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Reconsidering Systemic Fear and the Stock Market

A reply to Baines and Hager

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Reconsidering systemic fear and the stock market: A reply to Baines and Hager

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2nd July 2020

Abstract

A recent *New Political Economy* article by Baines and Hager (2020) critiqued Shimshon Bichler and Jonathan Nitzan's capital-as-power (CasP) model of the stock market (Bichler & Nitzan, 2016). Bichler and Nitzan's model of the stock market seeks to explain how financial crises are tied to the (upper) limits of redistributing income through power. Bichler and Nitzan use American financial data to show that "U.S.-based capitalists" have risen to a great height of power, relative to the underlying population. This height also produces a "forward-looking" fear about the ability to accumulate even more (Bichler & Nitzan, 2016).

Baines and Hager took the important step of examining the CasP model with financial data from four other countries–France, Germany, Great Britain and Japan. They argue that these countries follow some of the patterns of the United States, but not all. These differences in patterns matter because Baines and Hager are curious to know how the CasP model of the stock market can function as a general model of capital accumulation at an international level.

This paper will respond to the part of Baines and Hager's paper where they analyze "systemic fear" in the stock markets of France, Germany, Great Britain and Japan. It argues that Baines and Hager were perhaps too quick to dismiss systemic fear as a concept to study national and regional differences in international political economy. This concept is still in its infancy and, with more consideration, there are opportunities to investigate the characteristics of systemic fear.

By re-examining systemic fear in twelve countries, this paper will show the potential for the concept of systemic fear to support the study of capitalist crisis and national diversity in capitalist development.

1 Introduction

A recent *New Political Economy* article by Baines and Hager (2020) critiqued Shimshon Bichler and Jonathan Nitzan's capital-as-power (CasP) model of the stock market (Bichler & Nitzan, 2016). Bichler and Nitzan's model of the stock market seeks to explain how financial crises are tied to the (upper) limits of redistributing income through power. Their model uses American financial data to show that "U.S.-based capitalists" have risen to a great height of capitalized power, relative to the underlying population. This height also produces a "forward-looking" fear about the ability to accumulate even more (Bichler & Nitzan, 2016).[1]

Baines and Hager examined the CasP model with financial data of four other countries–France, Germany, Great Britain and Japan. With a careful step-by-step approach, Baines and Hager identified where in Bichler and Nitzan's argument these countries had similar patterns to the United States and where they did not. Overall, Baines and Hager are concerned with the national differences in the CasP model, as they are curious to know how the CasP model of the stock market can function as a general model of capital accumulation at an international level. Based on their findings, they argue that the CasP model of the stock market is likely not suited to analyze the "the global unevenness and continued national diversity in capitalist development" (Baines & Hager, 2020, p. 137).

Baines and Hager's article is rich with details that can engender lots of future research and dialogue in political economy. My paper only responds to a specific aspect of Baines and Hager's paper. In section four of their *NPE* article, Baines and Hager examine Bichler and Nitzan's concept of *systemic fear*, which is applied to the stock markets of the countries listed above. Bichler and Nitzan created this concept to theorize the effects of capitalists reaching limits in accumulating power. Systemic fear is low when capitalist power is low, because there is "*scope for increasing [capitalist power] further*: income can be further redistributed in favour of profit, hype can be further amplified, profit volatility can be further decreased and the normal rate of return can be further lowered" (Bichler & Nitzan, 2016, italics in original, p. 143). Systemic fear, according to Bichler and Nitzan, rises with rising capitalist power because "capitalized power is not unbounded" (Bichler & Nitzan, 2016, p. 143). As more things are done to increase power, such as decreasing profit volatility, it becomes harder to go even further in the interest of power. When power is already high, resistance from below grows and capitalists do not see the future as an open frontier of opportunity. In this state, systemic fear is the other side of high capitalist confidence: the "future is too bleak to rely on" and "reassurance

[1] Readers unfamiliar with how Bichler and Nitzan use the terms "power" and "accumulation" should start with Nitzan and Bichler (2009). Their methods are easy to understand but the reader is asked to pay special attention to the theoretical assumptions that are *rejected*. For example, in their paper that presents a CasP model of the stock market, they reject the idea that there can be mismatches between nominal financial prices and real economic units of production and consumption (Bichler & Nitzan, 2016).

[for capitalists] can come only from current profit" (Bichler & Nitzan, 2016, p. 142).

In their response, Baines and Hager follow the methods of Bichler and Nitzan and produce quantitative indices of systemic fear for France, Germany, Great Britain, and Japan. As an empirical measure, systemic fear measures a moving correlation of past earnings and stock prices, which conventional finance says should be forward-looking. As of this writing, the index is produced in two steps. As shown in Figure 1, a 12-month trailing correlation is made between prices and earnings. In the short term this trailing correlation bounces up and down between 1 and -1. In step two, one takes a longer-term moving average of this trailing correlation (B in Figure 1). This transformation of the time series reveals the annual or even decennial trends in the correlation between prices and earnings.

Overall, Baines and Hager are skeptical that,*across the world*, "capitalists [are] anxious that their dominant position is under threat, and [that] when an upper-bound limit of power is reached, they become fearful and backward-looking"(Baines & Hager, 2020, p. 124). They recognize the very strong results of the United States, but see concerning differences elsewhere. They do not find strong evidence of rising systemic fear at an international level. They also conclude that Germany is the only positive result when they measure the correlation between systemic fear and Bichler and Nitzan's "power index". The power index is a ratio of stock index price (such as the S&P 500) to the average wage rate. This power index is a representation of how a capitalists (who have significant stakes in the stock market) succeed or fail relative to the underlying population (who primarily rely on wage income). Based on evidence of the United States, Bichler and Nitzan argue that systemic fear is the dialectical "other" of the power index. Significant increases in the power index produces systemic fear as it is increasingly difficult to see further increases of the index in the future.

I focus my attention on this part of Baines and Hager's article for two reasons. First, Baines and Hager correctly identify systemic fear to be a distinguishing feature of Bichler and Nitzan's writings on capitalist crisis. Systemic fear signals a breakdown in the forward-looking ritual of capitalization, which discounts future expectations to present prices. Bichler and Nitzan argue that this form of breakdown is very significant because capitalization "is necessary for the existence of modern capitalism, at least in its present form":

> Suppose for argument's sake that capitalists, instead of expecting capitalization to continue indefinitely, believed that the process would cease to exist at some future point. At that point, with capitalization gone, their assets would have a nil value, by definition; and with future prices being zero, current prices would have nowhere to trend but down. Now, the fact that capitalists invest shows that they expect the very opposite – i.e., that the value of their assets will grow, not contract – and that expectation means that, consciously or not, they also think that the ritual that valuates their assets will never

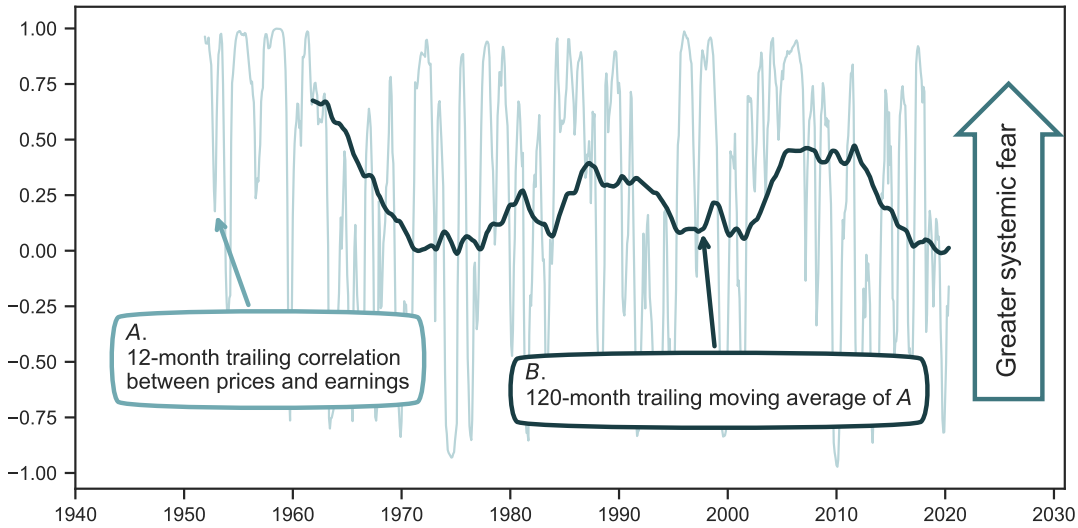

Figure 1: Constructing the systemic fear index (with GBR data)

See Table 2 for the creation of the systemic fear index. See Tables 4 and 5 for breakdown of United Kingdom data.

