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Economic freedom, financial development and the determinants of fraud and scandal: The United Kingdom, 1900–2010

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ABSTRACT

The paper argues that the incidence of financial fraud and scandals has systemic macro-economic determinants. While not denying organisation specific causes, short-run triggering events, and key players' motivations, it shows that the extent of fraud and the number of financial scandals depend on the opportunities created by the financial system's evolution. Using archival and quantitative evidence from the United Kingdom, it specifies aggregate changes in the incidence of fraud and scandal between 1900 and 2010. The evidence shows that economic freedom, including the degree of financial development, the availability of credit, the relative importance of the financial sector, international capital mobility and secrecy, and banking stability, contribute to the prevalence of fraud and scandal. Financial repression explains a generalised reduction in a 25-year period after the Second World War. Conversely, economic liberalisation from 1979 onwards has increased the incidence of fraud and financial scandal.

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Economic freedom; financial fraud; financial scandal; financial development

Introduction

What are the long-run and systemic causes of financial fraud and scandal? The answer to this question has important implications for regulators, concerned to learn from the past when drafting fraud prevention legislation, and for historians, particularly business historians exploring case studies and evidence from past frauds, seeking generalisable explanations. Since the global financial crisis, fraud and financial scandal has become a major subject of concern for business historians (for recent surveys see Berghoff & Spiekermann, 2018; Van Driel, 2019).

Notwithstanding these contributions, a contradiction persists in the wider literature. On the one hand, an economics/finance/law literature relates financial development,[1] and associated financial deregulation and economic freedom to positive outcomes, through the

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promotion of entrepreneurship, economic efficiency, and reductions in corruption (Jha, 2019; Rajan & Zingales, 2003; Sobel, 2015). Furthermore, international comparative studies suggest economic freedom reduces the level of corruption and fraud (Ali & Isse, 2002; Saha & Su, 2012; Türedi & Altıner, 2016). In parallel, when analysing events like the global financial crisis in advanced countries, where economic freedom is high, mainstream economics focuses on behaviours, however dysfunctional and risky, that are nonetheless legal, thus ignoring the possible significance of white-collar crime (Admati, 2017, p. 132; Reurink, 2016, p. 2).

On the other hand, multi-stranded literature suggests that financial regulation, which necessarily imposes limits on entrepreneurship and economic freedom, also limits fraud opportunity. Likewise, financial deregulation intensifies competition, conflicts of interest, and perverse incentives, creating pressures and opportunities for fraud and financial scandal, most notably in integrated financial conglomerates offering diverse services (Reurink, 2016). Aspects of deregulation associated with neoliberalism and financialisation[2] have led to increases in fraud and financial scandal (Reurink, 2016; Sikka, 2015), for example, shareholder value maximisation and associated pressure for earnings management (Admati, 2017; Kury, 2007), the growth of offshore financial centres and complex group structures (Sikka, 2003; Toms, 2019), executive remuneration packages linked to profit performance (Burns & Kedia, 2006; Zhang, 1995), particularly in the financial services industry (Reurink, 2016, p. 16), and audit failure (Young & Nusbaum, 2006). Because these aspects of financialisation are linked with financial development, a larger and more dynamic financial sector might be expected to increase fraud opportunities. In the United States, financial sector expansion has hidden and magnified risk in an opaque and complex system rife with conflicts of interest (Partnoy, 2009; Zingales, 2015). It is noteworthy that this literature is based on evidence from recent decades and can be usefully complemented by longer-run historical evidence.

The paper uses such new evidence to address the contradiction directly. It contributes accordingly to the literature in several ways. First, it demonstrates linkages between long-run institutional conditions and negative business behaviour, contributing to a business and related accounting history literature that hitherto focuses mainly on comparative case studies or episodic examples, albeit with increasingly generalisable interpretations (Van Driel, 2019, p. 1260). Second, it questions the literature that links rent-seeking behaviour to financial under-development by asking whether financial development might promote fraud and the incidence of financial scandals. Third, it identifies specific aspects of financial development likely to promote white-collar crime and financial scandal. It thus contributes to the adjacent literature on the macro-determinants of corruption, which commonly views corruption as a feature of economic and financial under-development. Fourth, the paper adopts a methodology exploiting the recent digitisation of newspaper collections, likely to be of increasing relevance to business historians (Nix & Decker, 2023). Online databases provide an opportunity to quantify the extent of fraud according to its prominence in newspaper coverage, allowing tests of the relationship between fraud and other long-run economic indicators for the first time. The perspective offered by this new approach also complements traditional business history approaches, per the 'new business history' research agenda (De Jong et al., 2015).

The rest of the paper is organised as follows. The following section develops a conceptual framework upon which tests of the relationship between financial development and financial crime can be based. A third section constructs and tests models exploring the relationship and identifying structural breaks in the data. 'Financial development, fraud and financial

scandal in the United Kingdom' compares financial crime at different periods in British twentieth-century history, further triangulating the evidence revealed in 'Data description and analysis'. A final section concludes.

Financial development and fraud: a conceptual framework

We argue that whereas the proportion of individuals predisposed to financial crime in any given society is relatively constant, its incidence might vary considerably according to macro-economic and institutional arrangements. Prior literature has identified several potential explanations as to why shifting institutional arrangements may promote or mitigate fraud opportunity. British business and economic history have highlighted transitions from personal capitalism to managerial capitalism to financial capitalism during the late nineteenth and twentieth centuries (Broadberry & Crafts, 1996; Chandler, 1990; Toms & Wilson, 2003). These characterisations and transitions have been the subject of some debate (Dore et al., 1999; Folkman et al., 2007), but even the broadest of interpretations might lead us to expect that fraud opportunity, as determined by institutional configurations, might synchronise with these varieties of capitalism. A long-run empirical analysis provides a useful test of this research question.

Another possible explanation of long-run fraud is the balance between economic freedom and regulation. The Chicago School and other economists focus much attention on the relationship between economic freedom (in the form of deregulation) and the promotion of entrepreneurship (Prados de la Escosura, 2016; Sobel, 2015).[3] In a similar vein, the 'law and finance' hypothesis supports the creation of pro-market legal and contracting institutions through deregulation. Associated financial development, specifically stock market development and diffuse ownership, promotes better investor protection as measured by an anti-director index (La Porta et al., 1997; 1998, 1999), implying effective constraints on fraud opportunities.[4] Related and complementary literature suggests that corruption is a product of regulatory interference in the private sector and state direction of sections of the economy, remedied by accepting market-based reforms promoted by the World Bank and International Monetary Fund (Murphy & Albu, 2018; Shore, 2003).

These interpretations do not sit squarely with the fraud literature, including historical surveys, which argue that regulation might limit fraud, but at the risk of stifling entrepreneurship, such that a suitable balance is needed (Balleisen, 2017). Similarly, Guillén (2014, p. 461) highlights deregulation as a key contributory factor to recent financial scandals and accounting frauds. Whatever the economic efficiency benefits, the extent and character of regulation appear to be a determinant of fraud opportunity, prompting an important research question, which is whether the degree of economic freedom mitigates or increases fraud and financial scandal.

A related question is the extent to which financial development, often seen as consistent with economic freedom, promotes or mitigates fraud. Financial development, broadly concerned with the volume of financial activity in an economy, is measured by a suite of macro-economic indicators (Abiad et al., 2008). These can be broken down into measures of capital market development, indicated for example by the ratio of stock market capitalisation to GDP or capital raised through initial public offerings (IPOs) and financial market development, measured by the ratio of credit to GDP and the financial sector's share of total employment. These measures pick up the effects of access to credit, which was an important

determinant of fraudsters' ability to construct elaborate white-collar crime schemes (Perkin, 2003, p. 442). In a long-run international study that includes the UK, Hail et al. (2018) note that the lead-lag structure between scandals and regulation is impacted by institutional factors, including market development and a country's legal tradition. The present study builds on this research to examine the proposition that market development and specifically financial development impacts on the extent of financial fraud and scandal.

Such an approach allows us to investigate why the extent of fraud and financial scandal may differ considerably over time and in different institutional configurations complementing the varieties of capitalism literature referred to above. Hansen (2014) identifies three stages of financial development over the last 150 years. The first phase of economic globalisation resulted in the dominance of the finance sector up to 1931. The period up to 1970 was then characterised by state intervention, reducing finance to a subservient role, and finally, post-1970, the financial sector reasserted its control. Such changes pose an empirical question of whether financial sector dominance is associated with greater opportunities for financial fraud.

Evidence on the relationship between fraud and financial development is mixed. According to Rajan and Zingales (2003), financial development undermines rent-seeking opportunities for incumbents in dominant sectors. However, other surveys confound these expectations by showing rent-seeking, in line with financial development, is rising in western societies and the broader global economy after 1980 (Storm, 2018). One long-run study concludes that rapid economic and monetary expansion increase fraud opportunities (Gray et al., 2005). Financial sector expansion and associated increases in remuneration and social esteem can increase rent-seeking behaviour (Freeman, 2010, pp. 167–168). The size and role of the stock market also matter. Financial misreporting is encouraged where executive remuneration is tied to option and equity values (Armstrong et al., 2010). Concentration and market power of financial institutions and crucially financial insiders promote rent-seeking and increase the risk of fraud (Tomaskovic-Devey & Lin, 2013). Banking sector dominance thus creates new and varied methods for carrying out financial crime.[5]

Associated with banking sector dominance is the issue of banking stability. In general, where banks do not cover their loans with deposits, the banking system is less stable (Van den End, 2016), and fraud opportunities may arise through the provision of risky loans to bad investments, and from the requirement to cover the consequential losses either for the borrowing firm or the bank. The loan-to-deposit ratio, which measures the percentage of loans covered by deposits, and hence bank independence from more volatile and expensive market funding, is a commonly used measure of banking stability (Naceur et al., 2017; Van den End, 2016).

