

CENTRAL BANK INDEPENDENCE: DOES LEGAL ORIGINS MATTER?

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ABSTRACT

Legal Origins and Law and Finance literature, despite heavy criticism, shows vivid examples of how legal traditions affect economic and political institutions with strong consequences for financial systems. Is there a relation between Legal Origins and central bank independence (CBI)? The research idea of the paper is based on prediction that Legal Origins could related to formal status, but more likely affect factual status. From the empirical side it is found that the level of CBI varies in countries with different legal traditions. Such difference was widened during the time of CBI reforms around the globe, so Common Law countries demonstrate the lowest level of CBI among others. ANOVA and Fisher LSD test confirm the statistical significance of differences in CBI across Legal Origins. In terms of inflation performance, the situation is not the same. Common Law countries are neither the best nor worst inflation performers, saying that, lower formal CBI may coexist with a better inflation situation. Results of Correspondence Analysis confirm that all together lower levels of CBI and inflation compared to the group mean are in statistically significant ties with the Common Law proxy during the 1980-2023 and 2000-2023 period, while rule of law and sovereign wealth funds proxies are significant only during 2000-2023. From the theoretical side, it means that Legal Origin matters for CBI, especially after comprehensive reforms of monetary institutions, yet the channels of its influence on central banks should be investigated further.

Keywords: *central bank independence, monetary policy, inflation, Legal Origin, Law and Finance, quality of institutions*

1. INTRODUCTION

In recent decades, large-scale structural changes have taken place in the financial sector. These include strengthening the independence of central banks, improving their regulatory capacity, and enhancing the effectiveness of supervisory functions. Equally significant changes have occurred in the protection of investors' and creditors' rights and the improvement of corporate governance. It can be said that reforms in the financial sector were part of broader changes aimed at transforming governance and building an institutional environment more favorable to market forces. To a large extent, institutional reforms were inspired by studies that pointed to the importance of legal origin, the relevance of a particular legal tradition for the formation of legal institutions that shape the structure of the rights of participants in financial transactions (La Porta et al., 1997, 1998).

Central bank reforms have mostly had a clear positive effect (Masciandaro, Magurno & Tarsia et al., 2020; Garriga & Rodriguez, 2020). However, in many cases, the relationship between the formal independence of monetary institutions and price stability may be unstable (Cukierman, Webb & Neyapti et al., 1992; Ioannidou et al., 2022). The ability of independent central banks to effectively fulfill their mandate does not rely solely on formal status. It depends on a wide set of institutional and political-economic factors, such as the rule of law, the level of democracy, the fractionalization of society, cultural attitudes, power distribution, incumbents control over resources, etc. (Hayo & Hefeker, 2002). If institutional factors determine the real essence of central bank independence, and the latter, in turn, is shaped by the legal origin, a natural question arises as to what extent the Legal Origin/Law and Finance perspective is possible to apply to analysis of monetary institutions independence and their ability to implement the price stability mandate?

In other words, is there a significant difference in the status of central banks across countries with different legal traditions? If the legal origins, as shown in many works (Hayek, 1960; Posner, 1973; Lange, 2004; Pistor, 2006; La Porta, Lopez-de-Silanes & Shleifer et al., 2008), have far-reaching implications that go beyond the financial sector and touch upon fundamental features of the economic system, the distribution of power between market forces and government intervention, the allocative preconditions for regulatory intervention, etc., should this be relevant to central banks and their independence? The theory is ambiguous about how Legal Origin affect level of formal central bank independence or difference between formal and factual of it. From one viewpoint, legal traditions that are better to provide enforcement may better safeguard formal central bank independence. In the same, this also mean that high formal independence may not be necessary if political agreement about it is on the table. The Legal Origin approach emphasizes fundamental differences in legal traditions, within which the dominance of substance over form differs. As a result, the formal status of central banks may hypothetically not play a decisive role in some countries, while in others it may be insufficient. From another viewpoint, based on Legal Origin's logic, legal institutions that are more favorable to market forces and less government intervention should tolerate greater central bank independence.

2. AIM OF THE RESEARCH

This paper raises a research question about the role of legal origin in central bank independence and its relationship to better inflationary outcomes. The analytical grouping shows that countries with Common Law legal systems have a statistically significant lower level of central bank independence compared to all other countries, especially after comprehensive central bank reforms of the 1990s-2000s. Formal ANOVA and Fisher LSD test confirmed that. The increase in the independence of central banks takes place in all countries in terms of legal origin, but in the Common Law countries, such an increase is the lowest. At the same time, Common Law countries do not have a clear advantage in terms of inflation in recent years. However, such countries perform lower and less volatile inflation in the long run. The article also aims to find out whether Legal Origin is a factor that allows for better inflationary outcomes at lower levels of central bank independence. It is based on the hypothesis that Common Law can better protect the informal political consensus on the socially optimal inflation rate without significant changes in the formal status of central banks. Based on the Correspondence Analysis, we show that there is statistical significance in a relationship between Common Law and the combination of lower inflation than the sample average and lower central bank independence than the sample average. At the same time, the Rule of Law also contributes to such a state, however not in all periods. Monetary union membership, inflation targeting, or operation of a commodity-based sovereign wealth fund can also explain this, but with much lower statistical significance. At the same time, the theoretical structure of the arguments regarding the channels of the relation be-

tween better inflationary outcomes, lower central bank independence, and legal origin requires further research.

3. LITERATURE REVIEW

The Legal Origin tradition is well established in the literature (Glaeser & Shleifer, 2002; La Porta et al., 1998; La Porta, Lopez-de-Silanes & Shleifer et al., 2008). Difference in English Common Law, French codified Civil Law, German and Scandinavian Civil Law may have far-reaching consequences that related to nature of the political power distribution, allocation of resources, type of market economy and how policy is implemented through a law (Hayek, 1960; Pistor, 2006; La Porta, Lopez-de-Silanes & Shleifer, 2008; Shevchenko, 2023).

Most of empirical papers support the idea that English Common Law is better in many areas of legislation flexibility, market-friendly regulation, investor and creditors protections, enforcement with positive consequences for financial markets depth and market financing, constituting that rule of law is a strong precondition for financial development (La Porta et al., 1997, 1998, 2000a, 2000b, 2006, 2013; Armour et al., 2007; Djankov, McLiesh & Shleifer, 2007; La Porta et al., 1999; Glaeser & Shleifer, 2003; La Porta et al., 2004; Beck & Levine, 2003, 2005; Beck, Demirgüç-Kunt & Levine, 2002, 2003; Ma et al., 2022).