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end. (Bichler & Nitzan, 2010)

Second, their analysis of systemic fear is where, in my opinion, Baines and Hager overlook opportunities to investigate and experiment within the CasP model. Differences between their results and those of Bichler and Nitzan are discovered, but they are not transformed into follow-up questions about why these differences exist. Instead, the test for systemic fear outside the United States is taken as an opportunity for Baines and Hager to state that it "may be time to move beyond systemic fear as a conceptual basis for modelling the stock market" (Baines & Hager, 2020, p. 133). As I will argue below, Baines and Hager might be too impatient with the object of their critique.

The main body of this paper is broken into three sections. Section 2 summarizes how I prepared the data to engage with Baines and Hager's critique of Bichler and Nitzan. My analysis also expands in breadth (more countries) and depth (more measures of power and systemic fear). These expansions are more experimental than otherwise–they are done in search of more evidence, which could be used for or against Bichler and Nitzan's conceptualization of systemic fear and its links to power.

Section 3 analyzes examples of how Baines and Hager critique the concept of systemic fear. Performing a critique is certainly not an issue on principle, but I argue that Baines and Hager's are too quick in their judgment, particularly because they rely on their own definitions of *systemic* and *crisis* to arrive at

their conclusion. To my knowledge, Bichler and Nitzan have not presented firm opinions on how systemic fear would be measured across different stock markets. Thus, when Baines and Hager take their arguments to an international dimension there is no body of literature to stand on–they are *creating* standards to analyze the international dimensions of systemic fear. This situation is what makes their article an exciting contribution to political economy. But it is also puzzling why they appear to be closing a debate that still has many unexplored pathways.

Section 4 is inspired by Baines and Hager's primary interest in seeing what is happening in advanced capitalist countries around the world. By trying to get as much historical data as possible, I hope to re-open the debate on the meaning of systemic fear and on the evidence of systemic fear's relationship with capitalized power. Section 4 has three goals:

1. To experiment with the parameters and variables of systemic fear and power, as long as they are conceptually consistent with the arguments of Bichler and Nitzan.

2. To discover if there is, despite national differences, evidence of rising systemic fear at an international level.

3. To discover if there is, despite national differences, statistical significance for a positive relationship between systemic fear and power at an international level.

2 Data Preparation

This section outlines how data was retrieved and prepared for this paper.

2.1 Countries and their stock markets

Hitherto, systemic fear has been analyzed in the context of national markets. I retrieved United States data to replicate Bichler and Nitzan's measurements, and I retrieved the data of France, Germany, Japan and Great Britain to replicate the measurements of Baines and Hager. In curious search of more data, I retrieved the necessary data for Australia, Canada, Netherlands, South Africa, South Korea, Sweden and Switzerland.

Table 1 shows the geographical and historical scopes of this paper. Within these scopes of research there are various time series needed to produce measures of systemic fear and power. The metadata for these measures are introduced in step-by-step fashion in tables, notes and an appendix.

2.2 Six measurements

Tables 2 and 3 introduce the six measurements that will be referred to often, in both text and in graphs. The measurements with a subscript of 1 (S_1 and P_1)

Table 1: Country and stock index metadata, sorted by alpha-3 code

Country	alpha-3 code	Stock Index*
Australia	AUS	ASX All-ordinaries
Canada	CAN	S&P/TSX 300
Switzerland	CHE	SMI
Germany	DEU	CDAX
France	FRA	CAC All-tradable
United Kingdom	GBR	FTSE All-share
Japan	JPN	Nikkei 225
South Korea	KOR	KOSPI
Netherlands	NLD	AEX All-share
Sweden	SWE	OMX Stockholm All-Share
United States	USA	S&P 500 Composite
South Africa	ZAF	FTSE/JSE All-Share

* Present-day titles of the indices are used. Global Financial Data details how each index is spliced when there are changes to the number of firms in the index. For detailed breakdown of prices, see Table 4 in Appendix. For detailed breakdown of P/E ratio, see Table 5 in Appendix.

are the same as the measurements used by our two pairs of authors–Baines and Hager, and Bichler and Nitzan. Measurements with subscripts of 2 and 3 are new. They are products of experimenting with the parameters and variables of systemic fear and power. When referring to the conceptual ideas behind specific measurements, I will sometimes use S_i and P_i as abstract symbols.

Table 2: Methods to produce time series of systemic fear

Idx.	Correlation of ...	Window	Transformations
S_1	levels ($P \sim E$)	12 months	120-month trailing average
S_2	levels ($P \sim E$)	12 months	120-month trailing average; seasonal decomposition (trend)
S_3	12-month differences ($\Delta P \sim \Delta E$)	120 months	12-month trailing average

Sources: Global Financial Data for composite index prices and P/E ratio. Earnings are found in P/E ratio. For detailed breakdown of prices, see Table 4 in Appendix. For detailed breakdown of P/E ratio, see Table 5 in Appendix.

2.3 Stock market price and earnings data

As is the case with many political-economic research questions, availability of historical financial data can be difficult to find for countries other than the United States. For example, when Baines and Hager construct indices of sys-

Table 3: Methods to produce time series of power indices

Idx.	Numerator	Denominator	Transformations
P_1	Close Price	Wage Rate	log; series mean = 100
P_2	Close Price	Income per capita (Nominal)	log; series mean = 100
P_3	Close Price	GDP per capita (Nominal)	log; series mean = 100

Sources: Global Financial Data for composite index prices and GDP per capita. Income per capita (Nominal), for each country, from 1950 to 2018, taken from World Inequality Database (https://wid.world/). For detailed breakdown of wage rates, with data sources, see Table 7 in Appendix. For detailed breakdown of GDP per capita, see Table 5 in Appendix.

temic fear for other countries, the time series are, in comparison to the United States, shorter in overall length and they begin closer to the present day. Short time series are especially troublesome when creating an index of systemic fear: as a moving correlation between price and earnings, the measurement is limited by the shortest series in the pair.

Global Financial Data (GFD), through its platform "Finaeon", provides us with a way to produce longer time series of prices and earnings for composite indices. GFD provides price-earnings ratio data. When used with price data, we can solve for earnings per share:

$$earnings = price \times \frac{1}{PEratio} \tag{1}$$

Ideally, we would have long time series of raw earnings-per-share data, but solving for earnings with a price-earnings ratio is an adequate workaround. To confirm this workaround, Figure 2 produces the same measure of American systemic fear with two independent methods. The thin line uses the same dataset that Bichler and Nitzan uses (updated to 2020). This dataset contains price and earnings-per-share data for the S&P 500. The darker line is the product of Equation 1. As indicated by a near-perfect correlation, the differences between the methods are extremely minor.

Figure 2: USA: Systemic fear, constructed with two methods

Source and methods: Shiller's dataset (http://www.econ.yale.edu/~shiller/data/ie_data.xls, accessed on May 19, 2020) for the dataset used by (Bichler & Nitzan, 2016). See Table 2 for the creation of S_1. See Tables 4 and 5 for breakdown of United States data.

3 Baines and Hager's critique of systemic fear

As was stated in the introduction, Baines and Hager's critique of systemic fear is perhaps too quick in its judgment. Their judgment could ultimately turn out to be best, but, as is the case in Kliman (2011), an alternative to the perceived faults in Bichler and Nitzan's model was not fully explored. Baines and Hager discovered that there are differences between the United States and other advanced capitalist countries, but there is room to explore the significance of these differences. With more data and a pinch of experimentation, we can re-consider the place of national differences in a larger model of systemic fear.

The remainder of this section looks at Baines and Hager's interpretation of what makes a phenomenon systemic. From their interpretation of when and how international systemic fear should occur, Baines and Hager express skepticism when systemic fear is not rising at particular times, such as Brexit, or collectively, across all major stock markets.

As assistance to this analysis of Baines and Hager's interpretation, two figures can act as "preambles" to the following sub-sections. Figure 3 follows the same methods as Baines and Hager and shows the relationship between the "original" systemic fear index (S_1) and the power index (P_1) for eleven countries. The plot of South Africa is missing due to a lack of wage data. (Extrapolating from Figure 13, the S_1-P_1 correlation for ZAF is likely moderate *but negative*). Plotting with more historical data and adding more countries

is unlikely to resolve Baines and Hager's skepticism. The United States has the strongest positive correlation, countries such as Germany, Canada and Sweden have strong positive correlations, but there are weak correlations elsewhere. In particular, two of the countries first analyzed by Baines and Hager–Great Britain and France–have weak positive correlations.