Finally, the openness of the economy as a measure of financial development appears to have a mixed impact on the extent of rent-seeking. Capital controls increase corruption by incentivising bribery (DeLong & Eichengreen, 2002). On the other hand, by immobilising capital, such controls restrict tax evasion (Schulze, 2000), while international capital mobility is associated with tax evasion and fraud (Sikka, 2003). As the banking sector becomes increasingly globalised (Goldberg, 2009), cross-border capital flows occur more frequently and with less friction, creating opportunities for fraudsters to evade scrutiny from domestic regulators.

In sum, financial fraud opportunities vary significantly according to the context set by regimes of regulation, capital accumulation, and financial development. A direct test of the relationship between the aspects of financial development discussed in this section and

financial fraud is therefore called for. In the next two sections, we first develop and test empirical measures of financial fraud, scandal and financial development, to identify break points, trends and correlations. We then examine the possibilities of causal relationships, based on evidence from the business history literature, individual cases drawn from the financial scandals database, and newspaper archives.

Data description and analysis

To measure the extent of financial fraud in the UK and its evolution over time, we follow Toms (2019) and construct an annual fraud index (Fraud) by keyword searches of major British newspaper archives on Gale Primary Sources, including British Library Newspapers, Financial Times Historical Archive, The Economist Historical Archive, and The Times Digital Archive. Specifically, Fraud measures the percentage of all articles published in the 'News', 'Business News', and 'Opinion and Editorial' sections of a newspaper that contain the keyword 'fraud'.[6] To control the possibility that references to fraud can be non-financial, and for robustness testing purposes, we also ran a series of modified searches, using word variants and proximity indicators.[7] We also ran a more specific search to identify frauds involving accounting manipulation, constructing an accounting fraud index (Acct. Fraud) by replicating Fraud but requiring the news articles to also contain at least one of the following keywords: 'accounting', 'accountancy', 'accountant(s)', 'auditing', 'audit(s)', 'auditor(s)', 'bookkeeping', and 'bookkeeper(s)'.[8]

To measure the extent of financial scandals in the UK and its evolution over time, we combine the recorded scandals from Hail et al. (2018) with those from Toms (2019), which use similar measures and definitions.[9] In performing the cross-checking, the occurrence, significance, and dating of the scandal were confirmed with reference to newspaper coverage using *Gale Primary Sources: British Newspaper Archives*. In doing so, relevant articles were identified using keyword searches of the business name and, where applicable, the name of the alleged perpetrator, using the date cited, t, and an initial search range of $t-3 \ldots t+3$. The range was modified in subsequent iterations as appropriate, for example, if the initial search revealed a lengthy investigation. Thus, we identify a total of 226 financial scandals from 1900 to 2010, out of which 149 featured accounting manipulation.[10] We define two variables, Scandal and Acct. Scandal, for the annual number of financial scandals and accounting scandals, respectively. After 1970, when the term 'financial scandal' became a more widely used term, as revealed by keyword searches, scandals were weighted by multiplying the number of scandals per year by the popularity index for 'financial scandal' for each year to capture the media salience of resonating scandals.[11]

Our main measure of UK financial development is the aggregate Historical Index of Economic Liberty from Prados de la Escosura (2016) (hereinafter, Econ. Freedom).[12] Econ. Freedom is a composite index of four dimensions, i.e. legal structure and property rights, money, international trade, and regulation, and is available at five-year intervals up to 2007.[13] It is a continuous variable ranging from 0 to 10, with a higher value indicating more favourable economic conditions for private sector development.

To complement Econ. Freedom, which concerns the liberalisation of the whole economy, we construct measures for specific aspects of financial development. First, to measure capital market development, we use the percentage of stock market capitalisation to GDP (Market Cap.) and the annual number of ordinary share IPOs (IPO). The 1900–2010 data for Market

Cap. are from Kuvshinov and Zimmermann (2022).[14] For IPO, we collect data for 1919–2007 (except 1940–1945) from Chambers and Dimson (2009, pp. 1423–1424), and data for 1915–1918 and 1940–1945 from Chambers (2005, p. 80). The 1902–1914 data are imputed from Figure 1 of Chambers (2011, p. 7), while the 1900–1901 data are imputed from Table 1 of Burhop et al. (2014, p. 66).

Second, to measure financial sector development, we use credit as a percentage of GDP (Credit) and the financial sector's employment percentage share (Fin. Employment). For Credit, we obtain total private sector loans for 1900–2010 from the Jordà-Schularick-Taylor Macrohistory Database (Jordà et al., 2017), and 1900–2010 GDP data from the Bank of England's *A Millennium of Macroeconomic Data* (*AMMD*).[15] For Fin. Employment, we obtain total employment data for 1900–2010 from the Bank of England's *AMMD*. The 1920–2010 financial sector employment data are from the Bank of England's *AMMD*, with missing values for 1939–1947 filled by linear interpolation. Before 1920, financial sector employment data

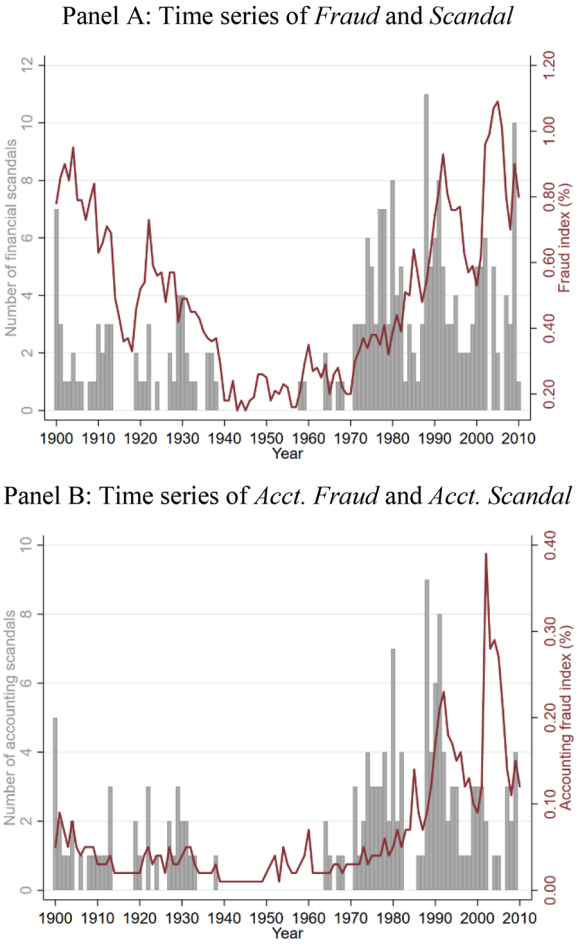

Figure 1. Financial fraud and financial scandals. Panel A plots the fraud index (Fraud) (solid line; right axis) and the number of financial scandals (scandal) (bars; left axis) against time. Panel B plots the accounting fraud index (Acct. Fraud) (solid line; right axis) and the number of accounting scandals (Acct. Scandal) (bars; left axis) against time.

Table 1. Summary statistics.

Variable	*N*	Mean	SD	p1	p25	Median	p75	p99
Dependent variable: Financial fraud and scandals								
Fraud (%)	111	0.50	0.25	0.15	0.28	0.45	0.70	1.07
Acct. Fraud (%)	111	0.06	0.07	0.01	0.02	0.04	0.07	0.29
Scandal	111	2.04	2.37	0.00	0.00	1.00	3.00	10.00
Acct. Scandal	111	1.34	1.77	0.00	0.00	1.00	2.00	8.00
Independent variable: Financial development								
Econ. Freedom	108	8.58	0.55	7.80	8.10	8.80	9.10	9.40
Market Cap (%)	111	75.31	31.98	31.22	53.21	70.78	88.27	174.86
IPO	108	47.42	46.40	0.00	12.00	39.00	63.50	212.00
Credit (%)	111	40.72	27.45	14.37	23.96	29.06	48.67	117.82
Fin. Employment (%)	111	2.27	1.08	0.76	1.51	1.74	3.37	4.05
Loan-to-Deposit (%)	111	70.25	31.25	20.33	47.10	65.12	100.19	130.35
Bank Repression	111	25.31	21.45	0.05	6.60	19.59	43.17	65.50
Control variables								
GDP per Capita	111	9.15	0.60	8.43	8.56	9.05	9.66	10.22
GDP Growth (%)	111	2.06	3.11	−7.85	1.11	2.55	3.74	8.71
Regulation	111	0.33	0.59	0.00	0.00	0.00	1.00	3.00

were only available for 1891, 1901, and 1911. Therefore, we interpolate the values for 1900, 1902–1910, and 1912–1919 using the annual growth rates of total bank branches in the UK, based on Capie and Webber (1985, pp. 576–578).