However, some strong critical arguments also take place. Most of such arguments related to the role of political economy factors in shaping structure of investors, creditors rights. Thus, financial development is analyzed in terms of how political power is affected by structural changes (Rajan & Zingales, 2003; Roe, 2006, 2007; Roe & Siegel, 2009) or by long-lasting effects of institutional path (Acemoglu, Johnson & Robinson, 2001, 2002; Acemoglu & Robinson, 2005). Some papers demonstrate the stronger market-friendly reform in non-Common Law countries (Oto-Peralies & Romero-Avila, 2017), while others object such experience stressing that Legal Origin matter for banking system development in Africa and it's related to the type of colonization (Endowment argument) (Mutarindwa, Schäfer & Stephan, 2021).

As can be seen from the above-mentioned studies, the Legal Origins and Law and Finance approaches do not directly include central banks in the research perimeter. In the same time, from the many papers follow that financial development affected by inflation and inflation instability (Choi, Boyd & Smith, 1996; Boyd, Levine & Smith, 2001; Khan, Senhadji & Smith, 2001; Anafi & Tasiu, 2024; Topić – Pavković, 2024), that is in direct relation to the central banks activities.

However, the Legal Origins and Law and Finance literature point to the reason why there are fundamental differences in the institutions that should ensure the convergence of “laws on paper and laws in practice” and the divergence between “laws on paper and laws in practice.” The importance of this point is fundamental to the institutional view of central bank independence. The legal origin can have an impact on the institutional path of the relationship between the authorities, political actors, and the judiciary. These relations create a situation where the formal and actual level of independence of monetary institutions may not coincide, or where the fact of public consent to the central bank's mandate is sufficient without special legislative decisions.

The mismatch between the formal and actual status of central banks is a well-known fact. Many papers clearly articulate that the weak inverse relationship between the level of independence of central banks and inflation is explained by differences in their formal and de facto status (Cukierman, 1992; Cukierman, Webb & Neyapti, 1992). As an example of political pressure on monetary authorities, Cukierman & Webb (1995) show that central bank governors are likely to be changed within six months after elections. Blinder (1998, 1999) points out the role of trust in explaining the difference between the legally defined level of independence and its actual level. Hayo & Hefeker (2002) provide theoretical arguments about why central bank

independence is not an exogenous variable for inflation, pointing to the importance of political institutions. These findings broadened the perspective on the problem of empirical analysis of the relationship between the status of monetary authorities and cross-country inflation variation. They served as the basis for further research linking political institutions, public choice, and the delegation problem with the endogeneity of central bank independence (Masciandaro, 2019; Romelli, 2022; Bodea & Garriga, 2022; Ioannidou et al., 2022; Gavin & Manger, 2023).

The fact that there is a discrepancy between the legal independence of central banks and its actual level is not always an obstacle to identifying a clear and systematically confirmed inverse relationship between the relevant index and inflation (Garriga & Rodriguez, 2020). Similar results are obtained for different indices (Grilli, Masciandaro & Tabellini, 1991; Cukierman, Webb & Neyapti, 1992; Eijffinger & de Haan, 1996; Bodea & Hicks, 2015; Crowe & Meade, 2008; Masciandaro & Romelli, 2018; Dincer & Eichengreen, 2014) and by samples (Lybeck, 1998, 1999; Jacome, 2001; Jácome & Vazquez, 2008; Jácome, Jacome & Pienknagura, 2022; Arnone et al., 2009; Arnone & Romelli, 2013; Dincer & Eichengreen, 2014; Masciandaro & Romelli, 2015, 2018; Garriga & Rodriguez, 2023).

At the same time, there are clearly distinguished areas of analysis: variations in the level of independence of central banks by country; factors that increase the discrepancy between the formal central bank status and the actual one the corresponding consequences for inflation; trends in the level of central bank independence in the world.

As for the differences in the levels of central bank independence across countries, there is no unequivocal answer to this question. Hayo & Hefeker (2002), Masciandaro & Romelli (2018), and Romelli (2022) emphasize the endogeneity of central bank independence. At the same time, Hayo & Hefeker (2002) identify preferences expressed in the culture of inflation aversion and structural characteristics of countries in terms of differences in legal systems, distribution of political power, labor market institutions, etc.

The analysis of anti-inflation preferences finds some support in the empirical evidence. Hayo (1998) argues that central bank independence is a consequence of a society's choice if it has a low inflation preference. He provides evidence for this: the inflation aversion variable is correlated with the level of central bank autonomy. De Jong (2002) explains the choice in favor of central bank independence by differences in cultural attitudes using the Hofstede matrix. Berger & de Haan (1999) state that central bank independence is essential even in societies with strong anti-inflationary preferences as a way to protect against perceived government pressure. In contrast, Berggren, Daunfeldt & Hellstrom (2014) argue that in societies with strong social trust, the role of the formal status of central banks is not crucial, while in societies with low social trust, it is not possible. A high level of statutory independence is found in societies with a moderate level of social trust.

Structural differences among countries also illustrate differences in the level of independence of monetary authorities. On the side of economic structural factors are those associated with the benefits of lower inflation, either for society as a whole or for certain powerful interest groups. Posen (1993, 1995) presents an argument from the perspective of "regulatory capture", arguing that the developed financial sector has no interest in inflation. Masciandaro & Passarelli (2013) point out that the distribution of financial wealth in a country can explain the status of central banks. The pattern of labor markets may also matter. With stronger labor unions and higher structural unemployment rates, the optimal level of central bank independence may appear to be lower (Cukierman & Lippi, 1999). The level of public debt is another example. One might expect that the higher it is, the more the government is interested in lower central bank autonomy. But the uncertainty about who will benefit from monetizing the budget deficit in the context of electoral cycles encourages the delegation of a higher level of independence to monetary institutions. A similar situation occurs in the case of uncertainty about which political and eco-

nomic group will benefit more from loose monetary policy (Cukierman, 1994; Lohmann, 1992). De Haan & Van't Hag (1995) do not confirm the link between public debt, labor markets, and the choice in favor of a particular level of central bank independence. However, they point to the importance of past inflation. D'Amato & Pistoiesi (2009) on example of 55 countries, find that structural characteristics determine the strategic choice to delegate independence to monetary authorities. However, the fact that this happens unevenly across countries is due to structural asymmetries in adjusting to the global business cycle. Koziuk (2016) provides theoretical and empirical arguments that the level of central bank independence is lower in commodity-rich economies. The political system is also a source of differences in the status of central banks. De Haan & Eijffinger (2016), in their review of research on the political economy of central bank independence, note why standard macroeconomic arguments often fail to provide a rationale for it. Policymakers analyze the costs and benefits of deciding on alternative regimes of monetary autonomy. This explains the growing role of analyzing the links between political system characteristics and the level of central bank independence.

Moser (1999) proposed a model of veto players. The more veto players there are in a political system, the higher the independence of central banks. The structure of checks and balances is directly related to the status of the central bank. If such a structure is weak, political actors are likely to seek to subordinate the central bank to their interests. Despite the criticism of the empirical reliability of Moser's (1999) arguments (Hayo & Hefeker, 2002), such findings are confirmed in the analysis of nationalistic governmental bias and populism. In both cases, the independence of the central bank will appear to be lower (Bodea, Garriga & Masaaki, 2020, Gavin & Manger, 2023). The politicization of central bank appointments is another manifestation of way of increased formal monetary independence frustration (Ioannidou et al., 2023). The situation is similar in case of the "de-delegation" process. If changes to weaken formal independence are costly to politicians, they tend to politicize the appointment of monetary authority governors (Bodea & Garriga, 2022).

