mean the same thing when they truly have different meanings. Money is a term that refers to a tangible asset that people use to make and receive payments when buying and selling goods and services. The concept of money has evolved from commodity money to fiat money. In a modern economy, money serves three functions: medium of exchange, store of value, and unit of account for both tangible and intangible assets. Currency, on the other hand, has a narrower meaning and it is defined by the United States Mint (2024) as "any kind of money – coins or paper money – that is used as a medium of exchange" (1). Since the inception of cryptocurrencies despite being a virtual currency, a new form of currency is now in circulation.

There is a vast literature about the origins and evolution of money which emerged to help the exchange of goods and services within a non-monetary economy which relied on the power of barter for commercial exchange. Then, money is nothing but a widely used good that people accept when engaging in trade in their daily transactions to obtain something else. Menger (1982) developed a theory that demonstrates how social institutions such as money arise because of the spontaneous evolution of human interactions. However, White (1999) explains that Menger was not the first economist who expressed the idea that "money was an undesigned or spontaneous institution" (p.2), because previously Adam Smith, Etienne de Condillac, Destutt de Tracy, Thomas Hodgskin, and Samuel Bailey also did it. However, there are many different types of money but only a few are considered currency and even fewer international currency. Further, it is important to explain that there are two types of money: commodity money and fiat money. Commodity money is a type of money that has an intrinsic value derived from the value of the commodity that is made from such as gold or silver. Fiat money is money whose value is not intrinsic, but it is assigned by the government. Thus, since the end of Bretton Woods, the economic theory explains that money refers to circulating currencies that are assigned legal tender status by a nation, state, or government. In the case of the euro, it is accepted by a union of countries that agree on the legal tender status of this money like a common currency for all of them. Therefore, the euro is not only money but also the common currency of European Union member states that adopting it as currency of legal tender status have created the so-called eurozone and become the authorized currency to be used to pay for goods and services. Further, the euro is also a medium of exchange, making it a reliable store of value for consumers and investors alike. In addition to its legal tender status and widespread acceptance, the euro also functions as a unit of account. This means that prices of goods and services within the eurozone are denominated in euros, facilitating economic transactions and reducing the need for currency conversions. Overall, the euro is a currency that meets all the criteria necessary to be classified as the common currency playing an essential role in the operation of both the European economy and the global financial system.

The euro became an international currency following its inception as a common currency for eleven EU member states on January 1st, 1999. Papaioannou et al. (2008) note the euro expanded its global role to international currency during the following decade and it has since been growing its importance in foreign reserves, international trade, and as a currency anchor. Consequently, many scholars envisioned a so-called 'middle-euro' scenario in which the euro could share with the US dollar a central role as an international currency given a gradual financial reform and the commitment of the European Central Bank to maintaining low inflation.

The academic research on a currency's international status has centered on analyzing the economic and political dimensions that would make this transition possible. While economists delve into the monetary functions of an international currency–like serving as a store of value and medium of exchange—political economists focus on factors fostering its global use. The main point at stake is to analyze if beyond transaction facilitation, the euro provides liquidity and financial and monetary stability during crises; the hegemon's issuance of secure, currency-denominated securities, driven by global demand, eases external constraints (Gourinchas et al., 2019).

Galati and Wooldridge (2008) explain that the internalization of the euro should be analyzed using traditional economic theories. Mundell (1999) explained that a currency becomes international when it is used outside its legal tender area. Hartmann (1998) and Truman (2005) highlight that currency becomes international by its private use rather than governmental decisions. Furthermore, Strange (1971) posits that a national currency's internationalization is contingent upon the global influence of the country where it holds legal tender status. Cohen (1977) introduced the first systematic and most widely used taxonomy of international money which was later redefined by Kenen (1983), and Krugman (1984) among others. Cohen (1977) presented a functional conceptualization that contributed to the study of international currencies by providing a clear framework with two sectors (public and private) and three functions of money (a unit of account, a store of value, and a medium of exchange). Cohen (1977) further divided international currencies into two groups. The first group was classified as “fully developed international currencies,” which are currencies that perform all six money roles, and the second was a group of partially developed international currencies that perform only some of them. Cohen (2000) also proposed that currencies needed to be classified not only based on the scope of their monetary functions but also on their geographical influence. Globalization and economic relations have challenged the classical premise of one nation's currency. That is, the territory of money coincides with the political frontiers of each nation-state. Instead, Cohen (2000) argues that just a handful of currencies are used outside their “home” countries for transactions either between nations or within foreign states.