Third, to measure financial stability, we use the percentage of bank loans to deposits (Loan-to-Deposit) and the percentage of government securities, i.e. the sum of Treasury bills and gilts, to total bank holdings of bills, investments and advances (Bank Repression).[16] The 1900–2010 data for Loan-to-Deposit are from the Jordà-Schularick-Taylor Macrohistory Database. For Bank Repression, we obtain data on each of the five components for 1900–1966 from the Bank of England's *AMMD*. The 1967–1974 data are from the 1968Q1, 1969Q1, 1970Q2, 1971Q1, 1972Q1, 1973Q1, 1974Q1, and 1975Q1 editions of the Bank of England *Quarterly Bulletin*. The 1975–2010 data are from the Bank of England's Bankstats Table B, 'Monetary financial institutions' balance sheets, income and expenditure'.[17] We interpret a lower (higher) Loan-to-Deposit (Bank Repression), which reflects more constraints on banks to finance the private sector, as indicating greater financial stability.

We include several control variables in our multivariate regression analysis. GDP per Capita is the natural logarithm of real GDP per capita. GDP Growth is the annual growth rate of real GDP.[18] Regulation is the annual number of accounting regulations, i.e. all regulatory activities that explicitly or implicitly concern financial reporting practices, from the database of Hail et al. (2018).

Table 1 reports the summary statistics of variables used in our analysis. The sample includes up to 111 annual observations from 1900 to 2010. The results for Fraud and Acct. Fraud show that in an average year, one in every 200 UK news stories was related to fraud, while 12% of all fraud-related news stories concerned accounting fraud. The results for Scandal and Acct. Scandal show that two corporate scandals occurred each year on average, while two-thirds of all corporate scandals featured accounting misconduct. The distribution of Econ. Freedom was consistently near the top end of its range, suggesting that the UK economy was relatively deregulated during the twentieth and early twenty-first centuries.

Long-run trends in key variables are shown in Figure 1 (Fraud and Scandal, Panel A; Acct. Fraud and Acct. Scandal, Panel B) and Figure 2 (Econ. Freedom). All variables demonstrate an approximate U-shaped pattern, showing a decline in the early twentieth century and an

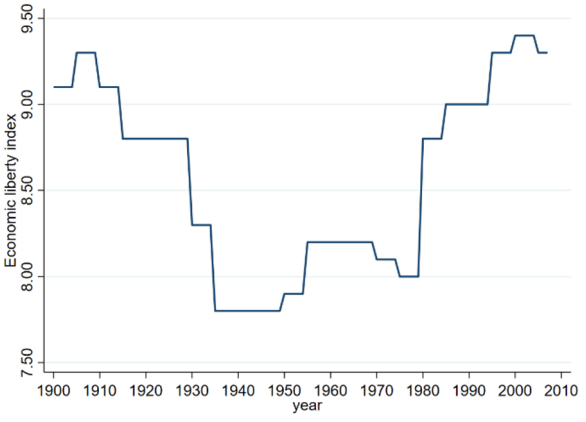

Figure 2. Economic freedom. The figure plots the aggregate Historical Index of Economic Liberty of the UK from Prados de la Escosura (2016) (Eco. Freedom) (solid line) against time.

increase in the later decades. The patterns are confirmed by an analysis of marginal effects, regressing each variable against a linear and quadratic trend (Figure 3). Fraud (Panel A) and Econ. Freedom (Panel E) follow the same U-shaped pattern as in Figures 1 and 2, indicating a long-run relationship between financial fraud and financial development, both of which evolved in a non-linear manner over the twentieth century.[19] Acct. Fraud (Figure 3, Panel B), Scandal (Panel C), and Acct. Scandal (Panel D) also display a non-linear time pattern but as J-curves, suggesting the fall in the early part of the century was substantially outweighed by the resurgence in recent decades.

Figures 1–3 suggest the key variables were jointly impacted by structural breaks. To verify this, we begin by testing whether our key variables contain structural breaks in their time series, especially around shifts in the UK regulatory regime from financial liberalisation to repression, and vice versa. Based on our review of the varieties of capitalism and other literature, we consider two candidate breaks for this analysis. The first, 1939, relates to the outbreak of World War II, the transition to a managed economy, and the imposition of capital controls coinciding with the steepest reduction and nadir of the economic freedom variable in Figure 2; the second, 1979, corresponds to the transition to neoliberalism, deregulation of the financial sector, including the abolition of these controls by the incoming Conservative government (Capie, 2002), and a corresponding sharp increase in the economic freedom variable, We interpret 1939 as inaugurating a period of financial repression, and 1979 as marking the end of that period and a reversal to financial liberalisation. Table 2 reports the results of Chow's (1960) tests that show consistent rejection of the hypothesis of no structural break for all main variables for 1939 or 1979, or both.[20] The evidence of twin breaks in 1939 and 1979 confirms both the U/J-shaped time pattern across the main variables and the salience of regulatory regime changes in conditioning the long-run behaviour of financial fraud and scandal. We also investigated the time-series properties of our continuous time-series variables, all of which, except Acct. Fraud, are non-stationary due to the presence of a unit root,[21] which we factor in our analysis below.

To examine the relationship between economic freedom and financial fraud, Fraud is regressed on Econ. Freedom and control variables as previously defined. The ordinary least-squares (OLS) model includes lagged Fraud to address the possibility that the extent of

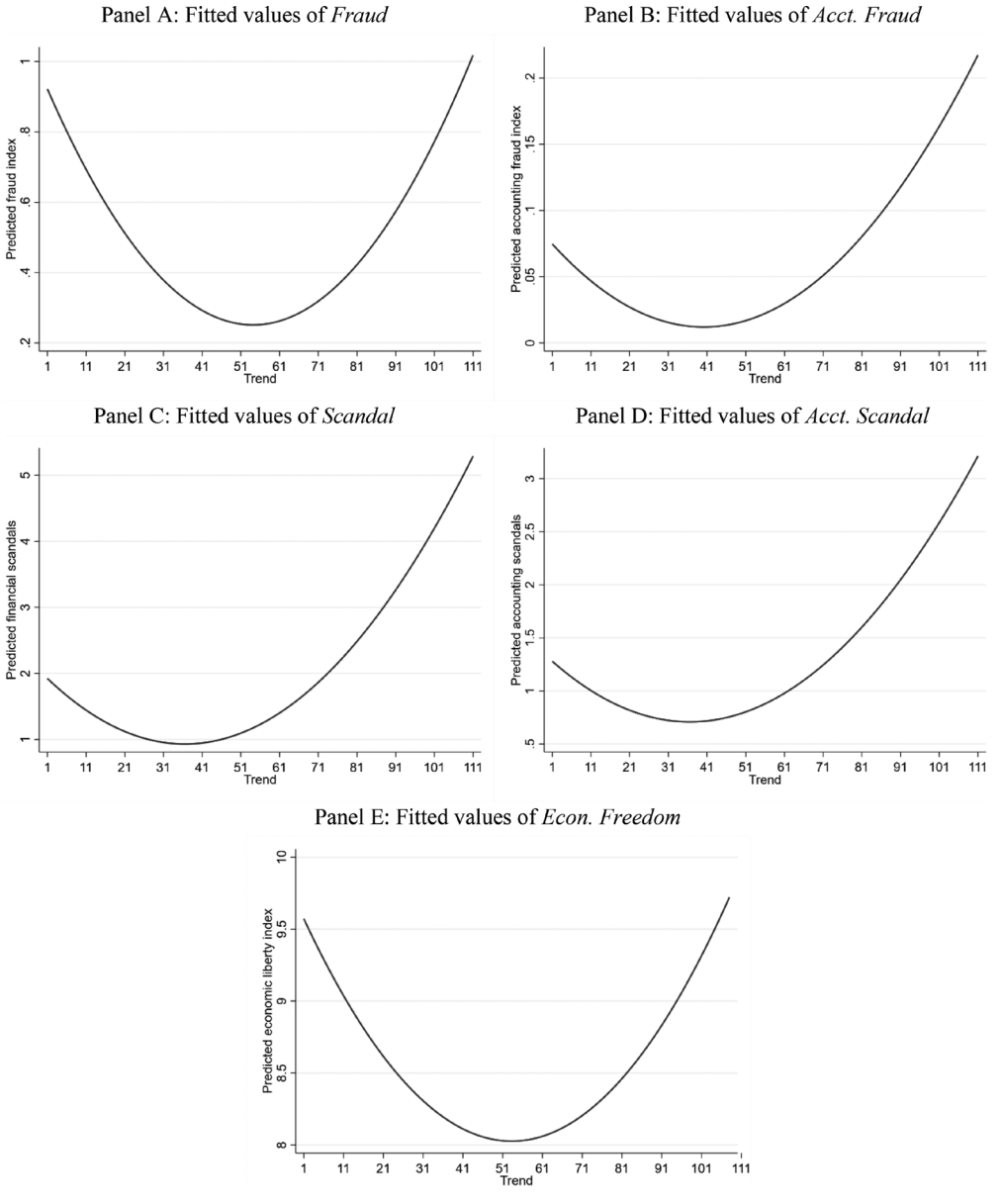

Figure 3. Marginal effects of time on financial development, fraud and scandals. The sample covers the 111-year period from 1900 to 2010.

financial fraud in the current year is driven by that in the prior year, resulting in omitted variable bias if the latter is excluded from the model. To further address residual autocorrelation, we also calculate the *t*-statistics for slope coefficients with heteroscedasticity- and autocorrelation-robust standard errors, using the Newey–West procedure with three lags.[22]

$$\begin{aligned}\text{Fraud}_t = \; & \alpha + \beta_1 \text{Econ. Freedom}_t + \beta_2 \text{GDP per Capita}_t + \beta_3 \text{GDP Growth}_t \\ & + \beta_4 \text{Fraud}_{t-1} + \varepsilon_t\end{aligned} \tag{1}$$

Table 2. Structural breaks.