Keefer & Stasavage (2000) develop the idea of checks and balances. According to their approach, central bank independence is higher where checks and balances are a feature of the political system, rather than a mere formal attribute of the distribution of power. At the same time, when there is a weak divergence between veto players and a low level of central bank independence, checks and balances are not a determinant of inflation. In the case of significant divergence between political groups, central bank independence is unlikely, as shown by Alesina & Stella (2010) on the example of fractionalized party systems. This is in line with the findings of De Haan & Van't Hag (1995): political instability corresponds to a lower level of regulatory autonomy. In contrast, Bagheri & Habibi (1998) associate the level of central bank independence with the spread of civil liberties. Dincer & Eichengreen (2014) confirm the role of democracy in a country's propensity to choose a more independent central bank. However, they point out that the political regime variable is better related to the level of transparency of monetary authorities than to the level of independence. Developed countries more often strengthen formal transparency vividly when they have a higher level of actual transparency. This is consistent with the position of Berggren, Daunfeldt & Hellstrom (2014).

Related to the analysis of political institutions is the problem of the discrepancy between the formal status of monetary authorities and inflation. Ioannidou et al. (2023) confirm the deterioration of inflationary consequences and financial stability as a result of politicization of central bank governors' appointments. Keefer & Stasavage (2000) attribute this to weak checks and balances within the political system. Voight (2000) turns this issue into the realm of judicial independence. In other words, if the central bank has an appropriate level of independence but is under pressure to pursue a pro-inflationary policy, then an independent judiciary can guaran-

tee its protection from political interference. This is in line with the conclusion of de Haan & Eijffinger (2016) that central bank independence is impossible without the independence of its management. Goodhart & Meade (2003) and Tridimas (2011) note that there is a kinship between judicial independence and central bank independence. In particular, the analytical structure of the arguments in favor of such independence is almost identical. Hayo & Voigt (2008) provide empirical evidence that the actual ability of central bank independence to correlate inversely with inflation is related to the level of judicial independence. Tridimas (2011) finds no empirical evidence of a relationship between formal judicial independence and formal central bank status in a sample of 73 countries. However, for a sample of 51 countries, there is a link between the actual independence of the judiciary and the actual level of central bank independence, as measured by the Turn-over index. Tridimas (2011) also directly takes into account the issue of Legal Origin, pointing out that the independence of the judiciary differs across legal systems. In turn, La Porta et al (2004) point out the advantages for judicial independence of the English Common Law. The same is true for the quality of governance (La Porta et al., 1999). In other words, we can see a logical link between law and the coincidence of actual and formal independence of central banks.

A broader view on the role of political institutions as a precondition for the inverse relationship between central bank independence and inflation is expressed in the emphasis on the rule of law (Eijffinger & Stadhouders, 2003). Hielscher & Markwardt (2012) use the example of 69 countries to show that delegating more independence to the central bank does not guarantee better inflation outcomes. For expected results, an increase in independence should be very substantial and the quality of political institutions should be sufficiently high. Nurbayev (2017) adds a rule of law variable in the interaction term with the index of central bank independence, which results in a strong inverse relationship with inflation. The quality of political institutions is also a precondition for higher central bank independence in Dincer & Eichengreen (2014). In turn, Gollwitzer & Quintyn (2010) emphasize that central bank independence works even in a weak institutional environment.

The persuasiveness of arguments about structurally determined factors for delegating greater independence is overshadowed by the global trend toward increasing the level of central bank autonomy around the world. Although the anti-inflationary effectiveness of such decisions continues to be debated, the fact of large-scale reforms of the central banks status in the world is obvious (Cukierman, Miller & Neyapti, 2002; Cukierman, 2008, 2013; Dincer & Eichengreen, 2014; Garriga, 2016; Romelli, 2022, 2024). Romelli (2024) explains the trend of increasing independence of central banks around the world by two factors. Internal, associated with efforts to curb inflation, increase credibility, and overcome the problem of inflationary bias. External, associated with globalization and increasing financial openness. Crowe & Meade (2008), based on their index, point out the importance of past inflation and institutional quality for increasing independence. Romelli (2022), analyzing a sample of 154 countries, concludes that central bank reforms towards increased independence were influenced by negative inflationary experiences of the previous period, monetary and financial crises, and the previous level of independence. He also emphasizes the important role of cooperation with the IMF and regional convergence. The coming to power of democratic governments favored reforms toward greater central bank independence, while the coming to power of nationalist governments led to the opposite. Carstens & Jacome (2005) point out that globalization has significantly influenced the need to increase central bank independence. Bodea & Hicks (2015) confirm empirically that openness to capital mobility drives structural reforms in favor of greater monetary authority autonomy. Dincer & Eichengreen (2014) also confirm that cooperation with the IMF, past inflation, and openness are positively associated with increased monetary independence.

At the same time, increasing the independence of central banks is also analyzed from the political system perspective. [Acemoglu et al. \(2008\)](#) state that there is a U-shaped relationship between central bank reforms and political constraints. [Berggren, Daunfeldt & Hellstrom \(2015\)](#) reach similar conclusions from the perspective of the role of social capital in generating the demand for reforms and the possibility of their implementation. They argue that countries with low social trust are quicker to implement reforms for reasons of necessity, while countries with high social trust are quicker to implement reforms for reasons of opportunity.

[Romelli \(2024\)](#) points out that the increase in the level of central bank independence is evidenced by all major indices; occurs in the context of countries with different income levels; and takes place in countries with different exchange rate regimes. At the same time, the division of countries by the legal origin criterion is not taken into account. [Dincer & Eichengreen \(2014\)](#) use the Legal Origin variable and find a differential increase in independence levels between Common Law and French Civil Law.

This paper shows that in countries with English Common Law, the level of central bank independence after 1990-2000s reforms is statistically significantly lower than in countries with other legal traditions. It is also demonstrated that the tendency to increase the level of independence of central banks is observed in all countries regardless of their legal origin. But in the countries with Common Law, such an increase is the smallest. At the same time, these countries do not demonstrate the worst inflationary results. Instead, the combination of below-average levels of central bank independence with below-average inflation is statistically significantly correlated with belonging to the Common Law.