Thus, the study of the international status of a currency is therefore an interdisciplinary endeavor that requires an understanding of both economic and political factors. From an economic standpoint, there are three main components to support the internalization of the currency. First, confidence in the value of a currency can be affected by factors such as monetary and fiscal policy and current account position (Lim, 2006; Ozeki and Tavlas, 1992). An international currency must sustain cross-border and widespread confidence in the present and future monetary markets (Cohen, 2011) and must demonstrate a history of low consumer price index and inherent price stability (Ozeki and Tavlas, 1992). Cipolla (1967) argued that an international currency must possess both a high unitary value and intrinsic stability. A currency cannot become international if its purchasing power is expected to be unstable. Secondly, an international currency must have a strong footing in the financial markets by assuring that the currency is strong enough to both guarantee high levels of transactional liquidity and predictable asset values, essential elements for well-developed financial markets that offer depth, resiliency, and breadth. Depth refers to a currency's ability to withstand substantial market orders without affecting the individual asset price (Cohen, 2011). Resilience refers to the currency's ability to promote quick market recovery after an unusually massive sell or buy market. Breadth refers to its ability to ensure that the gap between buyers and sellers is small – that is, that high trading volumes and market competition guarantee a small spread between the bid and ask prices. Third, the benefit of using an international currency increases with the number of countries using it. This influences the scale of the issuing country's transactional network, known as a "network of externalities" that drastically reduces transaction costs and country-specific macroeconomic risks (Freixas et al., 2014) and increases economies of scale, allowing for a pattern of behavior, power, and support around the international currency (Rey, 2001; Xiaochuam, 2009; Matsuyama et al., 1993). This creates an incumbency advantage and positions new currencies at a disadvantage, making it difficult to overcome because there is a trade-off between holding assets in just one currency or many. Currency choice is subject to inertia owing to the often-high cost of switching because the same network of externalities that promotes the use of one currency can long delay the rise of another.

Thus, currencies are international because they stretch sovereign state control beyond country borders, and as Cohen (2003) explains "In markets, an international currency plays a role in foreign exchange trading, trade invoicing, and financial investment. For government, the functions of international money are as exchange rate anchor, intervention and as a reserve currency." (2) The euro's relevance as an international currency is because it is ranked as the second most used global payment currency. According to a report by SWIFT (2015), the U.S. dollar is the most widely used currency in international trade, with a share of 48% in December 2022, while the euro was the currency used in 32% of the total payments in the same month and year. However, the euro remains an important player with an average of 35% share between January 2019 and December 2023, despite a slight decrease to 29.6% in March 2020. Other currencies such as the British pound, Japanese yen, and Chinese yuan, among others, have such smaller shares that the total of all of them is on average 20% between January 2019 and December 2022.

Furthermore, Statista (2024) reported that in January 2023 the combined usage of the euro and U.S. dollar surpassed many other currencies, constituting over 70% of all SWIFT payments worldwide. In addition to this, the euro had a historical milestone during May 2021 when the euro measured tete-a-tete to the US dollar in terms of its usage as an international payment method with the euro reaching 40.2% and the U.S. reaching 40.9% of total payments on the SWIFT method. This strengthened the euro´s standing in the global economy (Galati and Wooldridge, 2008; ECB, 2024). Figure 3 shows the historical trend of the most used currencies in world international payments.

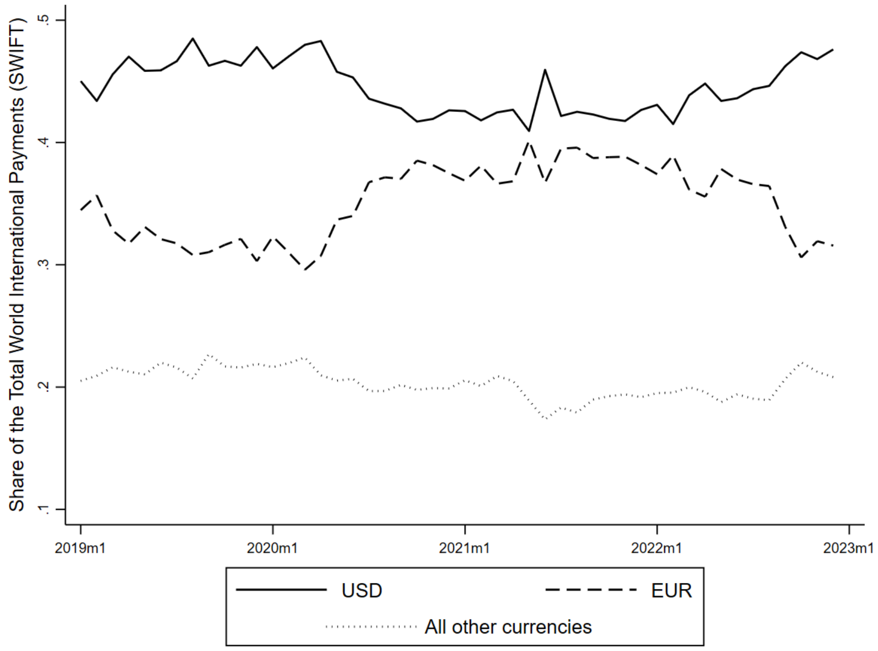


Figure 3 – Most used currencies on SWIFT Payments – from Jan 2019 to Dec 2022.