Variable	Break year	Chi-sq.	*p*-value
Fraud	1939	16.72***	0.00
	1979	7.90**	0.05
	1939 & 1979	19.56***	0.00
Acct. Fraud	1939	9.31**	0.03
	1979	11.18**	0.01
	1939 & 1979	13.79**	0.03
Scandal	1939	10.08**	0.02
	1979	21.94***	0.00
	1939 & 1979	29.22***	0.00
Acct. Scandal	1939	7.82*	0.05
	1979	7.01*	0.07
	1939 & 1979	16.86***	0.01
Econ. Freedom	1939	10.48**	0.01
	1979	27.12***	0.00
	1939 & 1979	35.11***	0.00

Note: The table reports the results of Chow breakpoint tests for each variable Wald tests are used to test the null hypothesis of no structural break. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

For the analysis of financial scandals, using a standard linear regression is problematic given that Scandal is a count variable with a typically non-normal distribution (Wooldridge, 2016). Therefore, we re-estimate Equation (1) as a negative binomial model using Scandal as the dependent variable. The revised model for examining the relationship between economic freedom and scandals is specified below. As in the fraud analysis, we control for lagged Scandal in Equation (2) and adjust standard errors by using the Newey–West procedure.

$$\begin{aligned}\text{Scandal}_t = \; & \alpha + \beta_1 \text{Econ. Freedom}_t + \beta_2 \text{GDP per Capita}_t + \beta_3 \text{GDP Growth}_t \\ & + \beta_4 \text{Scandal}_{t-1} + \varepsilon_t\end{aligned} \tag{2}$$

To determine whether economic freedom affects the extent of accounting fraud and scandals, we rerun the regressions in Equations (1) and (2) but substitute Acct. Fraud and Acct. Scandal as the dependent variable. We also test additional models with alternative measures of financial development, i.e. Market Cap., IPO, Credit, Fin. Employment, Loan-to-Deposit, and Bank Repression. These are collectively represented as follows:

$$\begin{aligned}\text{Fraud}_t \,/\, \text{Scandal}_t = \; & \alpha + \beta_1 \text{Market Cap.}_t \,/\text{IPO}_t \,/\text{Credit}_t \,/\text{Fin. Employment}_t \,/\text{Loan-} \\ & \text{to-Deposit}_t \,/\text{Bank Repression}_t + \beta_n \text{CONTROLS} + \varepsilon_t\end{aligned} \tag{3}$$

In Equation (3), Fraud and Scandal are used as interchangeable dependent variables, using OLS and negative binomial specifications respectively. As before, Acct. Fraud and Acct. Scandal are substituted as the dependent variable. Controls are as per Equations (1) and (2): GDP per Capita, GDP Growth, Regulation, and the lagged dependent variable. GDP per Capita is the natural logarithm of real GDP per capita. It indicates per capita income and is a broad measure of economic development. GDP Growth is the annual percentage change in real GDP and captures business cycle fluctuations. Regulation is the annual number of accounting regulations (i.e. regulations that explicitly or implicitly concern financial reporting) from Hail et al. (2018). Table 3 reports results for Equations (1) and (2) using Fraud and Scandal as the dependent variable (Panel A) and; Acct. Fraud and Acct. Scandal as the dependent variable (Panel B).[23]

The results in Table 3 support a significant and positive relationship between Fraud/Scandal and Econ. Freedom (Panel A). The tests in Panel B show similar results for Acct. Fraud and Acct.

Table 3. Determinants of fraud and scandal.

Panel A: Regression analysis of financial fraud and scandals		
Dependent Var. =	Fraud	Scandal
	(1)	(2)
Econ. Freedom	0.089***	0.554**
	(3.290)	(2.321)
GDP per Capita	0.021	0.519***
	(1.153)	(2.661)
GDP Growth	−0.003	−0.032
	(−1.389)	(−1.027)
Regulation	−0.002	−0.345*
	(−0.150)	(−1.795)
Lagged DV	0.751***	0.199***
	(13.408)	(5.076)
Constant	−0.828***	−9.300***
	(−3.150)	(−4.343)
Observations	108	108
Adj./Pseudo-R^2	0.894	0.134
Panel B: Regression analysis of accounting fraud and scandals		
Dependent Var. =	Acct. Fraud	Acct. Scandal
	(1)	(2)
Econ. Freedom	0.023**	0.590**
	(2.388)	(2.036)
GDP per Capita	0.029***	0.487**
	(2.655)	(2.001)
GDP Growth	−0.001	−0.031
	(−0.883)	(−0.751)
Regulation	−0.007	−0.175
	(−0.912)	(−0.945)
Lagged DV	0.627***	0.212***
	(10.621)	(3.541)
Constant	−0.433**	−9.625***
	(−2.563)	(−3.184)
Observations	108	108
Adj./Pseudo-R^2	0.780	0.110

Note: The table reports the results of OLS (1) and negative binomial regressions (2). The dependent variable in Panel A is the fraud index (Fraud) or financial scandal counts (Scandal). The dependent variable in Panel B is the accounting fraud index (Acct. Fraud) or accounting scandal counts (*Acct.* Scandal). Bracketed figures are *t*-statistics based on Newey–West standard errors with three lags. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Scandal. There is thus a suggestion that the main components of Econ. Freedom – including trade openness and bank deregulation, which are also key elements of financial development – are associated with increased fraud opportunity and financial scandal. The regulation coefficient, which specifically measures accounting regulation, is negative in all models, as expected, but only marginally significant in the Scandal model and insignificant in others, including the Acct. Fraud and Acct. Scandal models.[24] These results suggest that accounting regulations are ineffective in mitigating fraud and scandal, and that financial deregulation (as measured by Econ. Freedom) and accounting regulation work in opposite directions, with the former being the stronger and more significant determinant. The positive coefficients on GDP per Capita in the Scandal, Acct. Fraud, and Acct. Scandal models suggest that all else equal, economic development increases the incidence of accounting fraud and scandals. The negative but insignificant coefficients on GDP Growth in all models offer limited support for the conventional wisdom that fraud and scandals are a cyclical phenomenon, surging in times of economic downturn (*The Economist*, 2020). Overall, the results underscore economic freedom as a more effective determinant of fraud/scandals over the long run than short-term booms/busts.

Further perspective on this suggested relationship can be obtained from alternative measures of financial development. Graphical plots of the time series of each variable in Equation (3) are shown in Figure 4. To differing degrees, these plots correspond to the U and J-shape trend observed in Figures 1–3. The trend is most noticeable in the bank-related measures in Panels (E)–(F), noting that Bank Repression is an inverse U by nature of the measure. The equity measure trends in Panels (A)–(B) are less discernible, while Credit and Fin. Employment in Panels (C)–(D) show a rising trend with limited reversals in the 1940s.