4. METHODS

An important starting point of the research methodology is identifying countries based on their belonging to a particular legal family. There are problems with the correct interpretation of the origin of the legal system in post-colonial, post-socialist countries and in countries with dual systems ([Glaeser & Shleifer, 2002](#); [La Porta et al., 1998](#); [La Porta, Lopez-de-Silanes & Shleifer, 2008](#)). For these reasons, the grouping of countries required for the analysis was based on [La Porta, Lopez-de-Silanes & Shleifer \(2008\)](#). Belonging to a legal family is determined by the criterion of the initial influence or legal origin like in [La Porta, Lopez-de-Silanes & Shleifer \(2008\)](#). The dual nature of legal systems in individual countries is not taken into account. A similar approach has been applied in many other works ([Beck, Demirgüç-Kunt & Levine, 2002](#); [Beck & Levine, 2003](#); [Beck, Demirgüç-Kunt & Levine, 2003](#)). The list of countries divided on relevant groups by Legal Origin is in the Appendix.

Central bank independence data is taken from the Romelli database (<https://dromelli.github.io/cbidata/index.html>).

The methodology of the empirical study consists of two parts. The first part determines the statistical significance of differences between the quantitative values of the indices of monetary authority independence across the legal origin. The same procedure is applied to the inflation rate.

The quantitative measure of central bank independence covers 156 countries (<https://dromelli.github.io/cbidata/index.html>). It is called `cbie_index` by [Romelli \(2024\)](#). Discussion about different central bank independence indices provided by [Adrian, Khan & Menand \(2024\)](#). The intergroup comparison is done for the period 1960-2023. The existence of statistically significant differences between groups of countries was checked using a one-way ANOVA of the variance of the time series of these indices.

To deepen our understanding of how the levels of independence of central banks differ in terms of legal origin, we applied the Fisher LSD (Least Significant Difference) test. This test is used

for post-hoc analysis as an extension of the analysis of variance (ANOVA). It allows us to determine whether there are statistically significant differences between pairs of group means after ANOVA has revealed an overall significant difference between groups of countries.

A similar application of ANOVA and Fisher LSD was made to assess the statistical significance of the difference between inflation rates by group of countries according to the legal origin of such countries. Inflation data were obtained from the IMF and World Bank databases.

The data showed that Common Law countries have statistically significantly lower levels of central bank independence, although not always the lowest inflation rates. To more formally assess the relationship between whether belonging to a particular legal family affects the ability to achieve better inflation outcomes with a lower level of central bank independence, Correspondence Analysis was applied. This formed the basis of the second part of the empirical research methodology.

The choice in favor of Correspondence Analysis is due to the specifics of the chosen technique of representing variables by giving them a binary dimension. A country's affiliation with the Common Law is denoted by 1, and otherwise by 0. As for the level of central bank independence and inflation, a binary variable with a value of 1 is assigned to those countries that have both a below-average level of central bank independence and a below-average level of inflation. In other cases, countries are assigned a value of 0. To take into account central bank reforms and the general trend toward increased independence, these binary variables are obtained separately for the 1980-2023 and 2000-2023 time periods. This approach allows us to limit ourselves to identifying the relationship between the fact of belonging to a particular legal family and the fact that lower inflation rates are associated with lower levels of central bank independence, without emphasizing the causality of this relationship. This cautious approach is due to some theoretical uncertainty about the channel through which legal origin affects society's choice toward central bank independence and inflation preferences.

Bearing in mind that the rule of law can directly affect the institutional capacity of central banks, this variable is also taken into account. It is given a binary format. 1 is assigned to a country if its World Bank Rule of Law Index is above average, and 0 otherwise.

Taking into account that the nature of the macroeconomic policy regime can be an independent factor of influence on inflation beyond the formal status of central banks, many other variables were used. Whether a country's central bank is an inflation targeter is assigned a value of 1, otherwise 0. Traditionally, central bank independence is seen as a necessary precondition for effective inflation targeting, although many studies emphasize not so much the formal status as the autonomy of interest rate decision-making. See Fuhrer (1997), Schmidt-Hebbel & Carrasco (2016) for a discussion of this issue. Also, belonging to a monetary union can be seen as a mechanism for disciplining macroeconomic policy. For example, the currency board that is in core of the Eastern Caribbean and two African monetary unions can be considered a monetary regime that disciplines the money supply. In the case of the euro area, such a discipline mechanism is the independence of the ECB and common union fiscal rules. Accordingly, membership in the monetary union implies that a country is assigned a value of 1, and otherwise 0. Another design option for the macroeconomic discipline mechanism is possible. It is more relevant for commodity exporters, where the design of macroeconomic policy is based on the stabilizing role of fiscal policy. Accordingly, if a country has a sovereign wealth fund (and its creation at the national level is related to the commodity profile of the economy), it is assigned a value of 1, and otherwise – 0. For example, in Norway, the sovereign wealth fund has a commodity origin, and it was created at the national level, so it is assigned a value of 1. In the United States, sovereign wealth funds associated with natural resources exist at the state level and therefore are assigned a value of 0. In Singapore, the sovereign wealth fund is not related to commodity exports and therefore is also assigned a value of 0.

In total, 5 variables are used for the Correspondence Analysis: English Common Law at place (ECL); rule of law (RofL); sovereign wealth fund associated with natural resources (SWF); membership in a monetary union (CUM); and inflation targeting central bank (IT). For these variables, the presence of a statistically significant relationship with the variable denoting the combination of both a below-average level of central bank independence and below-average inflation is assessed.

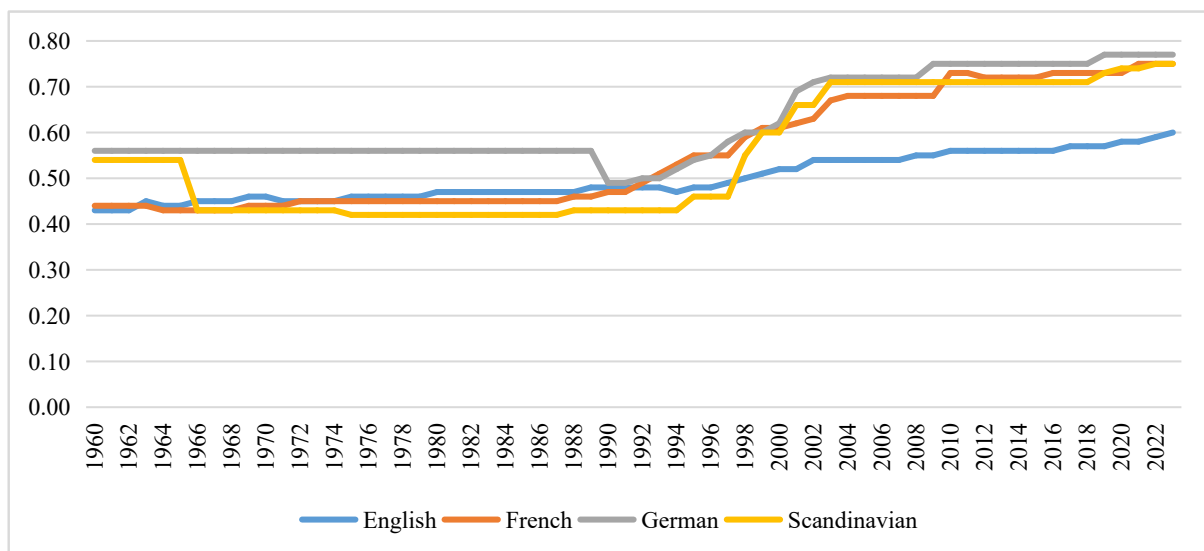
The results of the empirical testing confirmed the thesis that Common Law countries increase the level of central bank independence less pronouncedly than others. At the same time, the combination of lower levels of central bank independence and lower inflation is indeed associated with belonging to this legal tradition, although the Rule of Law also plays a role, but in the latter of the two periods.