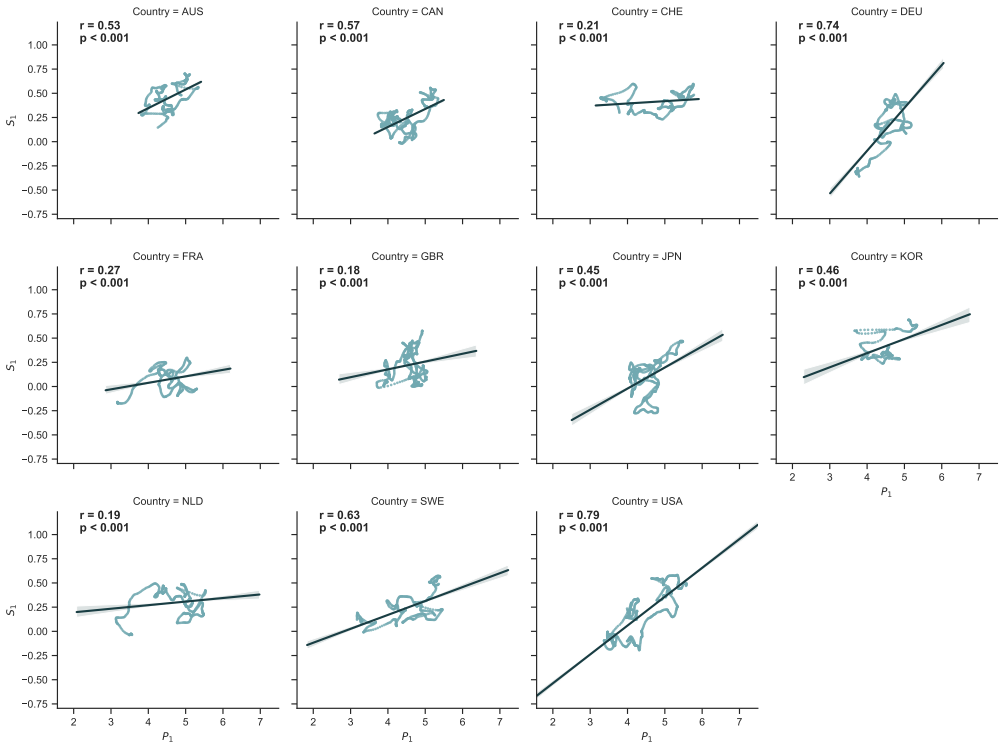

Figure 3: S_1 v. P_1, by country

Source and methods: See Table 2 for the creation of S_1 and Table 3 for the creation of P_1. See Appendix for breakdown of data by country.

Figure 4 shows three measures of average systemic fear. The reasons for experimenting with the measure of systemic fear will appear later. In the meantime, we can see that the mean trend across all countries is trending upward in all three measures of systemic fear. The presence of a rising average will prove to be very important. In probability theory the average is often treated as the *expected value*. Thus, there can be differences in the independent events of systemic fear (i.e., the systemic fear of an individual country), and some of these events can even be trending downwards; but the expected outcome, based on the average, is rising.

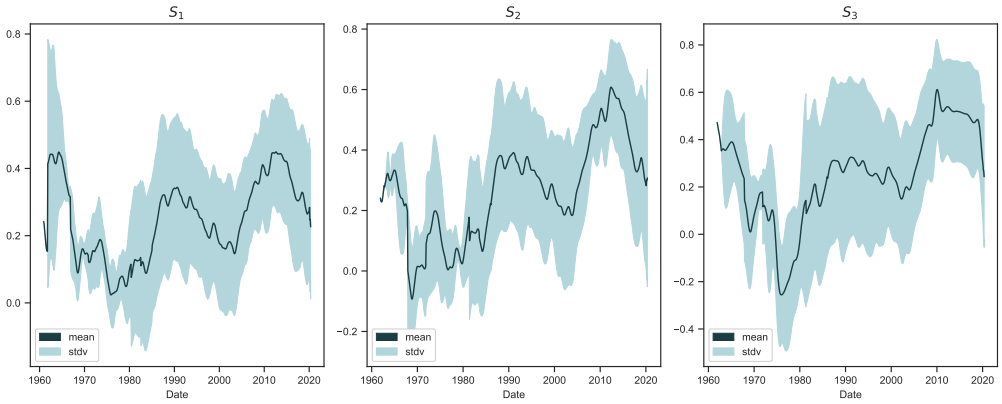

Figure 4: Three measures of systemic fear (S_1, S_2, S_3): Averages and standard deviations of 12 countries.

Source and methods: See Table 2 for the creation of S_1, S_2 and S_3. See Appendix for breakdown of data by country.

3.1 Meaning of systemic

> ... if capitalist fear is systemic, then it should be global given the integrated nature of the world's financial system. That is to say, the strong correlation between EPS and stock prices that BN find in the US over recent years should also be evident in the major stock markets the world over. In our own research, however, we find little evidence of systemic fear as a global affliction. (Baines & Hager, 2020, p. 131)

The above quotation is a key part of Baines and Hager's argument that, by its very definition, systemic fear should be evident at a global scale. The premise of this critique makes sense, given the assumption that global finance is an integrated system of markets. Yet notice that Baines and Hager do not provide clear standards for labeling processes "systemic". How many countries need to have a strong correlation like the United States? To have international systemic fear, does every measure of S_1 need to be above a certain value? Must there be a long-term average of high systemic fear? Must the S_1 of each country move up and down together?

This paper cannot answer all these questions in great detail, but we can suggest that if questions like these are being overlooked, we might not be prepared to fully assess the international relevancy of Bichler and Nitzan's concept. Figure 3 confirms there are national differences in the relationship between P_1 and S_1, but, to embody the skepticism of Hume (1985), we are still missing a set of rules to determine if "systemic" is a misleading term for the *causes* of these national differences. For instance, evidence is showing that multiple major

stock markets produce similar results to the United States–Germany (+0.74), Sweden (+0.63), Canada (+0.57), and Australia (+0.53). Japan and Korea can be added to this list if we include countries that have higher positive correlations than +0.40, a common benchmark for a moderate relationship between variables.

We certainly cannot ignore the negative results. For instance, Great Britain's weak positive correlation (+0.18) is curious, to say the least–it has one of the largest stock markets on the planet, and this country is a common subject of political economic research. But it is still not easy to say its weak positive correlation in Figure 3 is a clear sign that "systemic" is an inappropriate term. For comparison, take a phenomenon like air pollution. A standard measure of air quality is PM2.5, which looks at exposure levels to particulate matter that is smaller than 2.5 micrograms. One does not successfully dispute that air pollution is a systemic problem if he states that, in recent years, many countries have exposure levels that are fractions of the most polluted places in the world. Arguments for or against a theory of systemic air pollution would involve creating methods to interpret the *distribution* of data and the relationships between countries–including the countries that have relatively small air pollution.

To think more about the international distribution of systemic fear, we can look at three characteristics of the evidence:

1. the relationships between countries
2. the rarity of systemic fear
3. the statistical significance of systemic fear's distribution

These are not the only relevant characteristics, but knowing more about them enables us to judge the usage of "systemic" when the data is not uniform across all countries.

3.1.1 The relationships between countries

In Figure 3 of their *NPE* paper, Baines and Hager look at the relationship between systemic fear in the United States and the MSCI World Index. They identify two qualities of this relationship: a positive correlation in the long-term (+0.59), and a divergence of systemic fear in the years following the 2008 global financial crisis (Baines & Hager, 2020, p. 131). Missing from this comparison of the two series, however, is a breakdown of which countries contribute to the positive correlation and which do not. Any or all countries other than the United States could be responsible for the post-2008 divergence of the United States and the MSCI index. Furthermore, the MSCI World Index is a composite index that is also weighted by shares. According to a May 29, 2020 fact sheet (MSCI, 2020), the index has the following weights by country: United States 65.82%, Japan 8.22%, United Kingdom 4.5%, France 3.3%, Switzerland 3.2% and Other 14.9%. Thus, the long-term positive correlation could be the United States with itself.

Figure 5 shows the correlation matrix of how S_1 correlates in every possible pair of in our dataset. Across each row and down each column are the pairings of two countries. The positive correlations in the matrix are not perfect and neither are they uniformly distributed across samples. Yet Figure 5 does indicate that many of the countries have positive correlations with each other. Additionally, some of the positive correlations are stronger than +0.59, the value in Figure 3 of Baines and Hager (2020).