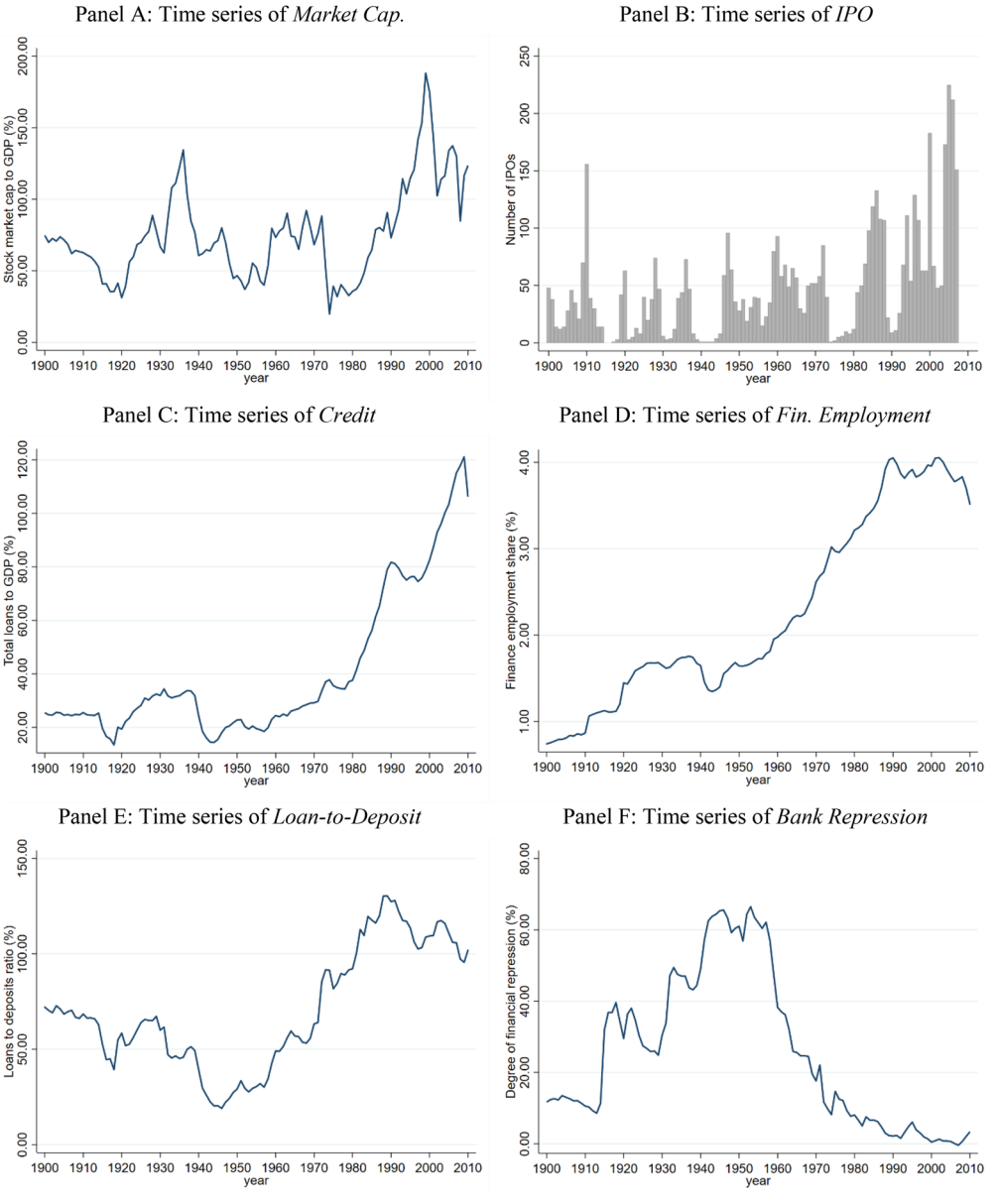

Figure 4. Alternative financial development proxies.

These trends are reflected in the regression results in Table 4. Both equity variables (Market Cap. and IPO) have an insignificant effect. Credit is positively associated with fraud indices but not scandals. For all measures of fraud and scandals, including their accounting variants, Fin. Employment, Loan-to-Deposit, and Bank Repression are significantly correlated. All three are measures of the financial sector in terms of its scale, stability, and degree of liberalisation. The results therefore suggest that a large, highly leveraged and deregulated financial sector is likely to promote financial fraud and scandals.[25] The effects of shifts in these characteristics are explained in detail in the next section.

Financial development, fraud, and financial scandal in the United Kingdom

In this section, we revisit the results in 'Data description and analysis' to explain how changes in financial development might explain variations in the extent of fraud and scandal through the twentieth century. Our narrative is constructed to explain the structural breaks in the fraud and scandal indexes previously identified, and the changes in institutional relationships that provide nuance and perspective on the observed correlations.

Although the results in 'Data description and analysis' show a strong correlation between fraud and scandal, and measures of financial development, including the economic freedom index, the relationship is not straightforward. Financial development, as part of a process of financial globalisation, based on open capital markets and fixed exchange rates, was halted by the outbreak of war in 1914 (Calomiris & Neal, 2013; Obstfeld & Taylor, 2004).[26] International Capital Flows (ICFs) and Econ. Freedom were both on an uptrend in the early twentieth century, which reversed after the mid-1910s (Appendix). However, although financial globalisation was undermined by the First World War, our analysis in 'Data description and analysis' (Table 3) suggested that 1939, not 1914, inaugurated a new era of low levels of fraud and scandal.[27] Most notably, fraud declined steadily up to 1939. Declines in scandals, and accounting-related fraud and scandal, were relatively shallow, as indicated by their J-curves, but the long-run pattern nevertheless also confirms 1939 as the first break point for all our variables of interest (Figures 1 and 3).

Changes in the banking sector substantially explain why pre-1914 financial development did not lead to an increase in fraud, as our models would otherwise predict. The banking and finance sector was at the centre of significant frauds and scandals before and after 1914. The banking sector accounted for a high proportion of total references to financial fraud in 1910–1940. Moreover, of 24 headline financial scandals in this period, 15 (62.5%) were in the banking and finance sector. Even so, bank-related fraud, as measured by a popularity index, declined, contributing to the trend in Figure 1. The steady downward trend continued from the 1890s, with the adoption of reserve liability under the provisions of the Companies Act 1879 and the introduction of regulated accounting disclosures and audit (Toms, 2019; Turner, 2014), in tandem with a steady improvement in banking stability. As noted in Figure 4 (Panel E), the loan-to-deposit ratio declined, up to 1939, in tandem with the decline in fraud (Figure 1, Panel A). Reserve liability declined throughout the twentieth century due to inflation and regulatory changes, but was counterbalanced until the 1970s by increases in bank holdings of government debt, measured by the bank repression index (Figure 4, Panel F). The index increased sharply in the First World War, and during the economic difficulties of the inter-war period, and again with the outbreak of the Second World War. Governments incentivised these arrangements by in return tolerating the

Table 4. Frtaud scandal and alternative financial development proxies.

Panel A: Regression analysis of financial fraud and scandals												
Dependent Var. =	Fraud						Scandal					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Market Cap.	−0.000						0.001					
	(−0.225)						(0.290)					
IPO		−0.000						0.003				
		(−1.134)						(1.162)				
Credit			**0.002****						0.011			
			(2.141)						(1.476)			
Fin. Employment				**0.053****						**0.964****		
				(2.415)						**(2.400)**		
Loan-to-Deposit					**0.002*****						**0.031*****	
					(4.168)						**(5.707)**	
Bank Repression						**−0.001****						**−0.049*****
						(−2.562)						**(−5.748)**
Observations	111	108	111	111	111	111	111	108	111	111	111	111
Adj./Pseudo-R^2	0.881	0.884	0.888	0.885	0.891	0.885	0.107	0.118	0.115	0.126	0.191	0.207
Panel B: Regression analysis of accounting fraud and scandals												
Dependent Var. =	Acct. Fraud						Acct. Scandal					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Market Cap.	0.000						−0.002					
	(0.221)						(−0.594)					
IPO		−0.000						−0.002				
		(−1.091)						(−0.540)				
Credit			**0.001***						0.008			
			(1.673)						(0.941)			
Fin. Employment				**0.020*****						**1.257****		
				(2.817)						**(2.457)**		
Loan-to-Deposit					**0.000*****						**0.035*****	
					(3.436)						**(4.735)**	
Bank Repression						**−0.000*****						**−0.053*****
						(−2.707)						**(−5.546)**
Observations	111	108	111	111	111	111	111	108	111	111	111	111
Adj./Pseudo-R^2	0.762	0.763	0.781	0.769	0.776	0.767	0.089	0.093	0.092	0.116	0.177	0.183

Note: Columns (1)–(6) show the OLS regression results, and columns (7)–(12) show the negative binomial regression results. The dependent variable in Panel A is the fraud index (Fraud) or financial scandal counts (Scandal). The dependent variable in Panel B is the accounting fraud index (Acct. Fraud) or accounting scandal counts (Acct. Scandal). All regressions control for GDP per Capita, GDP Growth, Regulation and the lagged dependent variable, whose coefficients are omitted for brevity. The bracketed figures are *t*-statistics based on Newey–West standard errors with three lags. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

interest rate-setting cartel operated by the remaining now highly concentrated banks (Turner, 2014, p. 180).

Improved stability was linked to greater concentration and the development of branch networks, which contributed to reductions in banking fraud. Although accounting controls were slow to develop before 1914 in industry generally, they were given a major impetus by government direction of production during the First World War (Armstrong, 1987). In banking, concentration gathered pace from the 1890s, facilitating supervision and the development of internal control systems (Nishimura, 1971; Wardley, 2000). Sykes (1926, p. 155) notes the rise of modern, 'scientific and safe' banking in the early twentieth century, dominated by large joint-stock banks (e.g. 'Big Five') practising more impersonal and prudent lending. In the 1920s, cheques supplanted bills of exchange and, being more easily subjected to validation through automation, helped limit the opportunities for forgery and fraud (Wardley, 2000). The effect of these changes was to limit fraud by employees, including embezzlements, which declined, but without necessarily impacting fraud at corporate level involving directors.[28]

Continuities in patterns of fraud and scandal before 1939 are also explained by specific significant macroeconomic determinants highlighted in 'Data description and analysis'. Notwithstanding the dislocation of international trade, ICFs rebounded in the 1920s (Appendix), and finance capital remained dominant (Hansen, 2014), which may explain why fraud revived temporarily in the 1920s. The financial sector experienced relatively little regulation, particularly concerning credit expansion. The ratio of credit to GDP rose sharply between 1913 and 1929 (Figure 4, Panel C), leading intermediaries to compete aggressively in the provision of credit (Eichengreen & Mitchener, 2003), and had 'the qualitative effect of providing a favourable atmosphere for the fraudulent operations of sharks and swindlers' (Robbins, 1934, p. 62). The credit boom was ultimately less pronounced in the United Kingdom than in the US because the Bank of England introduced credit controls in conjunction with the return to gold in 1925 (Moggridge, 1972, p. 93) to support an increasingly overvalued currency.