5. EMPIRICAL RESULTS

Central bank independence and legal origin

For the empirical test, we used the Romelli (2024) database (<https://dromelli.github.io/cbidata/index.html>). The 156 countries were grouped according to legal origin (see above). For each group, the average annual value of *cbie_index* was calculated (Fig. 1). This index was chosen as the most comprehensive.

Figure 1. Central Bank Independence Index *cbie_index* across country's groups according to Legal Origin



Source: Own research

It is clearly seen from Fig. 1, that Common Law countries demonstrate the comparative level of formal central bank independence to French Civil Law countries that all together perform its lowest level initially. While countries with German and Scandinavian law traditions had much higher levels of it. The decline of the average level of index for Nordic countries is the statistical effect of adding Iceland. During the period of central bank reforms, all countries strengthened the legal status of their monetary institutions. However, reform was uneven. Scandinavian countries activated reforms with lag but demonstrated the strongest increase in formal independence. French and German Civil Law countries pioneered in time and in the scale of strengthening central bank' status. This is mostly due to the composition of groups and the large role of emerging market countries in each. At the same time, Common Law countries do not demonstrate strong reforms that result in the lowest level of formal independence of the central banks.

The distribution of *cbie_index* across groups shows the following. For Common Law countries

during the chosen period, the mean of the mentioned index is 0,5 with a 0,05 of standard deviation. For French Civil Law countries, respectively, 0,56 and 0,12. For German legal tradition countries – 0,62 and 0,09. And for Nordic countries – 0,55 and 0,13. So, the Common Law countries demonstrate the lowest and most stable time level of central bank independence, while countries with German civil law – stably highest.

A more formal test of differences in the central bank independence levels by legal origin confirmed the facts shown in Fig. 1. The ANOVA method was applied to assess the statistical significance of the difference in the respective levels. The test was done on the basis of the same *cbie_index*. The results are presented in Table 1.

The results of the variation analysis showed that for the period 1960-2023, there is a statistically significant difference in the value of the respective index of central bank independence between all groups of countries. The p-value is close to 0. That is, legal origin can indeed serve as a criterion for grouping countries, and it can be considered as a factor of cross-country heterogeneity in the case of central bank independence.

Table 1. Results of One-way ANOVA analysis of variance for *cbie_index*

Effect	LS	SS	DF	MS	F	p
Intercept	***	79.199	1	79.199	7268.834	0.000
Group	***	0.500	3	0.167	15.306	0.000
Error		2.746	252	0.011		

Note: LS - signif. codes: *** $p < 0,001$, ** $p < 0,01$, * $p < 0,05$, SS - Sum of Squares, DF - degrees of freedom, MS - Mean Square, F – F-test statistic, p - p-value

Source: Based on estimation

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A pairwise comparison of the statistical significance of the intergroup values of *cbie_index* confirmed the previous results (Table 2).

Table 2. Results of pair-wise comparisons of the average *cbie_index* of the groups (Fisher LSD test)

Group	English	French	German	Scandinavian
English		0.0025	0.0000	0.0074
French	0.0025		0.0003	0.7224
German	0.000000	0.0003		0.0001
Scandinavian	0.0074	0.7224	0.0001	

Note: p-values for pairs of groups between which significant differences are shown in bold type

Source: Based on estimation

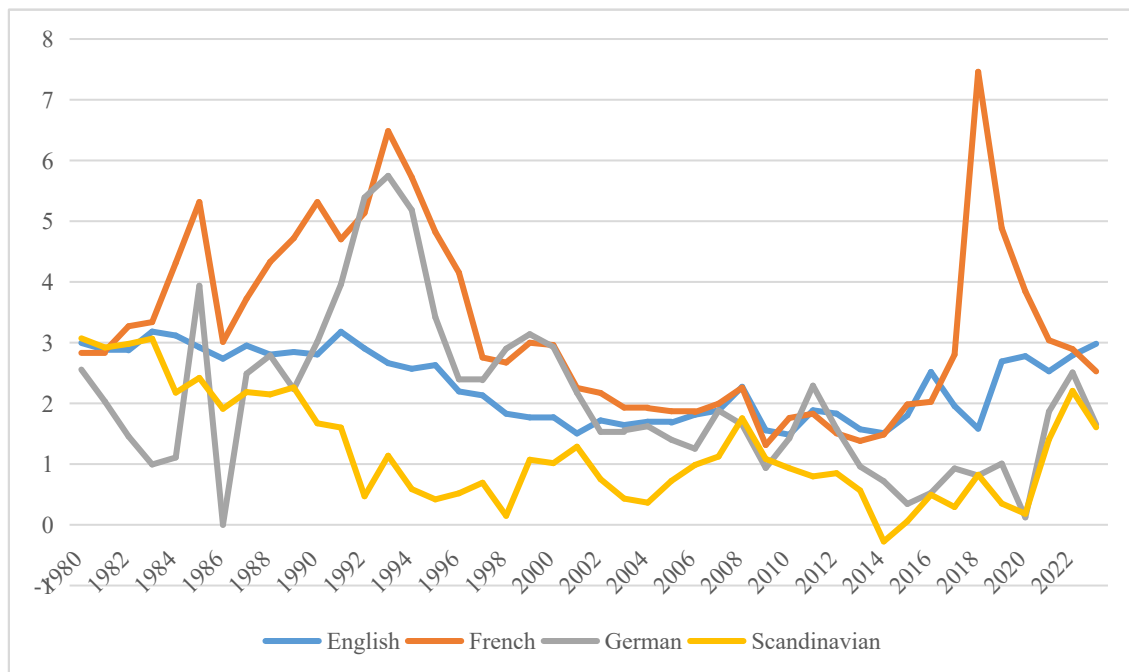
According to the results of the Fisher LSD test, there is a statistically significant difference between the values of *cbie_index* in terms of pairwise comparisons, except for countries with French and Scandinavian Civil Law. This result can be explained by the statistical features of the composition of the Scandinavian group, due to which the value of the respective index in the 1970s-1990s in both groups was close, and after the 1990s the legislative reforms in the countries of both groups were unidirectional. Although, as can be seen from Fig. 1, the Scandinavian countries started reforms somewhat later. As for the Common Law countries, they are

the farthest from the group of German law countries, which have demonstrated the highest level of central bank independence (Fig. 1). Naturally, this group is characterized by the largest statistically significant difference from all other groups in terms of the level of central bank independence. The p-values are the lowest in all pairwise comparisons. The Common Law countries, having the least formally independent central banks, are the second worst by this criterion. In other words, the groups with the highest and lowest *cbie_index* values are the most distant from the others in the pairwise comparisons.