Nonetheless, there are several underlying factors affecting the use of the euro internationally, when measured against the U.S. dollar. Since the end of WWII, the United States economy has been the largest in the world and, therefore, the dynamism and flexibility of the U.S. economy has favored the U.S. dollar (Posen 2005, Cohen 2003). The U.S. product, labor, and capital markets are less regulated, helping productivity and more efficient reallocation of resources than in Europe. (Ciccone and Papaioanno,u 2007; Fisman and Love, 2010; Alesina et al., 2000; Hartmann et al., 2006).

An international currency has both benefits and costs for the issuing state. From an economic perspective, there are four main benefits. First, the issuing state benefits from the revenue derived from printing money; that is, seigniorage. The need for money comes from foreigners' demands for holding money, either bank notes or coins, or reduced borrowing costs for the issuing state (Cohen, 2015). The second benefit for an issuing state is the ability to finance the balance of payment deficits with its currency by either freely printing extra money or borrowing internationally in the domestic currency (Dobson and Masson, 2009). This includes the ability to evade discipline in macroeconomic policies. Further, domestic financial institutions also can obtain the so-called "denominated rents" (Cohen, 2011; Swoboda, 1968; Helleiner and Malkin, 2012) and lower the costs of capital (Kenen, 2009). Finally, domestic firms benefit by shifting the exchange rate risk to their foreign counterparts (Tavlas, 1998), while domestic consumers experience an increase in their purchasing power (Kenen, 1969). On the costs side, one important economic cost is the constraint on domestic monetary policy, as foreign holdings of the currency compromise the gain in macroeconomic flexibility through currency issuance. However, the most important is the so-called "Triffin Dilemma" by which the country issuing the reserve currency must supply it to the world to lubricate global trade and growth. This supply of the currency might eventually erode confidence in its value and lead foreigners to reduce their holdings of the currency.

The main issue for political economists is that issuing states can increase their international monetary power and influence the behavior and currency choices of other states. (Andrews 2006).

Issuing an international currency allows the home state to strengthen its autonomy from the markets by either delaying (Cohen, 2004) or deflecting (Helleiner and Kirsher, 2009; Henning, 2012) the burden of adjusting its external imbalances. Also, issuing states can increase their autonomy from other states while forcing different states to increase their dependence because they count on the issuing state's currency for their international economic activities. Thus, the issuing state increases its coercive power (hard power) and soft power (structural power) over foreign nations. (Helleiner, 2009; Helleiner and Kirshner, 2012; Pollard, 2005). Currency internalization adds to the power of the state (Feldstein, 1997; Eichengreen, 1996) that issues the currency, and they all agreed that a national currency that becomes an accepted international currency will strengthen the international role of the country that issues it. Almost every currency therefore desires internationalization because of the listed benefits. However, the currency will not become international if the issuing country does not already benefit from some measure of economic and political standing in the world. There are hundreds of currencies throughout the world, but the possibility of one becoming an international currency depends on its ability to compete with other currencies in a monetary "survival of the fittest."

However, since the introduction of the euro as the common currency for the Eurozone and the post-Bretton Woods monetary had to be arranged, a new academic debate was inaugurated centered around a simple question: would the euro surpass the US dollar as the reserve currency of the world? (Galati and Wooldridge, 2008; Lorca-Susino, 2007). Eichengreen (1996) cautioned against overly optimistic projections on the euro surpassing the hegemony of the US dollar as a reserve currency. He emphasizes the strong advantage held by the US dollar due to its incumbency, backed by historical and econometric evidence. Institutional analysis echoes this, emphasizing the importance of international financial centers and central bank roles—areas where the European Central Bank falls short. This implies a slower evolution of the eurozone as a global financial hub and limiting the potential of the euro as a reserve currency. Further Cohen (2003) delves on the concept of a currency and its function as a store of value, explains that a stable currency in the public sector is a sign of economic stability which, in turn, encourages citizens to use strengthening its status (Galati and Wooldridge, 2008; Federal Reserve System, 2021).

The Bretton Woods agreements witnessed the demise of the Pax Britanica and the rise of the Pax Americana with the U.S. dollar replacing the British pound sterling as the world's reserve currency of choice. This was a logical substitution as the US became the leading economic world power and the U.S. dollar was, at that time, the currency with the greatest purchasing power and the only one truly backed by gold. Today, the US dollar still maintains its hegemony as a secure and portable asset that will hold its value over time helping it remain the reserve currency of the world. The introduction of the euro, as an international currency, was expected to gain the status of an alternative reserve currency for countries that have constantly complained about the US dollar's hegemony and blamed it for their lack of economic and financial development.

The euro, thus, has played a significant role in the global monetary system since its inception and it has become a major reserve currency (European Central Bank, 2008) for several important developments. First, the number of corporations and governments issuing debt and equity in euros has increased (Bobba et al., 2007), and there has been an increase in the use of the euro as the preferred currency for invoicing and quoting in international trade (ECB, 2021; Kamp, 2005; Wilander, 2006), and the use of euros as cash has been on the rise by non-euro residents (European Central Bank, 2008) When it comes to analyzing the role of the euro as a reserve currency, the share of euros in international reserves holdings has been slowly but steadily increasing (Papaioannou et al. 2006; Chinn and Frankel, 2005) until the Great Recession of 2008.