A further noteworthy feature of the results in Table 4 and the trends in Figure 4 (Panel A and B) is the lack of long-term significance of equity-based variables as explanators of fraud and scandal. The insignificance of the IPO variable seems surprising, given the prominence of notorious fraudsters in the new issue market. However, opportunities to defraud through misleading prospectuses were restricted by the 1900 Companies Act, which, combined with the application of criminal sanctions (Taylor, 2013, pp. 259–261), sharply reduced prospectus-related fraud following the collapse of the bicycle boom. The activities of Horatio Bottomley in overseas issues and Ernest Terah Hooley and Henry Lawson in the cycle boom (Amini & Toms, 2018; Johnston, 1934) were very much a nineteenth-century phenomenon. The refloatation boom and bust of 1919–1920 was associated with a new spike in fraud (Figure 1, Panel A), but at the same time was the last hurrah for individual promoters, who, along with their syndicate members, lost significant amounts of money. Serial promoters who had made their fortunes before the war, like Hooley and Horatio Bottomley, faced their final downfall in court over fraudulent promotions and embezzlements (Johnston, 1934, pp. 43–44; 90–92). The experience of the boom led to the emergence of issuing houses as intermediaries who built their reputations by only sponsoring quality issues, thereby reassuring investors, and by 1928 they were accounting for almost 70% of new issues (Swinson, 2018, pp. 50–51, 54–55). Although prospectus fraud declined, there was no corresponding

downward trend in the number of IPOs, explaining the general lack of correlation during the 20th century.

Aside from the new issues market, shareholder protection remained weak. The anti-director index remained at 2 throughout the inter-war period (Musacchio & Turner, 2013, Table 4, p. 534). Company law was adjusted to cover some loopholes, for example requiring disclosures likely to limit the secret reserves that featured in the Royal Mail scandal, but others remained. Most notably, and notwithstanding headline fraudsters such as Gerard Lee Bevan and Clarence Hatry using related company transactions to manipulate balance sheets, the Companies Act of 1929 did not require consolidated accounts (Davies & Bourn., 1972; Maltby, 2000; Swinson, 2018; Vander Weyer, 2011).[29] Neither Companies Act regulation nor changes in shareholder protection can therefore explain the general decline in fraud and scandal in the early decades of the 20th century.

In summary, before 1939, the changing characteristics of financial capitalism set an important context for the trend in fraud and financial scandal. The persistence of banking and finance as a dominant sector and an accompanying credit expansion in the inter-war period explains the temporary interruption of a downward trend in fraud, in turn, explained by structural changes in banking and improved stability and control and the regulation and institutionalisation of equity issues.

In contrast, the controls of World War II initiated a more decisive rupture. The Bretton Woods system introduced in 1944 reinforced restrictions on the flow of international finance to trading transactions, limiting the banks' opportunities for speculative international investments. Strong regulations also curtailed the activities of the banking and finance sector.[30] London effectively ceased to be a global financial centre, and many of its ancient businesses operated only as shadows, according to the governor of the Bank of England (Kynaston, 2002, p. 22). The main feature of the 1950s was financial repression (Figure 4, Panel F), which comprised low-interest rates, subject to the need to defend the pound's value, exchange controls, and requirements that banks hold government debt, for example, through Special Deposits (Allen, 2014). From 1945 until the introduction of Competition and Credit Control in 1971, monetary authorities placed ceilings on bank lending to control domestic credit and the money supply (Goodhart & Needham, 2017).

While finance was constrained, the post-1945 economy became dominated by industrial conglomerates and managerial capitalism. The Fordist regime of accumulation allowed the expansion of middle-class professional roles in bureaucratic and administrative functions (Hanlon, 1996), and the employment of relatively large numbers of accountants by industrial corporations (Matthews et al. 1998), all of which expanded the accountability of senior executives and reduced the opportunities for fraud. The Fordist model raised productivity and wages in the techno-structure and large industrial corporations (Galbraith, 1967), but in parallel resulted in routinisation and deskilling in the finance sector, leading to a relative decline in finance wages (Philippon & Reshef, 2012). These structural changes explain the trends in Figures 2 and 4, which show the Fordist model sustaining stock market capitalisation (Market Cap.), but with indicators of the relative importance and instability of the financial sector (Econ. Freedom, Credit, Fin. Employment, Loan-to-Deposit) in decline or plateauing.

These changes reduced fraud opportunities and thus provide systemic explanations of the low incidences for all measures during the period 1940–1970. Indeed, up to the late 1960s, there were virtually no cases of headline financial scandals reported in the UK press. *The Economist* writing in 1970, summarised the business climate: 'The Wild West days of the

City are long past. Hardly any massive swindles, frauds, hoaxes, or gigantic market riggings enliven the scene. The few there are, cannot hold a candle to the Horatio Bottomley extravaganza of the 1920s … The City is clean on the whole and is continually turning a whiter shade of grey.'[31] As mergers consolidated industrial conglomerates, smaller and medium enterprises lacked access to finance, a problem that persisted decades after being first highlighted by the Macmillan committee in 1931 (Toms et al., 2015), and exacerbated by the bank repression of the post-WWII settlement. If barriers to finance stifled entrepreneurship, a likely positive by-product was that it also stifled fraud and scandal during the hiatus between 1939 and 1979 (Figure 1).

Tight financial regulation and the low incidences of fraud and financial scandal that were the hallmarks of the post-1945 Golden Age set the scene for the sharp reversals identified in our structural break analysis. Following the 1979 structural break (Table 2), inspection of Figure 1 reveals a post-break surge in the level of both Fraud and Scandal series that showed little sign of abatement at the end of the 2000s. Moreover, the U-shaped pattern of Fraud, and Econ. Freedom, and the Acct. Fraud, Scandal, and Acct. Scandal, J-curves (Figures 1–3), suggest that the surge is explained by a shift from generic fraud pre-1939 to accounting-related fraud post-1979. It is also worth noting that there was a steady decline in Acct. Fraud before the period included in our tests, dating back to the aftermath of the City of Glasgow bank scandal and the Companies Act 1879 which led to the adoption of reserve liability in banks and the expansion of audit and the accounting profession.[32] The impact of these developments contributed to the J-curve pattern in the accounting variables and their relatively low levels in 1900. By contrast, in the post-1979 upsurge, pressures for accounting-related manipulation can be traced to the financial market reforms of the early 1980s and associated corporate restructuring, coupled with the ideology of shareholder value maximisation (Kury, 2007; Smith, 1992).

The break in 1979 was associated with institutional changes that created new opportunities for financial fraud. Credit controls had already been partially lifted in the early 1970s. The end of the Bretton Woods system, the Bank of England's issue of Competition and Credit Control, and the rise of Eurocurrencies (Ferguson, 2009; Goodhart, 2015; Offer, 2017; Schenk, 1998) contributed to the expansion of credit (Figure 4, Panel C) and was followed by elimination of controls on international capital movements under the Exchange Control (General Exemption) Order issued on 13 December 1979. Taken together, these changes resulted in a steep increase in Econ Freedom, Credit, Fin. Employment, Loan-to-Deposit, and a reduction in Bank Repression (Figure 2 and Figure 4: Panels C, D, E, Appendix). A further loophole was created by the transformation of crown dependencies into tax havens as appendages of the City of London from the late 1960s (Shaxson, 2018, pp. 55–64).

The post-1970s deregulatory reforms particularly impacted the financial sector, reflecting the desire of successive governments to position the UK at the heart of a globalised world of finance (Abdelhamid, 2003). By subjecting the previously rigid and highly segmented financial sector to competitive forces, financial deregulation led to a rapid expansion of the sector at home and abroad. For a century up to 1970, banking assets were stable at 50 per cent of GDP, but by 2006 had increased to 500 per cent (Shaxson, 2018, p. 6).

These changes marked a shift from managerial capitalism back to financial capitalism, which this time was associated with a sustained upsurge in finance/ial fraud and scandal, particularly after 1979. The dominance of the banking sector created new and varied methods for carrying out financial crime.[33] The range of services offered by banks and financial

institutions expanded after the Big Bang in 1986, which ended the single-capacity trading system on the Stock Exchange and led to further consolidation in the financial sector (Swann, 1988). The rise of wealthy and institutional investors entrenched large firms, which had the resources to compete for top talent (Stapledon, 1996). However, the mutual reliance of large firms and institutional investors resulted in regulatory capture. For example, the 1986 Financial Services Act underwent more than 500 amendments in the face of intense lobbying by large financial institutions, who secured regulatory concessions for their dealings with large investors (Abdelhamid, 2003). Historical analysis of regulation reveals that City interests have projected their 'preferred model of financial regulation and routinised social and business practices as the natural social and economic order' (Gilligan, 2011, p. 359).

A deregulated and liberalised financial sector meant that credit was becoming more readily and widely available by the 1980s. The real economy, undergoing a similar process of competitive deregulation and globalisation, experienced asset price inflation reflected by the stock market upsurge (Hwang & Song, 2008) and property boom (Ball, 1994) in the 1980s. Consequential capital flows generated were managed by the financial sector, reinforcing its dominance in the national economy. Financial workers' ability to access high rewards was linked to easy money and leverage (Bell & Van Reenen, 2010).