Inflation and legal origin

Differences in inflation rates in the countries of legal origin, as well as in the case of central bank independence, are not presented in the literature. The factors behind cross-country differences in inflation rates change over time (Ha, Kose & Ohnsorge, 2019). Political institutions and strong macroeconomic discontent may go hand-in-hand resulting in huge cross-country inflation differences. Fig. 2 demonstrates obtained differences in inflation dynamic across entire country groups. To eliminate the effect of hyperinflation episodes on intragroup inflation average and variation, inflation data was normalized in logarithm terms.

Figure 2. Inflation across the groups of countries divided by Legal Origin (Ln of average group's CPI)



Source: Own research

From Fig. 2 it can be seen that the intergroup behavior of inflation is quite different. Thus, the Scandinavian countries during the selected period show the lowest levels of inflation. Countries with German Law have been close to the frontier Nordic countries since the 2000s. Joining the group of post-socialist countries and their hyperinflationary episodes significantly worsened the group average in the 1990s. Countries with French Civil law show the highest and most volatile inflation, having the most episodes of hyperinflation. The 2000s were no exception for some of them. On the other hand, countries with Common law demonstrate, although not the lowest inflation among all others, but the most stable over time. This is confirmed by the data. For Common Law countries during the chosen period, the mean of $\ln$ inflation is 2,3 with 0,57 of standard deviation. For French Civil Law countries, respectively, 3,2 and 1,48. For German

legal tradition countries – 2,1 and 1,32. And for Nordic countries – 1,25 and 0,88.

A formal ANOVA test confirmed the presence of intergroup differences in inflation levels (Table 3). There is a statistically significant difference in inflationary processes across groups of countries by legal origin. Similar conclusions were obtained for indices of central bank independence. So, the legal tradition cannot be rejected as a criterion for differentiating countries due to their choice of macroeconomic priorities and the design of relevant institutions.

Table 3. Results of One-way ANOVA analysis of variance for LnInflation

Effect	LS	SS	DF	MS	F	p
Intercept	***	855.143	1.000	855.143	677.053	0.000
Group	***	91.564	3.000	30.521	24.165	0.000
Error		217.243	172.000	1.263		

Note: LS - signif. codes: *** $p < 0,001$, ** $p < 0,01$, * $p < 0,05$, SS - Sum of Squares, DF - degrees of freedom, MS - Mean Square, F – F-test statistic, p - p-value

Source: Based on estimation

A pairwise comparison of inflation levels across groups also confirmed the existence of persistent differences (Table 4). However, their nature differs from the case with the central bank independence index (Table 2). The most distant is the French Civil Law group, which is not surprising, taking into account the highest level of inflation and its volatility over time. The Scandinavian countries follow, bearing in mind the lowest level of inflation there. However, there is no statistically significant difference in inflation levels between the Common Law and German Civil law groups. The absence of a statistically significant difference between these two groups can be explained by the closest average values of the logarithm of inflation, despite the significant difference in standard deviations.

Table 4. Results of pair-wise comparisons of the average LnInflation of the groups (Fisher LSD test)

Group	English	French	German	Scandinavian
English		0.0001	0.3155	0.0000
French	0.0001		0.0000	0.0000
German	0.3155	0.0000		0.0005
Scandinavian	0.0000	0.0000	0.0005	

Note: p-values for pairs of groups between which there are significant differences are shown in bold type

Source: Based on estimation

Does this mean that Common Law countries can be sufficiently effective in ensuring price stability even with the lowest group's formal independence of central banks? The answer to this question, however, is not trivial, as can be seen further.

Correspondence analysis

To test the hypothesis that legal origin is related to the greater anti-inflation success of less independent central banks, we used the Correspondence analysis approach. As mentioned above, this method was chosen because of the binary representation of the variables. Countries with Common Law are assigned by 1. Otherwise, is 0. In addition to the binary variable denoting the legal tradition, several other binary variables were also selected that may be associated with effectiveness in maintaining price stability, such as membership in a monetary union, the operation of a sovereign wealth fund, inflation targeting, and the strong institutions at place expressed in the Rule of Law index, which is higher than the average for the entire sample. Countries that meet these criteria are also assigned a value of 1. In all other cases, the value is 0. The

combination of below-average inflation and below-average *cbie_index* means that the country is assigned a value of 1 (variable CBI&Infl LTM). The empirical test was conducted for two periods. The period 1980-2023 is characterized by the full sample of inflation and *cbie_index* values. The period 2000-2023 characterizes the time when major reforms to increase the formal level of central bank independence were close to completion in most countries. It is also a period characterized by a decline in inflation in the global economy and a higher level of monetary authority autonomy. The results of the Correspondence analysis are presented in Table 5.

Table 5. Results of the assessment of relations between binary variables (χ^2 / p-level)

		ECL	SWF	IT	CUM	RofL
1980-2023	CBI&Infl LTM	13,77 ***/ 0,0002	0,32 / 0,5724	0,04 / 0,8339	0,40 / 0,5252	2,26 / 0,1324
2000-2023	CBI&Infl LTM	4,91* / 0,0268	5,39* / 0,0203	0,64 / 0,4232	0,11 / 0,7349	8,88 **/ 0,0029

Note: Null hypothesis (H0) that there is no relation between variables is rejected for: * $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$

Source: Based on estimation

The results of this empirical test can be characterized as follows.

First, the null hypothesis that there is no relationship between the variables in both periods can be rejected only for the variable characterizing the Common Law in place. In other words, legal origin matters for a formally less independent central bank to be relatively successful in ensuring price stability. Replacing the values of the binary variable denoting a particular legal family would not improve the robustness of the result, since, as can be seen from Fig. 1, it is the Common Law countries that have the lowest value of central bank independence.

Second, over a long period, Common Law is statistically significantly related to the variable CBI&Infl LTM. That is, during periods of high inflationary instability, the legal system made it possible to allocate political power in a way that would not generate macroeconomic conflicts that would threaten large-scale inflationary spikes. At the same time, other features of countries, such as membership in a monetary union or high-quality institutions, did not guarantee better inflationary results at given lower levels of central bank independence.

Third, during the period of relative inflation stabilization and increased central bank independence (2000-2023), common law is no longer the only variable that is statistically significantly related to CBI&Infl LTM. As can be seen in Table 5, the proxies of a sovereign wealth fund and the rule of law are added. In the first case, this result is not counterintuitive. During the 2000s, there was a significant increase in commodity prices, and energy exporters began to actively use countercyclical fiscal buffers to stabilize the situation. Taking into account that central banks are less independent in resource-rich countries (Koziuk, 2016), the importance of the variable characterizing the sovereign wealth fund increased in the period 2000-2023, as energy prices were higher than in the entire period 1980-2023.