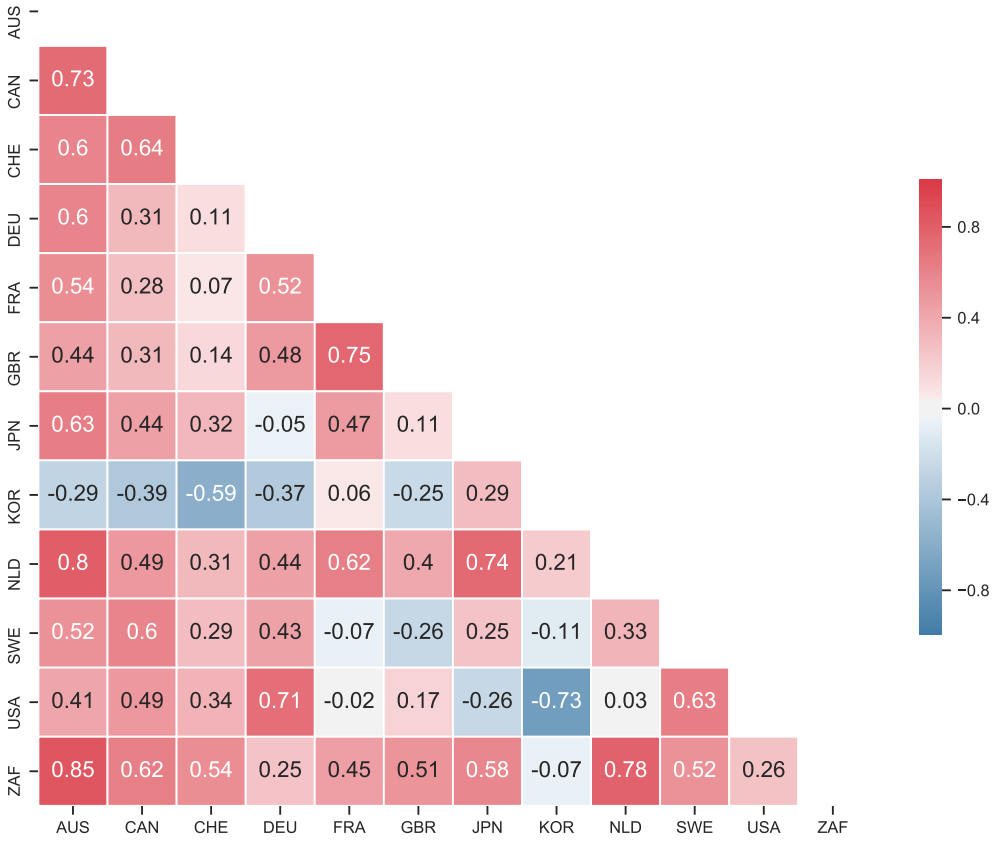

Figure 5: Correlation matrix: each country's S_1

Source and methods: See Table 2 for the creation of S_1, S_2 and S_3. See Appendix for breakdown of data by country.

One's threshold for empirical difference will impact how one sees a strong network of relationships in Figure 5. Yet it is possible to experiment with thresholds. For example, Figure 6 uses the results of Figure 5 to draw two networks, where a country is a node and a positive value from the correlation matrix is an edge. Panel A draws a network where the threshold for an edge is

+0.59. Panel B draws a network where the threshold for an edge is +0.40. The weights of the edges in Panel B (visualized as line thickness) are determined by the strength of the positive correlation for each pair's P_1. In both panels, the majority of countries are networked by their positive relationships. Only South Korea is separated from each network (it is, however, connected to the United States and Switzerland by its strong negative relationships).

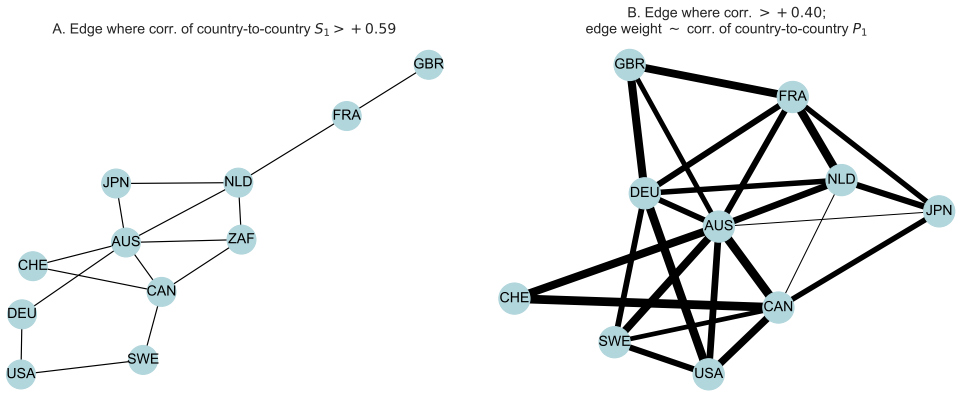

Figure 6: Networks of systemic fear? Networks of power?

Source and methods: See Figure 5 for values that create the edges. The correlation matrix of P_1 is not visualized. See Table 3 for the creation of P_1. See Appendix for breakdown of data by country.

The long-term correlations between countries are shown in Figure 5. We need a different approach to analyze the historical timing of the divergence of U.S. systemic fear and systemic fear measured with the MSCI World Index. On the assumption that national systemic fears should be moving together in the wake of the 2008 global financial crisis, Baines and Hager have identified puzzling evidence in Figure 3 of their paper. But are all countries in the MSCI World Index going in a different direction than the United States after 2008?

Figure 7 uses this paper's dataset to perform a breakdown of country-to-country correlations of S_1. In each panel we have a country. The time series is the average of all of one country's 60-month correlations with every other country in the dataset (e.g., average of AUS-S_1 $\sim$ CAN-S_1, AUS-S_1 $\sim$ CHE-S_1, AUS-S_1 $\sim$ DEU-S_1, ...)). Interestingly, Figure 7 indicates that Baines and Hager touched on an interesting event: the 2008 global financial crisis scattered the trends of S_1. Countries that were tightly correlated with other countries in the years before 2008 were not for a few years after. In the cases of France, Germany, Great Britain, Switzerland and the United States, the changes to the relationships look severe.

If S_1 can differ by country, points of divergence do need to be explained. Yet Figure 7 might indicate that what has happened since 2008 is not a rea-

son to downgrade the concept of systemic fear, but rather to look at national relationships more closely. Since the 2008 financial crisis (marked on the date of the U.S. federal takeover of Fannie Mae and Freddie Mac) there is a pattern that is shared by many countries in the dataset. The country-to-country correlations of S_1 first drop to points where there is virtually no correlation between countries. Around 2016 there is a noticeable "bounce-back" in the country-to-country correlations of S_1. In fact, the "bounce-back" is so large that, in many cases, country-to-country correlations of S_1 are higher than they were in 2008. Moreover, there are upward trends in the time series, suggesting that the rise of average systemic fear (see Figure 4) is producing stronger country-to-country relationships of this fear.

3.1.2 The rarity of systemic fear

> The S&P 500 systemic fear index has moved sideways at an unprecedented high from 2008 onwards, while the fear of investors in the MSCI World has plummeted over the same period. Aside from holders of S&P 500 shares, it appears, at least by BN's measure, that capitalists the world over have been rapidly gaining confidence since the global financial crisis. (Baines & Hager, 2020, p. 124)

At different points, Baines and Hager show they are holding expectations that systemic fear should be rising at particular times. Their references to the global financial crisis of 2008 and Brexit indicate they, like many other political economists, are keen to know if a concept or method can explain key historical events. Yet it is doubtful that we know enough about international systemic fear to suggest that S_i *should* be moving one way or another. What does it mean when the measure of S_i tells us that "capitalists the world over have been rapidly gaining confidence since the global financial crisis"? Does it mean the measure is broken? Or does it mean that capitalists outside the United States are *actually* regaining confidence?