The euro holds a prominent position in the global economy, standing as the second most significant currency in the international monetary system as a reserve currency, as reported by the European Central Bank (2022). The euro's ascendancy is attributable to its widespread use as a currency reserve. However, how a currency becomes a currency reserve is explained by the traditional analysis of reserve currencies based on the theory of international money developed by Swoboda (1968), Cohen (1977), McKinnon (1963), Kindleberger (1981), and Krugman (1984). The above-mentioned literature explains the rise and fall of the British pound as the preferred reserve currency leading to the Pax Britannica, the rise of the US dollar as the preferred reserve currency leading to the Pax American, and the inception of the euro as a common and international currency that could undermine the hegemonic position of the US dollar as a reserve currency. (Eichengreen 2005; Flamdreau and Jobst, 2006). One of the arguments for introducing the euro was that the common currency would rival the US dollar as the world's reserve currency. Galati and Tsatsaronis (2001) and Galati and Wooldridge (2008) explained that "the liquidity and breadth of the euro financial markets are fast approaching those of the dollar markets. This strengthens the incentive of monetary authorities to reconsider the currency composition of their reserve" (7) in favor of the euro.

Historically, there have been four main factors motivating the emergence of a reserve currency. (Heller and Knight, 1978; Dooley et al., 1989; Eichengreen and Mathieson, 2000; Galati and Wooldridge, 2008). The first is the issuing country's share in world output and trade because the larger the share, the more likely other countries are to use its currency as anchor and for external trade leading to the need to hoard currency as reserve (Eichengreen, 1996; Frenkel and Sondergaard, 1999; Frankel, 2009). The second refers to macroeconomic stability, with price stability as the most important feature for confidence in the future value of the currency which also motivates other countries to hold the currency as a reserve (Eichengren and Mathieson, 2000; Devereux and Shi, 2005). The size and liquidity of the country's financial market will affect the degree to which other countries will use the currency and the need to hold it as a reserve (Eichengreen, 1998; Cooper, 1997; Frieden, 2000). Finally, demand for a currency depends on the use that others make of it and affects its network externalities affecting the quantity of currency that must be held on reserve. (Matsuyama et al., 1993; Krugman, 1984; Cohen, 2003; Rey, 2001). Three sources of data measure the composition of reserve currencies to help analyze the use of the euro as a reserve currency, although some are incomplete: national sources, surveys, and counterparty data (Wooldridge, 2006)

This study will use national sources which provide the most detailed but still very incomplete data, because some central banks publish only a few details about their reserve currencies composition, or the data is a short-time series. Thus, De la Dehesa (2009) explains that the real composition of foreign currency reserves is therefore not easy to calculate because only "fifty percent of total reserves are disclosed, 24% are not disclosed and another 26% are held by sovereign wealth funds (SWF) and are only estimated because they are not exactly known" (12).

The International Monetary Fund (IMF) reports quarterly on the total Currency Composition of Official Foreign Exchange Reserves (COFER) in U.S. dollars, euros, pounds, yen, Swiss francs, and other currencies. Unfortunately, the IMF does not report the reserve currency composition of each country and in 2015 stopped reporting data on foreign reserve composition held by advanced and developing/emerging countries and began reporting only the total amount.

The percentage composition reported by the IMF Data portal shows that the U.S. dollar is the preferred reserved currency, with the euro far back in second place (see Figure 4). The data shows that while the amount of euros held on reserves has been maintained at around 20%, the U.S. dollar has suffered a setback. The percentage allocation of U.S. dollars dropped from 72% in the second quarter of 2000 to 59% in the third quarter of 2023.

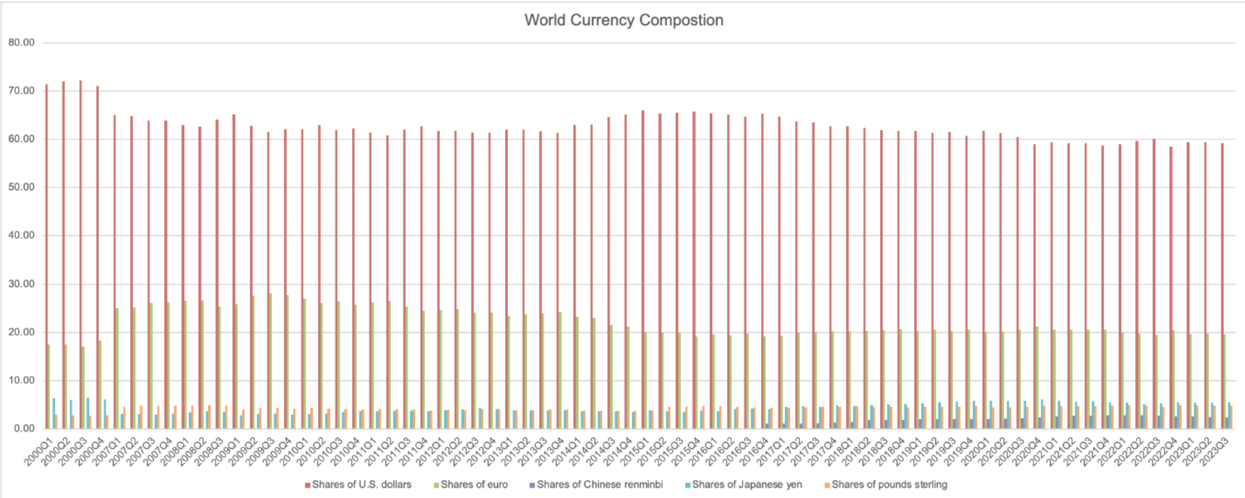


Figure 4 – Share of the Total Foreign Reserves of the World by Currencies – from 1999 to 2022.