Fourth, the fact that the relationship between the rule of law variable and CBI&Infl LTM became statistically significant also during the period characterized by the strengthening of formal central bank independence (2000-2023) makes a lot of sense. The rule of law begins to play a much greater role when the formal status of central banks is higher.

The mentioned finding partly corresponds to Nurbayev (2017), who shows that an inverse relationship between inflation and central bank independence occurs at higher levels of the rule of law. However, the fact that the rule of law is not statistically significantly related to the CBI&Infl LTM variable in 1980-2023, but is in 2000-2023, suggests several potential channels of its

influence. This is the channel of guaranteeing that political actors will stay within the perimeter of their mandates. The channel of the rule of law has a positive impact on smoothing inter-group conflicts within the country, which results in a lower level of political instability. In other words, the combination of the rule of law and the common law are sufficient prerequisite for even minor reforms of central banks to be effective in ensuring price stability. In other words, in the long run, in which the level of central bank independence varies and its independence may differ in different periods, a more important factor of price stability is how legal tradition affects the ability to remove political preconditions for conflicts over macroeconomic policy. In the shorter term, when the level of central bank independence has increased, the importance of the rule of law is added as an additional guarantee of non-interference in the functional perimeter of monetary authorities by political actors. In the broadest sense, this means that the common law cannot completely replace central bank independence and that such independence matters. At the same time, it can be argued that under the common law, central bank independence seems to be more protected, even if its level is relatively low. However, how the common law ensures this is a matter of debate.

6. DISCUSSION

Obtained empirical results support the idea that the discussion on Legal Origin and Law and Finance can be extrapolated on central bank independence and inflation. Here we provide positions where results are not in line with Legal Origin approach and the positions why Legal Origins matter. While it is clear from empirical side that central bank independence is differ across the countries divided by legal tradition, some issues are challenging Legal Origin as a driving force of monetary institution status. Firstly, results of the paper are in line with critics of Legal Origin approach from historical perspective as in [Rajan & Zingales \(2003\)](#). As can be seen from Graph 1, in the early 1960s there was no significant difference in the level of independence of central banks in the context of Common Law and French Civil Law. Scandinavian countries and countries with German Civil Law were characterized by a higher level of monetary independence. This is quite close to the historical view of [Rajan & Zingales \(2003\)](#). At the same time, if we try to hypothetically extend the historical analysis to the gold standard era, we can see that the specifics of central bank independence at that time were manifested not so much through legislation as through the functional ability to guarantee the conversion of banknotes into gold. Vulnerability to external shocks and internal macroeconomic preferences determined the extent to which a country was committed to the gold standard ([Eichengreen & Sussman, 2000](#); [Bordo & Rockoff, 1996](#); [Xue et al., 2022](#)). In other words, it can be assumed that it was not so much law that underpinned central bank independence as agreement among political actors on what the central bank should deliver.

Secondly, historical argument against Legal Origin approach in case of central banks also goes in line with some political economy analysis. [Masciandaro \(2020\)](#) points out that the political act of delegating monetary policy to the central bank is already a manifestation of political actors' preferences about what the delegation should result in. The same applies to the postwar period. Macroeconomic preferences determined the institutional positioning of central banks. The level of independence of the Bank of England and the Bundesbank of Germany differed significantly, as can be seen in [Grilli, Masciandaro & Tabellini \(1991\)](#). This also had consequences for the higher inflation in the UK compared to Germany. This example fits into the general picture in which Common Law countries did not have an advantage over countries with other legal traditions. Thus, macroeconomic preferences, which were translated into decisions about the institutional design of central banks, mattered.

Thirdly, strong statistical support to the differences in the level of formal central bank inde-

pendence among countries divided by Legal Origin is in line with discussion about the role of political factors in maintaining factual independence of monetary institutions. [Amin & Ranjan \(2008\)](#) argue that belonging to a legal family does not produce results by itself. It is only in interaction with political institutions. According to [Malmendier \(2009\)](#), there is a significant difference in the way an economy adjusts to inefficient legal institutions and inefficient political institutions. The former can be compensated for, while the latter cannot. Also, the quality of political institutions will determine the extent to which legal institutions are “captured” by politicians. This is directly related to the independence of central banks. From numerous studies, the difference between formal and de facto independence is obvious and it determines the ability to ensure low inflation ([Cukierman, 1992](#); [Cukierman, Webb & Neyapti, 1992](#); [Cukierman & Webb, 1995](#); [Hayo & Voigt, 2008](#); [Tridimas, 2011](#); [Ioannidou et al., 2023](#)). If legal institutions are more easily “captured” by politicians and the judiciary is not an extension of checks and balances, then no matter how formal the independence of central banks is, monetary authorities will always be under pressure. In such cases, the disciplining factor for policymakers is the cost of higher inflation or other structural factors that negatively affect the political price of inflation. This brings us back to the problem of the endogeneity of central bank independence ([Hayo & Hefeker, 2002](#); [Masciandaro & Romelli, 2018](#); [Romelli, 2022](#)) that is not grounded on Legal Origins.

However, empirical result of the paper also shows that Legal Origins matter. Central bank independence endogeneity argument is not consistent with the fact that, as shown in Table 5, it is the Common Law countries that have a better inflation situation at lower levels of formal central bank independence. That is, either legal institutions in Common Law countries influence political institutions in such a way that the degree of disagreement over certain macroeconomic priorities is reduced, or political institutions in such countries are better “disciplined” by a more independent judiciary, which is an extension of the system of checks and balances. This returns to the problem of the rule of law’s role in restraining political actors and guiding all actors to act by their mandate. However, the problem remains. The rule of law is often seen as a derivative of Legal Origin. For example, [Emenalo & Gagliardi \(2020\)](#) use the example of 46 African post-colonial countries to show that legal origin has a direct impact on the quality of rule of law institutions. [Nattinger & Hall \(2012\)](#) even show the importance of legal origin for the quality of judiciary even in each US state.

As shown in table 5, the Common Law variable is closely related to the variable reflecting the combination of both low inflation and lower central bank independence. This is in contrast to the results obtained by [Bournakis, Rizov & Christopoulos \(2023\)](#), according to which African countries with Common Law have worse economic development performance compared to countries with Civil Law when ethnic fragmentation is observed. In other words, Common Law does not seem to be the best tool for managing preferences when they can be very polarized. This is also in line with [Glaeser & Shleifer \(2002\)](#), who point out that mobilization of centralized state efforts may be better under Civil Law, in which the state dominates the law, than under Common Law, which keeps property rights protected from the state and thus promotes decentralization even at a cost of better mobilization opportunities. However, obtained in this paper empirical results demonstrate that between central bank independence and Legal Origins more complicated relations could be found.