While constraints on international trade and finance diminished fraud in the first phase of financial capitalism up to 1940, their removal post-1979 promoted new fraud opportunities. As banks and financial institutions expanded their foreign operations within a globally integrated financial system, increased availability and mobility of capital facilitated the evasion of domestic regulatory scrutiny. These structural changes are manifested in strong upward trends in economic freedom (Figure 2 and Appendix) and other measures of financial development in Figure 4 and the results in Table 3. A more nuanced effect, not measured by the index, was the role of offshore secrecy jurisdictions. Increasingly, frauds had an international dimension that featured secrecy jurisdictions as part of their operation (Toms, 2019). In tandem, since 1980 there has been a proliferation of opaque shell corporations with no employees or publicly traded shares (Henry, 2016), enabling many recent headline financial scandals. For example, the wave of scandals of 2009 featured several cases in the banking and finance sector that exploited secrecy jurisdictions: Keydata (Luxembourg), Arch Cru (Guernsey), Weavering (Cayman and British Virgin Islands), and Dynamic Decisions (Cayman Islands).[34]

The development of a large financial sector in the 1980s, self-regulating according to new business norms, significantly impacted fraud and scandal. For the first time since the 1920s, most headline fraud was accounted for by the banking and finance sector. Banking and finance scandals also increased steadily during this period, accounting for most cases by the early 2000s (Toms, 2019). The fraud index reached a new peak in the early and mid-1990s (Figure 1). It was associated with high-profile, headline-grabbing scandals in the 1988–1992 period. The weighted measure of media salience showed that this peak was much more significant than the previous peak of 1974–1975, even though the number of scandals was similar. For example, the BCCI scandal contributed heavily to the 1991 Figure (201 out of 1876 fraud-related articles), and in 1995, 'Barings' featured in 11.2% of all fraud articles, and 'Maxwell' 5.3%. A new and record peak was reached in the half-decade before the financial crisis of 2007–2008. During the peak year of 2005, one commentator attributed soaring rates of fraud to the finance, insurance and healthcare sectors, the opportunity to hide large sums in offshore accounts and lenient prison sentences for convicted fraudsters.[35] Similarly, the

KPMG (2017, p. 29) Fraud Barometer registered a substantial increase in loan and mortgage frauds from the late 1990s up to the financial crisis, citing competitive pressure in the banking sector and relaxed lending criteria as key factors.

Consequently, financialised governance provided incentives for slanted accounting data presentations and promoted accounting manipulation, so that accounting fraud and scandal tracked general fraud and scandal closely after 1979 (Figure 1). Professionals' behaviour in accounting, auditing, and governance was moderated away from strict independence (Admati, 2017). Referring to the Maxwell scandal, one commentator noted that negligent auditing in the face of corruption had become a badge of pride for the middle class (Jenkins, cited Mitchell & Sikka, 2002).

Variations in accounting fraud and scandal were uncorrelated with regulation increasing shareholder protection, accounting disclosure, audit, and corporate governance. The Companies Act 1948 mandated consolidated accounting, limiting directors' opportunities to manipulate financial statements using inter-company transactions. The Act also lowered the threshold at which minority shareholders could require Department of Trade investigations into alleged abuses by directors and which could result in criminal sanctions.[36] Consequently, attention was drawn to questionable behaviour that culminated in the takeover boom of the late 1960s, which produced the first headline scandals for many years and featured accounting manipulations designed to secure control of target companies. These followed the removal of restrictions on new capital issues and limitations on lending for speculation, encompassed questionable ethics, but not illegality, and arose from differential treatment of shareholders in takeovers and mergers, particularly during the equity boom of 1968 (Roberts, 1992). The consequences were bipartisan self-regulatory oversight by the London Stock Exchange's *City Code* on takeovers and mergers and by the accounting profession, which developed accounting rules through the Accounting Standards Committee (Stamp & Marley, 1970). Neither of these developments was sufficient to prevent the peak in accounting and other scandals in 1974–1975 following the over-expansion and subsequent collapse of the credit-fuelled property boom. Shareholder protection increased significantly as a result of the Companies Act 1980 (Cheffins, 2008, pp. 329–330),[37] but neither this nor the establishment of the Serious Fraud Office in the wake of the Guinness and Counties Natwest scandals in the mid-1980s (Fooks, 1997), and the continued threat of criminal sanctions, prevented an unprecedented wave of mostly accounting scandals in 1988–1992.

More reform followed, but new systems of oversight again failed to dent the increase in fraud and scandal. The Dearing Report of 1988 led to the establishment of the Financial Reporting Council, an oversight body accountable to the Bank of England and the Department of Trade and Industry,[38] and in turn the Cadbury Report and the development of the Combined Code on corporate governance after 1992 (Jones & Pollitt, 2004; Turley, 1992). At the same time, the effectiveness and independence of the audit function were attenuated, as accounting firms first embraced opportunities arising from greater economic freedom and deregulation, and then, as they became increasingly vulnerable to post-scandal litigation by successfully lobbying to limit their liability (Brooks, 2018; Matthews et al., 1998). In a climate of further deregulation, the Financial Services Authority was created in 2000 with a remit for 'light touch' oversight of the banking and finance sector, and a move away from criminal sanctions in favour of fines and censure (Tomasic, 2011; Wilson & Wilson, 2013). Again, these changes did nothing to prevent subsequent fraud and scandal peaks up to and

including the global financial crisis of 2007–2008, although successive Companies Acts bolstered accounting standards with new disclosure requirements (Matthews et al., 1998, p. 193).

In summary, there has been a quantitative increase in accounting regulation and shareholder protection, particularly since 1979 (Hail et al., 2018; Musachio & Turner, 2013), which have failed to prevent parallel increases in accounting and general financial fraud and scandal. The evidence thus suggests that although these institutional developments may mitigate fraud and scandal for any given level of opportunity, those opportunities and the observed level of fraud and scandal are more strongly determined by financial deregulation, manifested as the removal of restrictions on bank risk shifting, access to capital markets, the international transfer of capital, and the diversification of financial services provision.

Conclusions

The paper has used an innovative methodology to quantify the extent of fraud and scandal and tested for association with measures of financial development underpinned by a supporting historical narrative to explore potential causal relationships. The evidence suggests that economic freedom, facilitated primarily through financial deregulation, also promotes fraud and financial scandal. Greater financial development has a similar effect, as measured by the size of the financial sector. Credit expansion, rather than equity, is the more important long-run determinant, particularly during periods of relative instability in the banking sector. Free trade and associated capital mobility, as aspects of economic freedom and financial development, provide further opportunities for fraud, particularly in recent decades, when combined with the growth of offshore secrecy jurisdictions. Accounting regulation does little to mitigate fraud and financial scandals, including accounting-based frauds and scandals, in the face of the stronger effects of financial deregulation.

Whereas financial development may be desirable for achieving wider economic objectives, the evidence suggests that it may also create significant opportunities for the fraudster. Financial development may well constrain corruption, as asserted in the literature, but it does not follow that fraud and financial scandal are also curtailed, particularly if development is associated with unstable debt and bank finance. In the UK, excessive financialisation in the form of a larger financial sector, credit expansion, and riskier bank lending behaviour explain the peaks in financial fraud over the 20th century, and in particular, the peaks in recent decades where access to international secrecy jurisdictions has added further options for the white-collar criminal. A more suitable balance might be struck if institutional arrangements can be combined with regulations and policies towards financial development likely to achieve stability, balancing financial resources with productive investment in a manner likely also to limit fraud and financial scandal.

Notes

1. The ratio of the size of financial market capitalisation to Gross Domestic Product (GDP) (Rajan & Zingales, 2003).
2. Financialisation is 'a process whereby financial markets, financial institutions and financial elites gain greater influence over economic policy and economic outcomes' (Palley, 2007, p. 2).
3. For example, the Canadian Fraser Institute's Index of Economic Freedom. The Fraser Institute has been described as a 'Chicago School Trojan horse', Dobbin (2003, p. 189).