Answering these questions of accuracy cannot be solved quickly and it is likely that the scale of this paper is not suited to an investigation into whether S_i is meaningful in every context. Yet these gaps in our knowledge affect Baines and Hager's argument as well. Without a more detailed outline of how systemic fear relates to other crises, political or otherwise, Baines and Hager's usage of the Brexit shows signs of confirmation bias:

> Perhaps the most compelling case against the systemic fear index is the fact that it has been sharply falling for the UK even in the context of the vote for Brexit in the referendum of June 2016. Other quantitative indicators of business confidence, such as the Hargreaves Lansdown Investor Confidence Index, as well as qualitative surveys of business leader sentiment, all point to growing a climate of fear in the wake of the Brexit referendum. (Baines & Hager, 2020, p. 132)

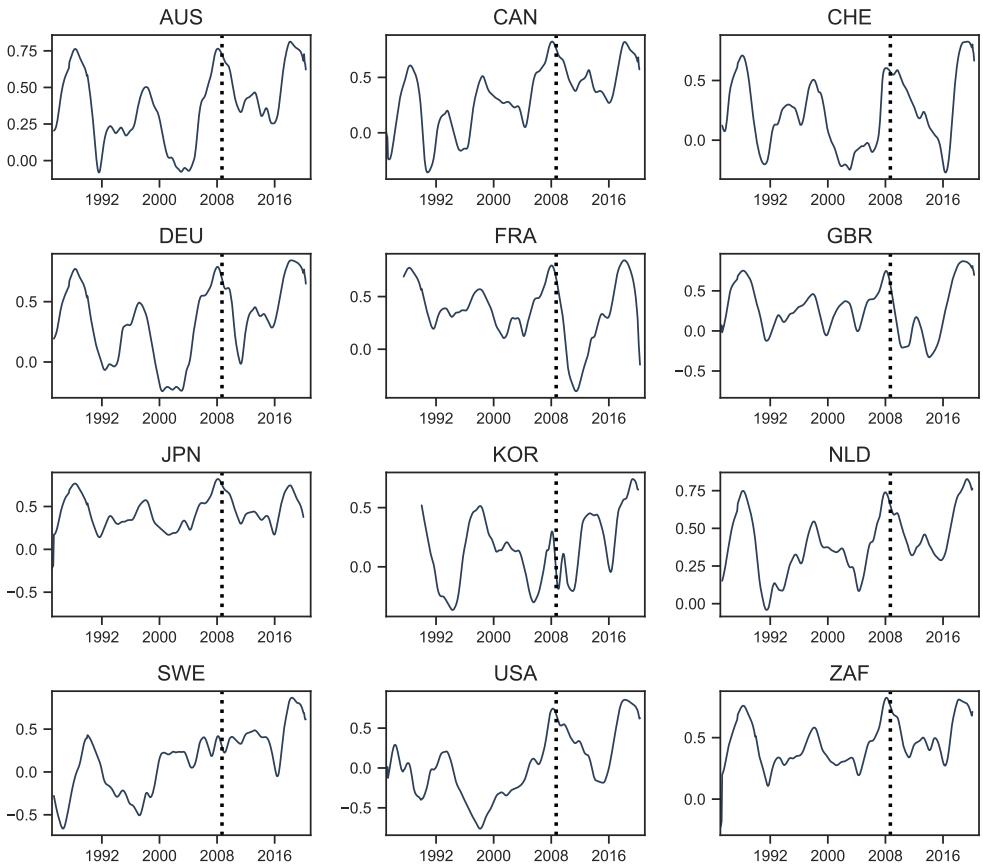

Figure 7: 60-month rolling correlations of $(S_1 \sim S_1)$, average of all combinations

Note: the dotted vertical line is set to September 7, 2008, the date the U.S. federal takeover of Fannie Mae and Freddie Mac.
Source and methods: For each country's time series, the average 60-month rolling correlation with every other country is taken. See Table 2 for the creation of S_1. See Appendix for breakdown of data by country.

Why must Britain's systemic fear be high in the time of Brexit? Brexit is legitimately a front-page news story, but are the swirls of social uncertainty about *confidence in obedience*? Incompleteness of their model notwithstanding, Bichler and Nitzan delimit systemic fear in two important ways. First, they argue that the purpose of measuring systemic fear is to look at the drop in a *type* of confidence that is fundamental to believing that the forward-looking logic of capitalist investment will carry into the future–confidence in obedience. Thus, the rise of S_i is a logical rise in capitalist fear if we suppose that capitalism has a forward-looking logic which very rarely breaks down at its roots.[2]Second, confidence in obedience–the other "side" of systemic fear–is different than the confidence needed for capitalists to account for risk. In the latter case there is uncertainty about the future, but the logic of capitalization is still functioning as a social ritual that accounts for the uncertainties of the future. As Frank H. Knight argues, we need to see the gradations and differences in economic uncertainty. Some uncertainty, for example, "is easily converted into effective certainty; for in a considerable number of such cases the results become predictable in accordance with the laws of chance, and the error in such prediction approaches zero as the number of cases is increased" (Knight, 1921, p. 46).

If we choose not to abandon the concept of systemic fear just yet, we have the opportunity to investigate how we can avoid confirmation biases in the future. For example, Figure 8 plots two confidence indices from the OECD–a business confidence index (BCI) and a consumer confidence index (CCI). The time series of Great Britain are in bold and Germany, France and the United States are added for comparison. Great Britain's CCI has dropped since 2016, but its BCI has been *increasing* with a seasonal cycle. Additionally, its BCI after 2016 is not visibly different than the BCIs of Germany, France and the United States. This evidence is not a simple counter-point to the Hargreaves Lansdown Investor Confidence Index; but it is a counter-point to the way Baines and Hager use the Hargreaves Index. It might be too early to say systemic fear has a fatal theoretical problem because the systemic fear of Great Britain "should" be rising in the context of Brexit.

Given that systemic fear cannot be, according to the current norms of capitalist behavior, anything like "everyday" uncertainty, we should re-open the hypothesis that systemic fear is a *rare* state of crisis. What this means for the duration of this state, I do not know. But it does mean that we need to be just as open-minded about drops in systemic fear as we are about its rises. We also need to investigate how systemic fear is potentially different than other measures of financial confidence both theoretically and empirically. Obsessed with the future, many economists, financial analysts and journalists offer methods to see the signs of such phenomena as low economic productivity, inflated asset

[2] "... the only reason for capitalists to buy stocks and in so doing bid up the stock price/wage ratio is that they expect this ratio to rise even further. And the fact that they believe that this ratio will go up attests to their confidence in obedience – the confidence that the underlying population will not expropriate them and that the system as a whole will not fail them. In this sense, our power index offers an objective measure of capitalist confidence – at least on the outside" (Bichler & Nitzan, 2016, p. 142).

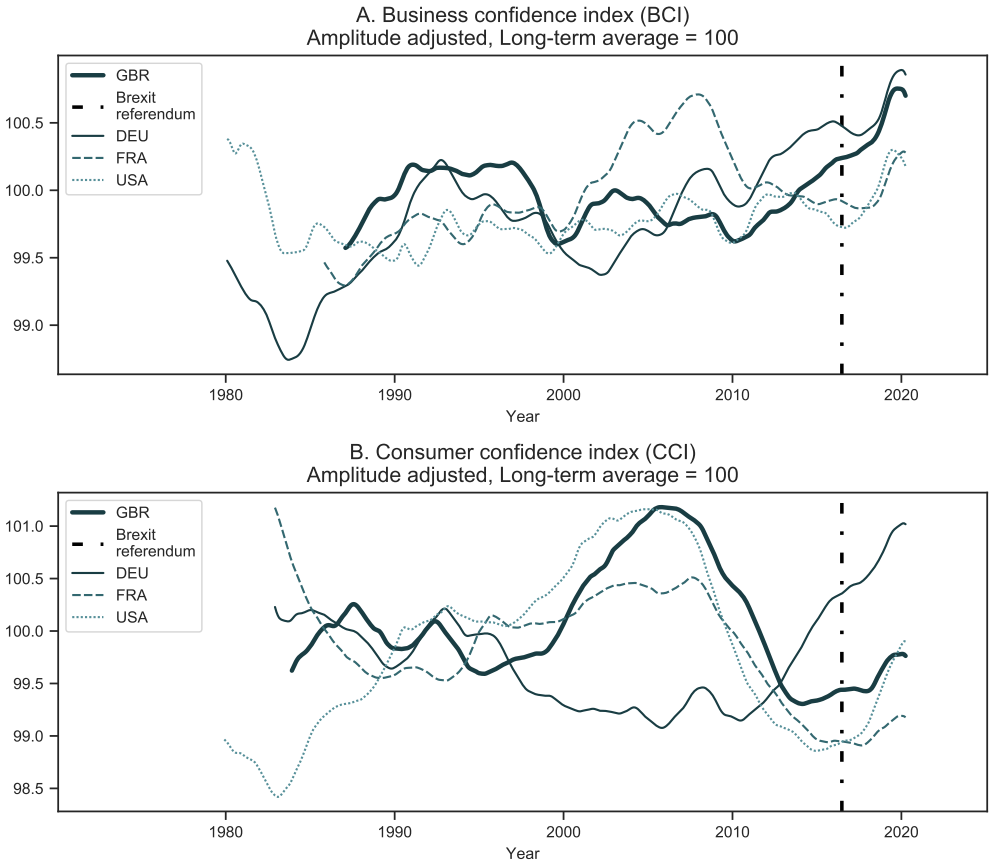

Figure 8: OECD Confidence Indices

Source: OECD Main Economic Indicators: Business tendency and consumer opinion surveys: (BCI: https://data.oecd.org/leadind/business-confidence-index-bci.htm, CCI: https://data.oecd.org/leadind/business-confidence-index-bci.htm, both accessed on May 19, 2020)

bubbles and over-valuated stock markets. Are these phenomena systemic fear by other names?