The Great Recession had an impact on both currencies, but the U.S. dollar was more negatively affected with a significant decline beginning in the first quarter of 2007 when the U.S. dollar represented 65% of all currency's reserves, to drop to 60% in 2014. This was the moment that, most advocates of dethroning the greenback, believed would mark the end of the North American currency, the end of the Pax Americana, and the start of a new monetary order (Federal Reserve System, 2021; Galati and Wooldridge, 2008). The impact of the COVID-19 health crisis is still to be determined. It is significant to point out that the Chinese Renminbi became a reserve currency in the last quarter of 2016.

4. Will the Euro dethrone the US dollar as the world´s reserve currency?

The potential of the euro to become a reserve currency strong enough to rival the U.S. Dollar as the reserve currency of the world has been long debated (Federal Reserve System, 2021; Freixas et al., 2014; Swoboda, 1969; Cohen, 1977; Mckinnon, 2004; Kindleberger, 1981; Krugman, 1984; Eichengreen, 2002; Flandreau and Jobst, 2006). The Currency Composition of the Official Foreign Exchange Reserves (COFER) published by the International Monetary Fund (IMF) shows that the share of euro reserves held by central banks is still well below the share of the U.S. dollar. Analyzing the currency diversification of certain central banks to include the euro shows the true standing of these two currencies. Latin American countries have historically held U.S. dollars in their reserve accounts. Since 2000, however, this preference has changed with more central banks diversifying their reserves to include other currencies in their reserves. However, Latin American nations—despite their traditional criticism to the hegemonic position of the U.S. dollar in the area— have not incorporated the euro into their international currency portfolios as it was expected. (Federal Reserve System, 2021). The World Economic Forum (2023), explained "[h]ere's what talks about a common currency for Latin America mean for globalization"(1) in which it explained that "We are leaving behind a US-led, unipolar world with the US dollar at the center and entering into a multipolar, deglobalized world where the dollar may not hold as much influence" (1) and announced that "Argentina and Brazil recently announced preliminary plans to form a common currency known as the 'sur', meaning south, to be used in bilateral trade-related transactions in Latin America" (1).

Lorca-Susino (2019) explains that the desire to break from the US dollar has been a constant political promise of some governments among Latin American countries and the inception of the euro is viewed as the alternative. However, it is very difficult to analyze if that diversification took place as few central banks in Latin America region publish their currency reserve composition Brazil, Chile, Peru, and Colombia among the very few.

The Central Bank of Brazil (2023) says that "the allocation of the international reserves is based on the criteria of safety, liquidity, and profitability, prioritized in this order."(2) According to the Relatorio de Gestao das Reservas Internationais, there has not been much change in the distribution of international reserves currency, and, by looking at the data from 2014 to 2023, the percentage allocation of U.S. dollar, euro, and Japanese yen have not changed significantly. However, there has been an increase in the Chinese Renminbi and gold reserves that is most striking as presented in the graph. Table 1 shows the allocation of international reserves from 2020 to 2023 in Brazil.

Table 1 – Brazil's International Reserves Allocation by Currency – From 2020 to 2023. Source: Relatório de Gestão das Reservas Internacionais, Março, 2024

Year	*US$*	*EUR*	*JPY*	*CNY*	*Gold*	*Other*
2020	86.06%	7.85%	1.72%	1.21%	1.1%%	1.72%
2021	80.34%	5.04%	1.93%	4.99%	2.25%	1.93%
2022	80.42%	4.74%	1.86%	5.37%	2.52%	1.86%
2023	79.99%	5.25%	1.8%	4.8%	2.6%	1.8%

The Central Bank of Chile (2006) says that "in line with the function of foreign exchange reserves, and their associated benefits and costs, the purpose of the Central Bank's foreign exchange reserves management is to provide secure, efficient access to international liquidity, and to safeguard the Bank's financial capital"(6) In Chile, the currency composition of foreign reserves has followed an interesting pattern from 2018 to 2022. In particular, the Central Bank of Chile reviewed and reallocated the percentages of international reserves held, increasing the percentage of U.S. dollar, reducing the euros and curiously rising its holdings of unspecified "other" currencies. (Table 2).