Another debatable topic is the different paths of strengthening of central bank independence across countries divided by legal tradition. For example, the more independent central banks are found in countries with Civil Law. The arguments for that are next: A) Higher independence is a consequence of broader reforms related to the accumulation of negative manifestations of state dominance over law; B) Formally, more independent central banks are a compensatory mechanism for government leadership in aggregate demand management, which may also be a

consequence of less developed financial markets that suffer from a lack of rights protection. Both of these cases relate to formal status rather than actual status. Again, this is consistent with the relevant literature (Cukierman, 1992; Cukierman, Webb & Neyapti, 1992; Cukierman & Webb, 1995; Hayo & Hefeker, 2002; Hayo & Voigt, 2008; Tridimas, 2011; Ioannidou et al., 2023).

Opposite to that Common Law countries have not increased the independence of their central banks to the extent that other countries have, as it follows from the empirical part of the paper. This contradicts to the convergence of inflation levels in recent years and to the fact that monetary policy implementation techniques have quickly become stereotyped (Unsal, Papageorgiou & Garbers, 2022). There is no symmetrical increase in the level of central bank independence across the countries belonging to a particular legal tradition, yet the transparency. According to Dincer & Eichengreen (2014), the levels of transparency converged more strongly than the levels of independence (across countries with different levels of development). Assuming that in Common Law countries, the legal tradition of substance over form determines the dominance of substance in day-to-day interactions, the informal political consensus seems to be sufficient to ensure that even slightly increased independence of monetary authorities yields results. To a certain extent, this is consistent with the results of Berggren, Daunfeldt & Hellstrom (2014), who use the example of social trust to show that formalization of monetary authority autonomy is not necessary if such trust is high. This is also in line with Blinder (1998, 1999) in terms of trust. That is, if price stability is recognized as an intertemporal political compromise regardless of a specific inflation rate (Masciandaro, 2020) provides a formal model of this process), then the central bank is endowed with autonomy to maintain it at a functional level, while its formal status is not considered a significant obstacle to this. This effect can be further strengthened by the independence of the judiciary (according to La Porta et al. (2004), the judiciary is more independent in Common Law countries), which plays an important role in ensuring the rule of law. The advantage of this approach is that it can explain how the preference for price stability changes as political institutions interact, while the formal status of central banks remains relatively less variable over time. It also explains the growing role of the rule of law in ensuring greater anti-inflationary effectiveness of less independent central banks in the 2000s (Table 5). However, this discussion once again confirms that the channels of influence of legal origin on central banks require further study. In terms of policy how to enhance central bank potency, the message of the paper is next. Central bank independence is important. If different legal traditions contribute to safeguards of such independence in different way, political institutions should adjust to this fact. Stronger formal independence still a solution especially in the case when political or social agreement about price stability is vulnerable to opportunistic behavior. While the rule of law plays its positive role in different legal traditions.

7. CONCLUSIONS

An analysis of the literature on central bank independence and legal origins shows that it is difficult to construct an a priori theoretical framework that could link the preference for a particular level of monetary autonomy to a particular legal tradition. Empirical data for 1960-2023 demonstrate significant differences in the levels of central bank independence by legal origin, with a clear lead of countries belonging to the German-Scandinavian legal family. Reforms in the French Civil Law countries resulted in a significant increase in the level of independence of their central banks. At the same time, the Common Law countries did not differ much from the French Civil Law countries in the 1960s and 1980s, but slightly increased the level of autonomy of their monetary authorities during the 1990s, when this was a global trend. They turned out to be the countries with the least formally independent central banks. Using the ANOVA and Fisher LSD test, the existence of a statistically significant difference in the level of indepen-

dence of central banks across legal origin was confirmed. A similar procedure was applied for inflation. The results were similar, except that the worst situation was in countries with French Civil Law. In contrast, countries with Common Law do not appear to be leaders in maintaining price stability, although their inflation is the least variate over time. Differences in the levels of central bank independence and the inflationary picture suggest that Common Law countries may achieve better inflationary outcomes with less formally independent central banks. Correspondence Analysis confirmed this empirically. Common Law proxy is statistically significantly associated with a combination of a less independent central bank and lower inflation than the average for the group of countries. Stronger rule of law institutions and the existence of a sovereign wealth fund also show a similar relationship, while membership in a monetary union and inflation targeting do not.

Some theoretical conclusions from above are next. First, legal origin can explain the heterogeneity of central bank independence across countries, especially after comprehensive reforms of monetary institutions. Second, Common Law is associated with a lower propensity of countries to strengthen the formal status of central banks, while such strengthening is more evident in countries with other legal traditions. The better inflation performance at lower levels of central bank independence in Common Law countries can be explained by the fact that: a lower propensity to formalism does not require changes in the formal status if political actors agree on a price stability policy; an independent judiciary and the rule of law better protect the central bank's ability to implement its chosen strategy; less pronounced state dominance has resulted in fewer structural problems, which has led to smaller reforms and the central bank; central bank is not a formal mechanism of compensation of government leadership in aggregate demand management. Third, despite the above explanations, the channels through which legal origin influences the complex issues related to central bank independence remain a matter of debate and require further study.

In terms of policy, formal central bank independence is important especially when political or social agreement about price stability may be violated and rule of law strengthening bring it benefits in all legal systems.

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APPENDIX

Countries grouping according to Legal Origin (La Porta, Lopez-de-Silanes & Shleifer, 2008)

English Common law	French Civil Law	German Civil Law	Scandinavian Law
UK Ireland Canada US Australia New Zeland Cyprus Guayana Jamaica Belize India Pakistan Nepal Butan Bangladesh Malasia Brunei Hon Kong Sierra Leone Liberia Ghana Nigeria Namibia Zambia Zimbabwe Tanzania Uganda Kenia Rwanda Malawi Burundi Papua New Gweany Sri lanka Botswana South Africa Eswatini Saudi Arabia OAE Bahrein Qatar West Sahara Sudan South Sudan Lesotto Israel Trinidad and Tabago Barbados Fiji Bahamas Cayman Islands Kiribati Nauru Tuvalu	France Spain Portugal Italy Netherlands Belgium Luxemburg Switseland Lichtenstain Estonia Latvia Lithuinia Albania Romania Greece Ukraine Moldova Macedonia Bosnia and Herzegovina Turkey Rusia Armenia Azerbaijan Kazakhstan Uzbekistan Tadgikistan Turkmenistan Cambodia Laos Vietnam Indonisia Libanon Syria Algeria Tunisia Chad Niger Mali Senegal Guinea Guinea Besau Togo Benin Cameroon Cot'd'Ivuvar Gambia Burkina Faso CAR Gabon Eqatorial Guinea	Germany Poland Belarus Austria Chech Republic Slovak Republic Hungary Slovenia Croatia Serbia Bosnia Montenegro Georgia China Mongolia Korea Japan	Norway Sweedden Finland Denmark Iceland