Figure 9 plots average 60-month correlations between S_2 and three measures that are commonly used for investors to assess market confidence and long-term valuation. The "Buffet indicator", as it is sometimes called because Warren Buffet said in 2001 "that it is probably the best single measure of where valuations stand at any given moment" (Buffett, 2001), is a ratio of total market capitalization to GDP. The CAPE3 is a three-year cyclically-adjusted price-earnings ratio. This form of price-earnings ratio was first popularized by Robert Shiller. It measures ratio of prices to a moving average of earnings (three years in this case). When this ratio is high, "[long-term] investors would be well advised, individually, to lower their exposure to the stock market" (Shiller, 2005, p. 177). The third measure, is the OECD BCI, which was used in Figure 8. The BCI uses opinion surveys to assess "developments in production, orders and stocks of finished goods in the industry sector". According to the OECD, "it can be used to monitor output growth and to anticipate turning points in economic activity" (OECD, n.d.).

Figure 9 is interesting because it shows systemic fear is often different than the other measures of investor confidence–to say nothing of differences in the theory behind these measures. Moments when S_2 has a 60-month positive relationship with another measure appear to be brief and occur during bear markets. In the top left panel, for example, two vertical lines annotate instances when the 60-month correlation between S_2 and the "Buffet Indicator" jumps. The first line is Black Monday (October 19, 1987). The second line is the U.S. federal takeover of Fannie Mae and Freddie Mac (September 7, 2008), one of the many events at the start of the global financial crisis of 2008. By comparison, the three bottom panels in Figure 9 show that the "Buffet Indicator", the CAPE3 and the BCI have positive relationships throughout the market cycle.

Figure 9 cannot tell us that systemic fear is what political economists want to be looking at. Rather, the figure indicates that systemic fear, assuming it is theoretically sound, is giving a different picture than other indicators of investor and business confidence. In particular, its picture of capitalist confidence after 2008 is almost the inverse of what other indicators show.

3.1.3 Systemic fear's distribution

As quoted above, Baines and Hager observe that the systemic fear of investors in the United States, measured by the S&P 500, has been moving "sideways" since 2008. If one looks at Figure 2 again, one will see that this plateau is between +0.40 and +0.60. If we remember that a measure of systemic fear is built from a moving correlation of prices and earnings, plateauing at a "moderate" level of correlation strength might be puzzling. What will make systemic fear go closer to +1.00? Is +0.60 some type of ceiling?

Kliman and Baines and Hager have both critiqued the concept of systemic fear in reference to events in time where systemic fear, if meaningful, *should* be high or low.[3]Nobody, to my knowledge, has investigated where "high" systemic

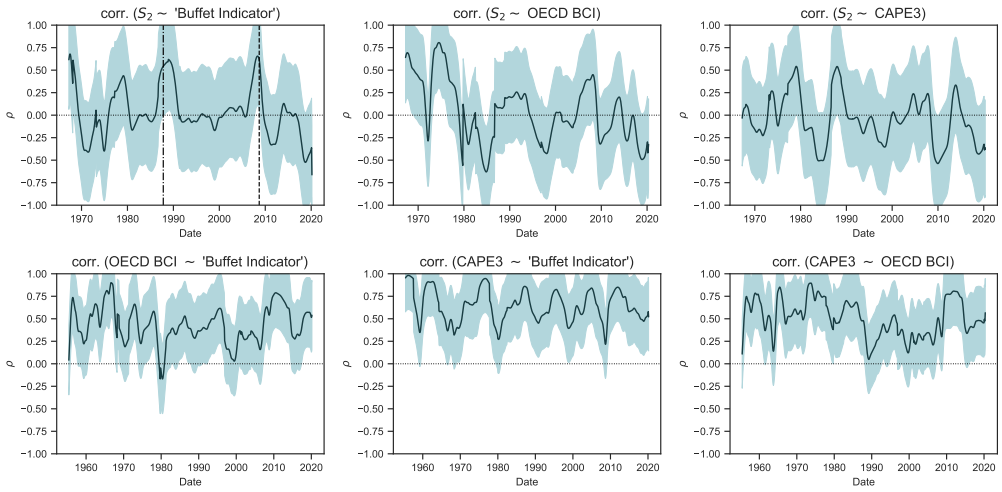

Figure 9: 60-month correlations between S_2 and other indicators (all countries)

Note: the dark line in each panel is the mean 60-month correlation. The shaded area is one standard deviation above and below the mean. S_1 and S_3 yield similar results.
Source and methods: See Table 2 for the creation of S_2. See Appendix for breakdown of data by country. See Table 8 for country data of 'Buffet Indicator', and Table 9 for country data of CAPE3 ratio. OECD BCI: https://data.oecd.org/leadind/business-confidence-index-bci.htm, accessed on May 19, 2020

fear starts on a continuous scale. This investigation is important because the methods that make a measure of systemic fear also impact where the lines of statistical significance will be drawn.

S_1 is produced from a moving correlation, but it is also a moving average of a moving correlation. This last fact changes the significance of the numbers. The moving average of a moving correlation will stay close to zero when the moving average window has a wide spread of correlations between -1 and 1. Moreover, the canceling-out of positive and negative correlations in the same window will make it harder for a measure of S_i to have values we traditionally associate with moderate or strong correlations.

Figure 10 visualizes the statistical problem and helps us understand that we are informally hypothesis testing when we think that sampled evidence is not strong enough to be convinced. A step forward involves thinking about what null hypothesis we are testing against. I believe a reasonable starting point is to have the null hypothesis be: prices and earnings have zero long-term correlation. With this null hypothesis we can use random numbers to produce null distributions of systemic fear.

We can see the three randomly-generated distributions in Panel A of Figure 10. Each measure of systemic fear produces a null distribution with a mean of zero. Yet notice that the standard deviations are different. S_1, the measure used by Bichler and Nitzan and Baines and Hager, has the smallest standard deviation of the measures with which we are experimenting. This indicates that the probability S_1 of producing values above $+0.25$ and below -0.25 through randomness is very low.

In Panels B, C and D of Figure 10 the respective measure of S_i is transformed into a Z-score of the null distribution. This transformation helps us see that there are both statistically insignificant and statistically significant measures of

[3]Kliman (2011) was one of the first to critique Bichler and Nitzan's concept of systemic fear. Kliman makes it very clear that he thinks it is impossible for systemic fear to be meaningful concept because the evidence is showing a rise of systemic fear in two periods, June 1953–August 1962 and August 1962–December 1973. Lest I be perceived to be exaggerating Kliman's argument that systemic fear cannot be high at particular points in time, here is a key quotation in full: "But B&N haven't merely gotten their facts wrong. *Because their facts are wrong, so is their paper's key claim that we can infer that investors are gripped by "systemic fear" when the relationship between current profits and equity prices is strong and positive.* They tell us that the two periods in which systemic fear prevailed were two periods of acute crisis, the Great Depression and the 2000s. If a strongly positive correlation between current profits and share prices were another exceptional feature of these periods of crisis, then the notion that we can infer the existence of systemic fear from the positive correlation might be plausible. But the 1930s and 2000s were *not* exceptional in that respect, as we have seen. And the other two strongly positive-correlation periods, which run from the early 1950s through the early 1970s, *cannot* plausibly be characterized as a time of systemic fear. On the contrary, that era was the so-called golden age of capitalism. So a strongly positive correlation between current profits and equity prices does not allow us to infer the existence of systemic fear" (Kliman, 2011, p. 64, italics in original). In response to Kliman, Bichler and Nitzan acknowledged their factual error, analyzed the significance of a high correlation of prices and earnings in period to which Kliman refers, and produced a alternative method for measuring systemic fear (Bichler & Nitzan, 2011, 2016). To my knowledge, Kliman has not explained if his views on the concept would change if Bichler and Nitzan got their facts "right".