The evolution in the composition of total foreign exchange reserves has changed significantly in Chile where, as of 30 June 2011, the Central Bank of Chile (2011) says that "of the total international reserves, 49.9% was held in U.S. dollar instruments, 35% in euros and 15.1% in other currencies" (12). See in Table 2 the allocation of Chile's international reserves by currency for some years reported by the Central Bank of Chile (2022).

Table 2 – Chile's International Reserves Allocation by Currency. Source: Central Bank of Chile, Memoria Anual Integrada, 2022

Year	*U.S.$*	*Euro*	*Australian $*	*Other*
2010	52.11%	33.33%		15.10%
2011	49.90%	35%		15.10%
2021	72.50%	4.20%	2.50%	20.70%
2022	70%	4.30%	2.60%	23.10%

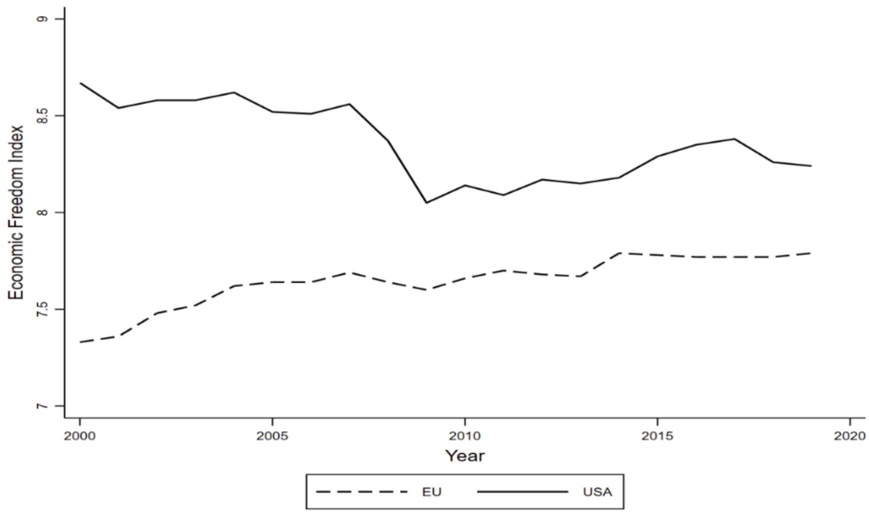
There have been many arguments doubting that the euro would become a reserve currency strong enough to challenge the US dollar hegemony since there are challenges that are undermining the essence of euro as a strong common currency: the political integration process, the departure of the UK from the EU, the continuous difficulties of Sweden and Norway to join the Euroarea, and the negative impact of the financial crisis (2009-2010) among others. These are the economic and monetary reasons behind this lack of robustness for a currency that represents such a vast number of European countries (Gourinchas et al., 2017; Maggiori, 2017). The heightened perceived risk during the 2009-2010 crisis might have led borrowers and lenders to prefer a more stable currency. Additionally, the dollar's substantial strength and liquidity in dollar-denominated assets during the 2009-2010 financial crisis strengthened the U.S. dollar standing as a safe-haven currency in moments of international crisis. This made global investors realize that the dollar remains the only reliable currency, as suggested by Farhi and Maggiori (2018) and He et al. (2019).

The status of the U.S. dollar as the world's reserve currency remains stable, however, the euro's standing is stagnant and even decreased in share (ECB, 2021; Galati and Wooldridge, 2008; Frankel, 2008; Feldstein, 2006; Cohen, 2003; Truman, 2005; Eichengreen, 1996; Maggiori et al., 2019). Further, Norrlof (2014) does not believe that the hegemony of the U.S. dollar might be challenged by the rising U.S. government debt, instead, he counterargue with the theory that the strength of the U.S. dollar is based on the power dynamics between monetary capabilities and currency influence. Cowen (2023) and Maggiori et al. (2019) highlight the advantages of the U.S. dollar's dominance, with Gourinchas and Rey (2007) describing it as an exorbitant privilege that lowers borrowing costs for the United States. Maggiori et al. (2018) uncover the unique ability of U.S. corporations to borrow from foreigners without issuing foreign currency bonds. Farhi and Maggiori (2018) advocate for a single "safe haven" currency to enhance global welfare through coordination and the role of the dollar in trade invoicing shields U.S. importers and exporters from exchange rate risks.

Furthermore, Cowen (2023) highlights the euro's weaknesses rest on its lack of a single national government. Scholars emphasize that the US dollar global hegemony constitutes two-thirds of global reserves and nearly 90% of daily foreign trade in the early 21st century (International Monetary Fund, 2016). Concerns over dollar depreciation led Russia and China to advocate for a new international currency in 2009, while both nations have actively reduced their international reserves of U.S. dollar in recent years, pursuing the so-called 'de-dollarization', and openly questioning the role of the U.S. dollar as the dominant international and reserve currency, especially in the context of geopolitical events like the Ukraine war and the BRICS enlargement. Finally, current problems in the Eurozone and around the world with financial sanctions and geopolitical conflicts could increase the risk of geo-economics fragmentation that could debilitate or strengthen the status of the euro as a reserve currency. (Aiyar et al., 2023).