4. For a historical overview of the 'law and finance' hypothesis, see Musacchio and Turner (2013).
5. A recent survey documents 144 forms of financial crime perpetrated by individuals within the banking sector alone (Shaxson, 2018, pp. 11–12).
6. In a similar vein, Hail et al. (2018) use the number of media mentions of 'scandal' and 'regulator' in a country's leading (business) newspaper as proxy for the prevalence of corporate scandals and regulatory activity.
7. To assess and control for false positives and other noise effects, variants and sub searches were conducted utilising AND and the NEAR proximity operator to terms like 'director', 'chairman' to more accurately match to corporate settings and NOT functions to exclude non-relevant associations, for example 'art', 'benefit', 'welfare', 'tax', etc. All searches and variables are appropriately adjusted to exclude what subsequently became the Republic of Ireland after 1921.
8. The term 'false balance sheet', which was in vogue in the early part of the century, was added to the search term but did not impact the overall time-series properties of the resulting variables.
9. The corporate scandals from Hail et al. (2018) include accounting scandals – namely, 'alleged or actual financial reporting behaviour of a firm (or multiple firms) that is publicly condemned as morally or legally wrong and causes shock and upset among the general public' (ibid., p. 625) – and other scandals that are similarly defined but without financial misreporting as a key element (ibid., p. 632). The headline financial scandals from Toms (2019) are events that have 'occurred as a result of financial resources being employed in a morally questionable manner where there are serious consequences for third parties, which are widely known' (ibid., p. 478).
10. Hail et al. (2018) classify scandals as accounting, near-accounting and other scandals. We classify the scandals from Toms (2019) using the same scheme. For the purpose of this study, we treat near-accounting scandals, i.e. scandals with an implicit rather than explicit accounting angle, as part of accounting scandals.
11. Unlike a specific popularity multiplier for each scandal the measure used captures contagion effects, where large or egregious scandals cause otherwise less serious scandals to also receive disproportionate coverage, or prompt journalists to comment on scandals as generic or systemic problems rather than on specific examples.
12. Prados de la Escosura (2016, p. 435) relates economic liberty to 'a lack of interference or coercion […] in which competitive markets play a central role by protecting individuals "against encroachments on the part of the political power"'.
13. We collect the UK data from Prados de la Escosura (2016) for the following periods: 1900–1904, 1905–1909, 1910–1914, 1925–1929, 1930–1934, 1935–1939, 1950–1954, 1955–1959, 1960–1964, 1965–1969, 1970–1974, 1975–1979, 1980–1984, 1985–1989, 1990–1994, 1995–1999, 2000–2004, and 2005–2007. For 1915–1924 and 1940–1949 where data were unavailable, we use values from the more regulated adjacent year (i.e. with a lower index), namely 1925 and 1939.
14. We are grateful to Dr. Dmitry Kuvshinov for making this data available from his website (https://dkuvshinov.com/).
15. The dataset is publicly available from https://www.bankofengland.co.uk/statistics/research-datasets (accessed 15 October 2022).
16. As banks' holdings of bills, investments and advances constitute aggregate M4 lending, a higher value of *Bank Repression* indicates a greater share of total bank lending flowing to the state rather than private sector enterprises.
17. Specifically, we utilise the following datasets under Bankstats Table B: *London Clearing banks' balance sheet (1975–1982)*; *Scottish Clearing banks' balance sheet (1975–1982)*; *Northern Ireland banks' balance sheet (1975–1982)*; *Retail banks' balance sheet (1975–1996)*; *Other banks' balance sheet (until December 2009)*; and *Monetary financial institutions' (excluding central bank) balance sheet*.
18. Data on both GDP per Capita and GDP Growth are from the Bank of England's AMMD.
19. The mathematical minimum of the Econ. Freedom variable is 1951 (Figure 3, Panel E) as a result of the 5-year measurement interval, but for the purposes of cause-and-effect relationships, it should be noted that the empirical minimum was achieved in 1935 and sustained until 1950 (Figure 2).

20. The results are the same using a Wald test or a likelihood-ratio test.
21. Based on augmented Dickey–Fuller tests of continuous time-series variables, i.e. fraud indices, economic freedom index and financial development proxies (except *IPO*).
22. For the number of lags, we take the integer part of $T^{1/4}$ with T being sample size, which in our case is either 111 (1900–2010) or 108 (1900–2007) annual observations (Greene, 2020, p. 1039).
23. In view of the structural breaks identified in Table 2, we also conducted Gregory–Hansen tests which rejected the hypothesis of no cointegration between the main variables.
24. The direction of causality between accounting regulation and the mitigation of fraud/scandal is assumed here for the purposes of evaluating its effects relative to economic freedom. We acknowledge the possibility, explored in detail elsewhere (see Hail et al., 2018), that accounting regulation may also be a reaction to fraud and scandal.
25. To ensure that our OLS results do not suffer from the spurious regression problem (Wooldridge, 2016), we further probe the cointegration between Fraud/Acct. Fraud and variables that yield a significant coefficient in Tables 3 and 4 (i.e. Econ. Freedom, Credit, Fin. Employment, Loan-to-Deposit, and Bank Repression). The results from the two-step Engle-Granger test (for Fraud) and autoregressive distributive lag (ARDL) bounds test (for Acct. Fraud) are strongly supportive of cointegration, thus lending robustness to our OLS estimators.
26. To illustrate this, in Appendix we construct a 1900–2010 time series of international capital flows (ICF) using data from Reinhart et al. (2016), and superimpose on it the UK's economic liberty index from Prados de la Escosura (2015) (Econ. Freedom), our main empirical proxy for financial development (see section 3). As the graph shows, both ICF and Econ. Freedom were on an uptrend in the early 20th century, which was clearly reversed after the mid-1910s.
27. The year 1914 was a break for Fraud, but not for Acct. Fraud, Scandal, Acct. Scandal, or Econ. Freedom. Although Fraud dipped sharply during World War I, it re-emerged to pre-war levels in the 1919–1920 boom (Figure 1, Panel A).
28. These trends were apparent using term frequency searches of {'bank' AND 'fraud' AND 'job title'} where 'job title' is 'director' OR 'chairman', or 'clerk' OR 'employee'.
29. *Companies Act* 1929, 19 & 20 Geo. 5 c. 23.
30. *Exchange Control Act* 1947 (ch.14, Geo. VI. 10/11); the system of fixed exchange rates and capital controls was inaugurated in 1944 (Helleiner, 2015).
31. 'City City bang bang: The Square Kilometre: A Survey', *The Economist*, Aug. 8, 1970, Volume 236, p. 63.
32. *Companies Act* 1879, 42&43 Vict. c.76 (Matthews, 2006, p. 11; Turner, 2014, p. 123).
33. A recent survey documents 144 forms of financial crime perpetrated by individuals within the banking sector alone (Shaxson, 2018, pp. 11–12).
34. Vincent, M. Warwick-Ching, L., & Masters, B., 'SFO called to investigate £103m suspected fraud at Keydata', *Financial Times*, July 1, 2009, p. 1. Ralph, A. 'Reckless' Arch Cru directors banned over funds scandal, *The Times*, Dec. 19, 2012, p. 42. Mackintosh, J., Weavering accounts short on disclosure, *Financial Times*, Mar. 23, 2009, p. 19. Jones, S and Masters, B. 'Fraud Office to probe hedge fund' *Financial Times,* Nov. 13, 2009, p. 4.
35. Jon Ashworth, 'Fraud in UK soars to 640m', *The Times*, Jan. 4, 2005, p. 41.
36. *Companies Act* 1948, 11 & 12 Geo.6, c.38, ss.164, 169.
37. The anti-director index rose from 2 to 3 as a result of the Companies Act 1948 and from 3 to 5 as result of the Companies Act 1980.
38. 'Sir Ron's Tough Package Sets the Standard', *Financial Times*, Nov. 10, 1988, p. 14.

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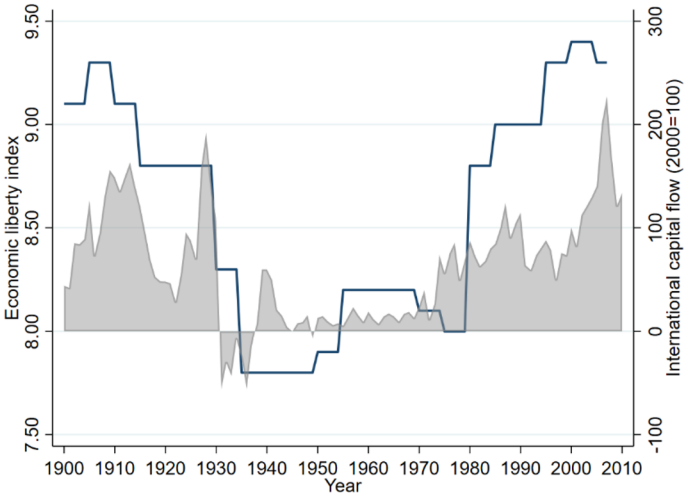
Appendix



Appendix. Economic freedom and international capital mobility. The figure plots the UK's aggregate Historical Index of Economic Liberty (Eco. Freedom) (solid line; left axis) and the level of international capital flows (ICF) (shaded area; right axis) against time.

Component data for construction of the ICF variable for 1900–2010 are from Reinhart et al. (2016); their database is available through the Inter-university Consortium for Political and Social Research. For 1900–1914, we use the gross capital exports from the UK to 25 countries, as a percentage of UK GDP, from Stone (1999). For 1921–1938, we use the net capital inflows to 26 debtor countries, as a percentage of UK GDP, from the United Nations Department of Economic Affairs (1949). For 1940–1979, we use the net capital inflows to 61 countries including the US as a percentage of US GDP, from Reinhart et al. (2016). For 1980–2010, we use the net capital inflows to 132 countries including the US, as a percentage of US GDP, from the International Monetary Fund's World Economic Outlook database.

Missing capital flows for 1915–1920 are filled by linear interpolation. We convert the 1900–1914 data, which are expressed in British pound, to US dollar using the exchange rates from MeasuringWorth (https://www.measuringworth.com/calculators/exchange/), so they are in line with the 1921–1938 data. The UK GDP data for 1915–1920 are from the Bank of England's AMMD, also converted to US dollar before calculating the ratios. The missing ratio in 1939 is set equal to the 1940 value.