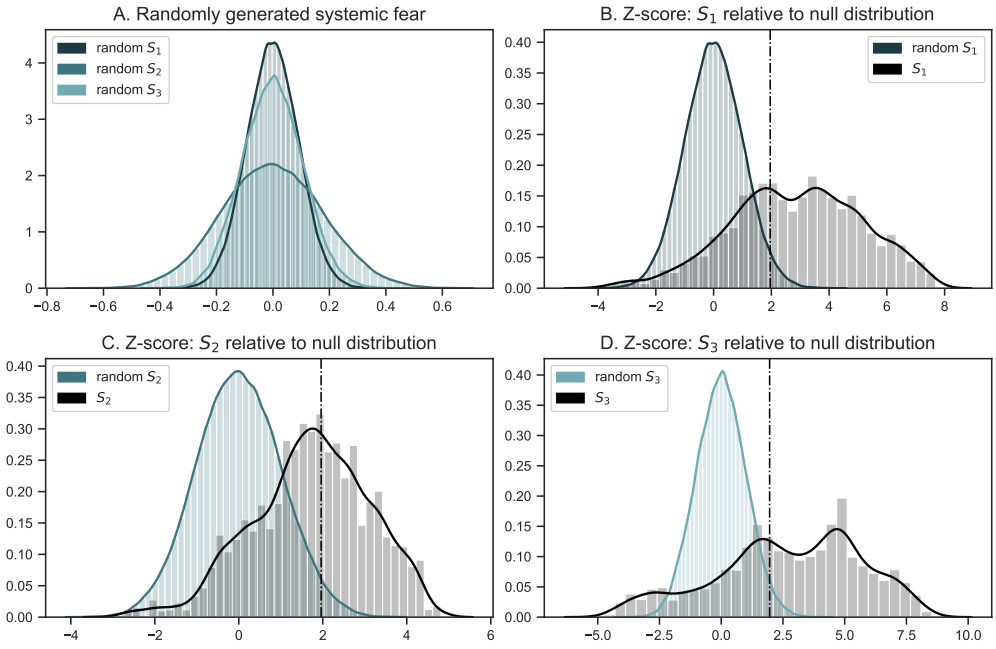

Figure 10: Distribution of systemic fear, relative to null-distributions of each variable

Source and methods: rolling correlations of random numbers are done with two series with 1,000,000 observations. Z-scores calculated with the following results: nullS_1 mean: 0, nullS_1 std: 0.09; nullS_2 mean: 0, nullS_2 std: 0.18; nullS_3 mean: 0, nullS_3 std: 0.26. See Table 2 for the creation of S_1, S_2 and S_3. See Appendix for breakdown of data by country.

systemic fear, relative to the null distribution. Observed samples to the right of the dotted vertical line are above +1.96, which is statistically significant when $\alpha = 0.05$. We can also set α much lower. Figure 11 plots the S_1 of each country in the dataset and highlights any period when a value from Figure 10 has a Z-score greater than 4 and is statistically significant when $\alpha = 6.33426e-05$. Interestingly, the period from the early 2000s to the present is shaded in most countries. S_1 is plateauing and even decreasing at times–yet the levels are still high, according to the null hypothesis we are testing.

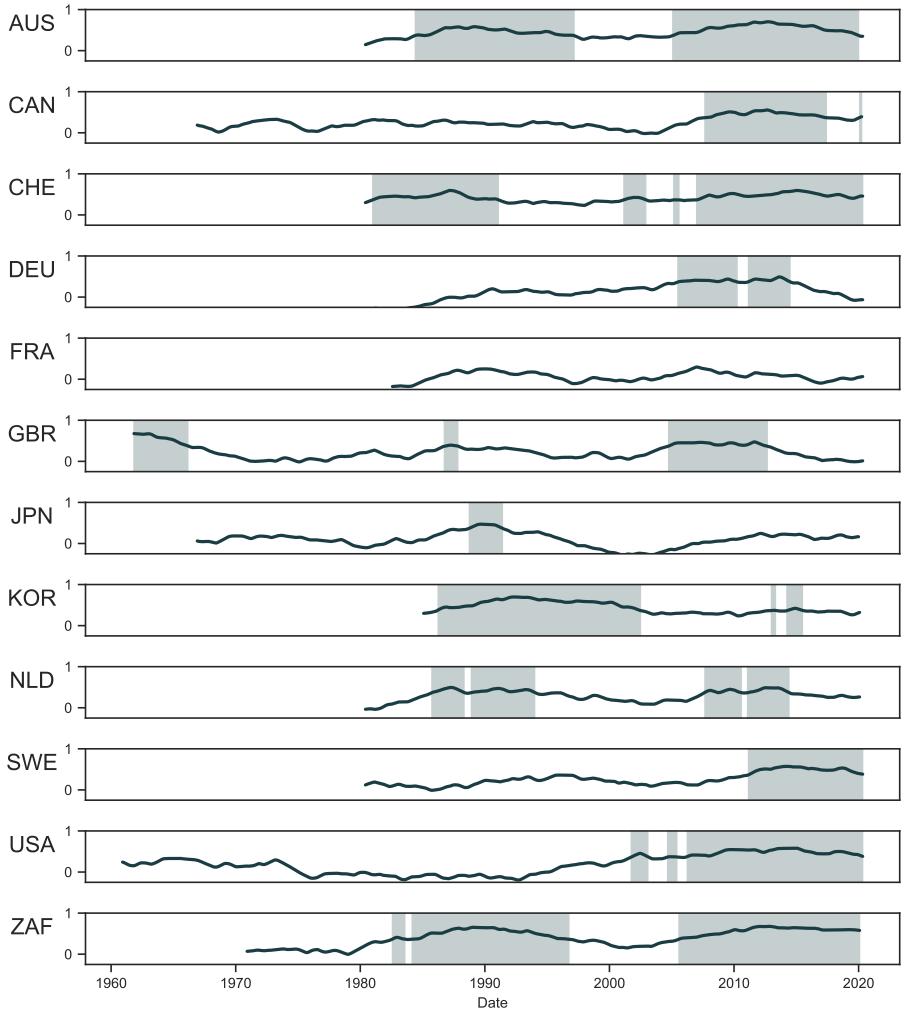

Figure 11: S_1, by country and highlights when $Z_\alpha < 6.33426e-05$

Source and methods: see Figure 10.

4 Another look at systemic fear and power

The previous section offered reasons to revisit Bichler and Nitzan's concept of systemic fear. This section re-tests the connection between systemic fear and the power index (P_i). The addition of countries and the gathering of more data revealed that countries such as Australia, Canada and Sweden have positive correlations between S_1 and P_1. Experimentation with additional measures of systemic fear and power can produce extra results.

4.1 Testing different measures of systemic fear and power

Six measurements were introduced in Section 2–three measures of systemic fear and three measures of the power index. To not distract the reader that was already familiar with Bichler and Nitzan's research and Baines and Hager's *NPE* paper, I tried to use S_1 and P_1 in the previous section as much as possible. Moving forward, we do not need to limit political economic analysis to the measures created by Bichler and Nitzan.

What would be the reason to add more measures? The works of Bichler and Nitzan are a mixture of empirical research and political economic theory. By analytically separating the two dimensions, there is room for empirical experimentation if we retain the essences of systemic fear and the power index. Different versions of systemic fear and power produce a spectrum of results, whereby we can identify what happens when parameters are changed.

Systemic fear, in particular, is ripe for experimentation. It measures fear that is expressed through a type of behavior–basing prices on *past* earnings–but it is unlikely that this behavior would be uniform across all capitalists in time and place. As is the case when someone applies the forward-looking ritual of discounting future streams of income, the manner someone looks to past earnings could be affected by accounting methods and social and cultural variables such as business norms and subjectivity. As a small thought experiment, think about the 12-month correlation window in S_1. What if that window was narrowed to 10 months? Or what if fearful capitalists were looking to the past earnings of 16 months, or even more? Political economists can debate the significance of such variations, but the original 12-months parameter is only a constructed estimate of how capitalists, in a state of fear about the future, would base prices on past earnings.

Compared to S_1, the measures S_2 and S_3 are sensitive to different changes in the correlation between prices and earnings. S_2 is produced with a seasonal decomposition, whereby seasonality and residuals are removed from each time series.[4] S_3 is the product of 12-month differencing, which is a way to remove long-term trends from a time series. Without a long-term trend between the levels of prices and earnings, the result of a correlation window of 120 months is not necessarily positive and high. With respect to the measure of more power indices, P_2 and P_3 curiously use different denominators in the ratio between

[4] I used the seasonal_decompose function from the Python library statsmodels.tsa.seasonal.

capitalized power and the underlying population.

Figure 12 uses Canada as an example of the time series that were produced for the twelve countries in the dataset. The power indices are not that different from each other. In particular, P_2 and P_3 are similar because the former uses average income per capita in its denominator and the latter uses nominal GDP per capita. With respect to the measures of systemic fear, there is a shared long-term trend, but different methods are producing differences in in the short term.