Nevertheless, the euro has its optimistic forecasts about dethroning or at least sharing the hegemony of the US dollar. For some scholars, the strength of the euro to surpass the U.S. dollar rests on the economic strength of the eurozone, the depth and breadth of the financial market, the stability of the monetary policy implemented by the European Central Bank, the respect for the Stability and Growth Pact, as well as the steps towards political integration as fundamental pillars for the stability of the eurozone and the EU. (Kenen, 1983; Bergsten, 1997; Alogskoufis et al., 1997; Chinn and Frankel, 2005). Portes and Rey (1998) explain that "the euro shares international currency status more or less equally with the dollar is plausible" (331). On this, Salvatore (2000) defended that the euro was destined to attain significant international status due to the euro area's comparable economic size, substantial and expanding financial market, and anticipated stable inflation performance as both regions share a similar percentage of world GDP, exports, and other economic characteristics. Optimists, therefore, claim that if the euro's global utilization maintains these factors aligned, the euro could rival the dollar's international prominence and reduce the current US dollar dominance in the International Reserve System. However, the U.S. dollar supremacy is facing risks. The increased reliance on the U.S. dollar for borrowing and trade invoicing makes non-U.S. corporations vulnerable to unforeseen dollar appreciation, potentially exacerbating home bias and hindering the scale of global trade (Gopinath et al., 2020).

In addition, Salvatore (2000) compares the level of economic freedom which influences the credibility and confidence of investors for both the U.S. and the EU. The EU is closing the gap with the U.S. He explains that this is either due to the EU expanding its freedom or the U.S. reducing its own impacting the confidence of investors and the credibility in the currency (see Figure 5). In this direction, Acevedo and Lorca-Susino (2023) determine the impact that eroding economic freedom has on economic and institutional variables, such as economic growth, democracy, and corruption, thus, declining economic freedom can also affect the credibility of the currency because of the deterioration of institutions that promote and protect private investment. Further, the IMF Blog (2024) has explained that the "Dollar dominance—the outsized role of the US dollar in the world economy—has been brought into focus recently as the robustness of the US economy, tighter monetary policy and heightened geopolitical risk have contributed to a higher greenback valuation."



Source: The Fraser Institute

Figure 5 – Economic Freedom Index – EU Vs US – From 2000 to 2019.

5. Policy implications and further research

This research has demonstrated that while the euro needs to keep on working on its internalization, the U.S. dollar should become aware of new threads to its hegemony.

The euro has truly become a successful common currency with an impressive internalization process that has helped the euro become the second most important reserve currency. However, the gap between the euro and the U.S. dollar is not closing as expected, and the emergence of other currencies is eroding the status of the euro. Thus, we conclude that the euro requires some push factors to sustain its current standing and even strengthen its position as a reserve currency. For instance, the findings show that the euro will benefit from the reinforcement and implementation of strategic policies at the European Union level towards economic and political integration and economic stabilization. It is very important to ensure fiscal and monetary stability across member states, as well as policies aimed at expanding the international acceptance of euros by fostering deeper international trade agreements and financial ties with non-EU countries. This would bolster its internationalization process.

On the other hand, maintaining the hegemony of the U.S. dollar requires the continued confidence on its economic fundamentals and policy frameworks. This involves addressing domestic challenges, such as fiscal deficits and debt sustainability, while also maintaining strong geopolitical alliances to reinforce the dollar's centrality in global trade and finance.

Furthermore, this research identifies several avenues for future research. First, this work shed light on the increasing international role of emerging non-traditional reserve currencies, mainly the Chinese renminbi. This could open a line of research for a comparative understanding of how new competitors might influence the euro and the U.S. dollar standing as reserve currencies and the broader reserve currency landscape. Second, the study shows that this discipline will benefit for more in-depth studies on the political dynamics within the eurozone and their impact on the euro's stability and global standing. Finally, this research highlights that exploring the implications of technological advancements—such as digital currencies and central bank digital currencies (CBDCs) on reserve currencies could further enrich this discourse.

6. Concluding remarks

This paper provides a systematic literature review of the euro, its origins, and its journey to become an international and reserve currency. For this, we followed a narrative approach based on historical and statistical data. We collected and analyzed information from different sources, such as academic articles, organizations' reports, and newspaper articles. The only selection criteria we followed were the availability, quantity of citations of the paper, impact factor of the journal, credibility or expertise of the source and/or author(s).

This paper contributes to the existing body of literature by providing another angle to the origins of the euro as a common currency and how different pull and push factors have shaped its internalization process to become a reserve currency. This research offers three main contributions. First, this research enriches the current literature by adding a historical perspective that examines the conditions and institutional factors contributing to the transformation of any national currency into a reserve currency delving on the case of the British pound and the U.S. dollar. Second, this research contributes by offering a detailed analysis of the euro's trajectory from its inception to its current role in the global monetary system. Finally, this research provides a comparative and forward-looking analysis that explores a broader reserve currency landscape by including the rise of nontraditional reserve currencies. Thus, this body of work hopes to contribute to a deeper understanding of the euro's internationalization process and its implications for the evolving global monetary system in the 21st century.

The key conclusion is that the euro has become a successful common currency for twenty EU member states, demonstrating as Trichet (2006) said, that "one single currency is more efficient than multiple currencies in performing the roles of a medium of exchange and unit of account" (2). Additionally, the euro has succeeded in becoming an international and reserve currency that has disrupted the century-long dominance of the U.S. dollar. The euro's introduction challenges the dollar's monopoly, not only relying on economic policies but also symbolizing a common identity and the success of European integration (Gomis-Porqueras et al., 2007).

Nevertheless, the euro is facing difficulty in eroding the well-established hegemony of the U.S. dollar as a reserve currency. Political economic studies have focused their attention on how politics, by impacting the economic determinants mentioned above, can influence the internationalization of a currency (Helleiner, 2009; Eichengree and Flandreau, 2010; Eichengreen, 2005). However, the U.S. should continue applying policies to maintain the hegemony of the U.S. dollar and the confidence in the currency. Otherwise, the euro, or any other new international currency, could overcome the U.S. dollar's reign as the world´s reserve currency.

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Conflict of interest

The authors declare that there are not any conflict interests.

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Appendix

Table A1 – Summary of literature on the origins of the Euro

Author	Main Contribution, Conclusion, or Finding
Office of the Historians (2023)	The demise of the Bretton Woods system was followed by the introduction of fiat money and by a period of monetary instability, which in the case of European countries eventually led to the introduction of the euro as a common currency.
Chiu (2022)	The euro, introduced formally in 1999, rapidly became a key global currency. This article, marking its 20th anniversary, combines Economic and Monetary Union reforms with insights from financial technology. It reflects on the euro's achievements and shortcomings, offering lessons for future virtual currencies. The study proposes guiding principles for contemporary regulation and supervision to uphold financial stability in a dynamic global environment.
Fabrini (2021)	During the mid-1990s there was a commission to design banknotes for the Euro currency. The task involved creating stylized models, and the unexpected result was the construction of buildings inspired by these stylized architectures. The project reflected the supranational nature of the Euro's introduction in 2002, raising questions about the intersection of architecture, currency design, and supranational identity.
Cabral and Louca (2019)	Wealthier member states of the eurozone played a fundamental role in the sub-optimal design of the Euro to comply with political goals set by them.
Euronews (2019)	The Economic Union was proposed in the late 1960s, however, it was not until 1999 that finally the euro was created.
Pringle (2019)	The euro surged as an endeavor driven by political ambitions and a belief in the transformative power of money. Despite challenges, the Euro's resilience is attributed to its role in European integration, with leaving deemed prohibitively costly, cementing a commitment to the common currency.
Blakemore (2018)	Even though Europeans have a common currency that at its beginning helped to achieve peace in a convoluted Europe after World War II, currently the lack of fiscal discipline and safeguards to fight against the booms and recessions of the business cycle makes the future of the eurozone unclear.
Morlon-Druol (2018)	Examines the period of monetary integration in Europe (1945-1992) leading to the introduction of the euro under the Treaty of Maastricht. It outlines key theories, discusses institutional and global contexts, and analyzes debates on unit of account, parallel currency, exchange rate coordination, and the eventual creation of the single currency.
Tankler (2018)	The predecessors of the Euro were the European Composite Union (Eurco) and the European Currency Unit (ECU). The euro has created a more competitive environment in the eurozone.
Aguiar, Amador, Farhi, and Gopinath (2015)	In the eurozone individual countries control fiscal decisions, and a union-wide monetary authority makes decisions for all. This research

	underscores the influence of rollover risk on the authority's use of surprise inflation, especially impacting countries with high debt, relevant to considerations in the euro's origins.
Heise (2013)	At its early stage, the proposal of a common currency in Europe was thought of as a step to the political unity of the zone. However, economic objectives were also the reason for this proposal. Today the Euro is considered the most successful project of monetary integration without a historical precedent.
Verdun (2011)	The Delors Committee played the role of epistemic community allowing the successful establishment of the EMU and euro
Barbezat (2009)	Examines pre-1950 European monetary attempts and contrasts them with the ambitious European Monetary Union proposed in the 1989 Delors Report. Analyzing historical monetary unions and the shift from the Pound Sterling to the US Dollar, it seeks insights into the Euro's initial decade and implications for future developments in Europe and beyond.
European Commission (2008a)	Only two attempts at monetary integration occurred during the twentieth century. The first attempt occurred at the 1969 Den Haag summit, during which the Werner Report was introduced. This report represented the first commonly agreed-upon plan of action to create an economic and monetary union in October 1970. The second attempt was the creation, in 1979, of the European Monetary System (EMS) and the introduction of the European Currency Unit (ECU) as a common currency.
De Grauwe, Paul (2003 and 2006)	These authors argue that although the EMU is a remarkable achievement, the weakness was the absence of a political union in the governance of the eurozone.
Rose (2000)	The author believes that business cycles are more highly correlated between members of currency unions than between countries with sovereign currencies.