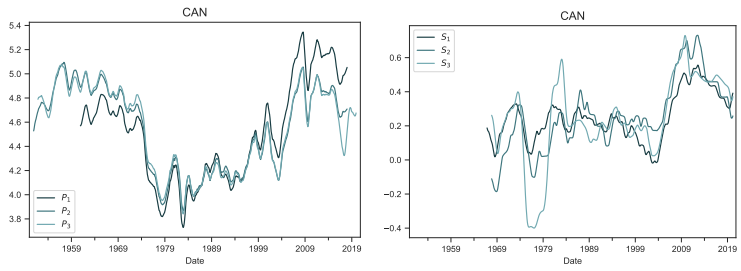

Figure 12: Power and systemic fear indices of Canada

Source and methods: See Table 3 for the creation of P_1, P_2 and P_3. See Table 2 for the creation of S_1, S_2 and S_3. See Appendix for breakdown of data by country.

4.2 Analysis of results

With a dataset of power and systemic fear indices, I wanted to know two things:

1. If countries had positive correlations between power and systemic fear, even if it was not necessarily a positive correlation between S_1 and P_1.

2. If positive results were produced when we use averages as *expected* measures of power and systemic fear at an international level.

4.2.1 Relationships across all variables

Figure 13 summarizes all of the correlations between power indices (P_i) and systemic fear (S_i). In each row is a systemic fear variable of a particular country. Each column is a specific power index, P_1, P_2 or P_3.

The results in Figure 13 are interesting for a few reasons. First, a few countries, such as the United States, Germany and Sweden, show positive correlations across all nine possible relationships. Second, there are some countries that we can find having at least one strong positive relationship between power and systemic fear. Switzerland, Australia and South Korea would be examples of this result. Third, there appears to be a pattern that is shared by France,

Netherlands and the United Kingdom. At best, there are a few moderate positive relationships in their results, but their correlations are positive or negative in a similar way: S_1 is positive, S_2 is close to zero, and S_3 is positive and slightly stronger than S_1.

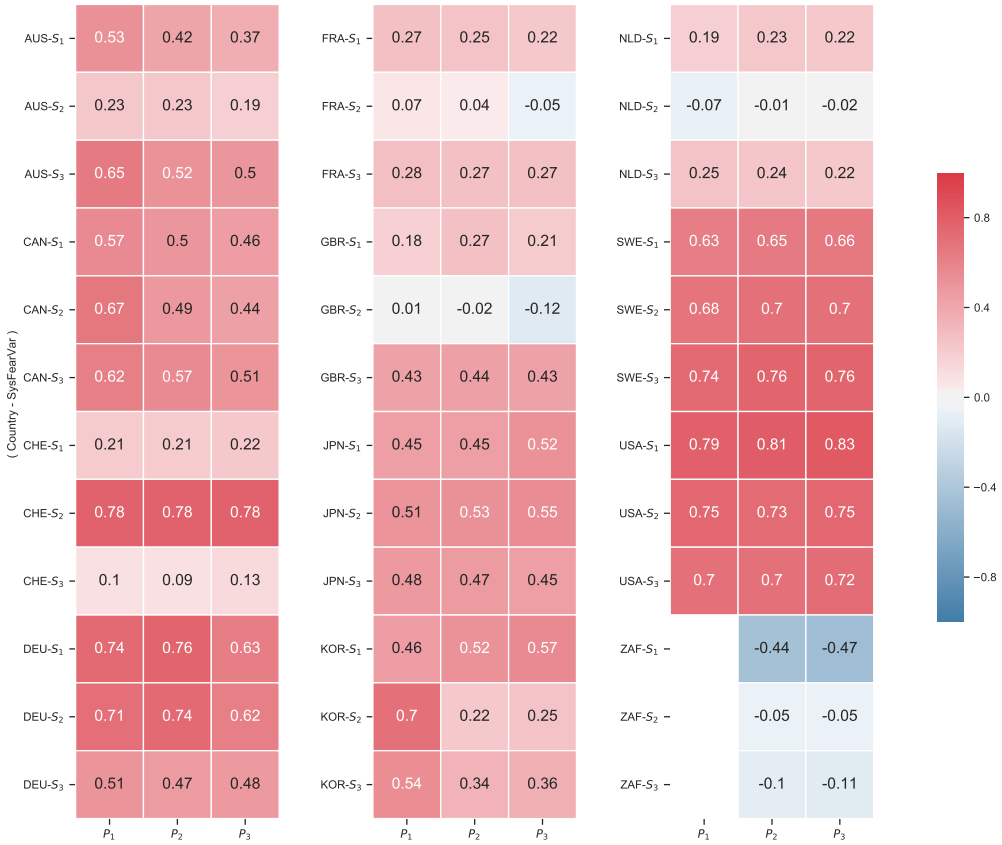

Figure 13: Summary table: Correlations between Systemic Fear and Power, by country and variable

Source and methods: See Table 2 for the creation of S_1, S_2 and S_3. See Table 3 for the creation of P_1, P_2 and P_3. See Appendix for breakdown of data by country.

4.2.2 Expected values across countries

Baines and Hager first discovered that the correlation between power and systemic fear varied across countries. In their summary of findings, they concluded that Germany was the only country in their dataset that had similar results

to the United States. We can now identify more positive relationships between systemic fear and power at the national level.

With a larger dataset, my results also reveal that additional countries, such Netherlands and South Africa, are different than the United States. In the case of South Africa, the partial results (due to missing data) suggest that it might have a moderate negative relationship between power and systemic fear–a quality that is unique in this dataset.

Moving forward, the international evidence of the relationship of power and systemic fear might not be as weak as Baines and Hager claim, even when the two variables are not always moving together and in the same ways. We can still create an international model of systemic fear, but with a alternative interpretation of the distribution of the values in S_i and P_i. As we saw in Figures 5 and 7, the systemic fears of many countries move together. These strong relationships are the reason why *average* systemic fear, measured three ways, has been rising. If the United States was exceptional in having rising systemic fear, an unweighted average with 11 other countries could not produce the results in Figure 4.

In probabilistic terms, the average value is often the expected value. With averages of systemic fear and power, we can propose the hypothesis that the international dimension can be seen as the sampled mean of what capitalists are doing in different countries and at specified intervals of time. The averages of systemic fear were plotted in Figure 4. Figure 14 plots the average and standard deviation of each version of the power index. Similar to what we saw in Figure 4, average power has been rising since 1980.[5]

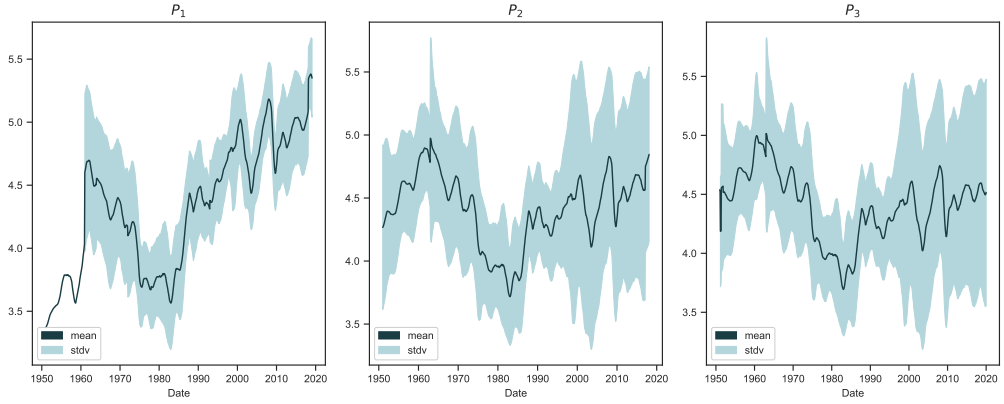

Figure 14: Three measures of power (P_1, P_2, P_3)

Source and methods: See Table 3 for the creation of P_1, P_2 and P_3. See Appendix for breakdown of data by country.

Figure 15 produces a three-by-three grid of expected systemic fear plotted against expected power. Although the extent to which the movement of ex-

pected power can explain the movement of expected systemic fear varies, there is a positive relationship across all combinations. Moreover, specific combinations yield strong positive results. The first column of plots ($\overline{S_1} \sim \overline{P_1}$, $\overline{S_2} \sim \overline{P_1}$, $\overline{S_3} \sim \overline{P_1}$) suggests that the variance of $\overline{P_1}$ can explain between 47 and 61 percent of the variance of the sampled means of systemic fear.

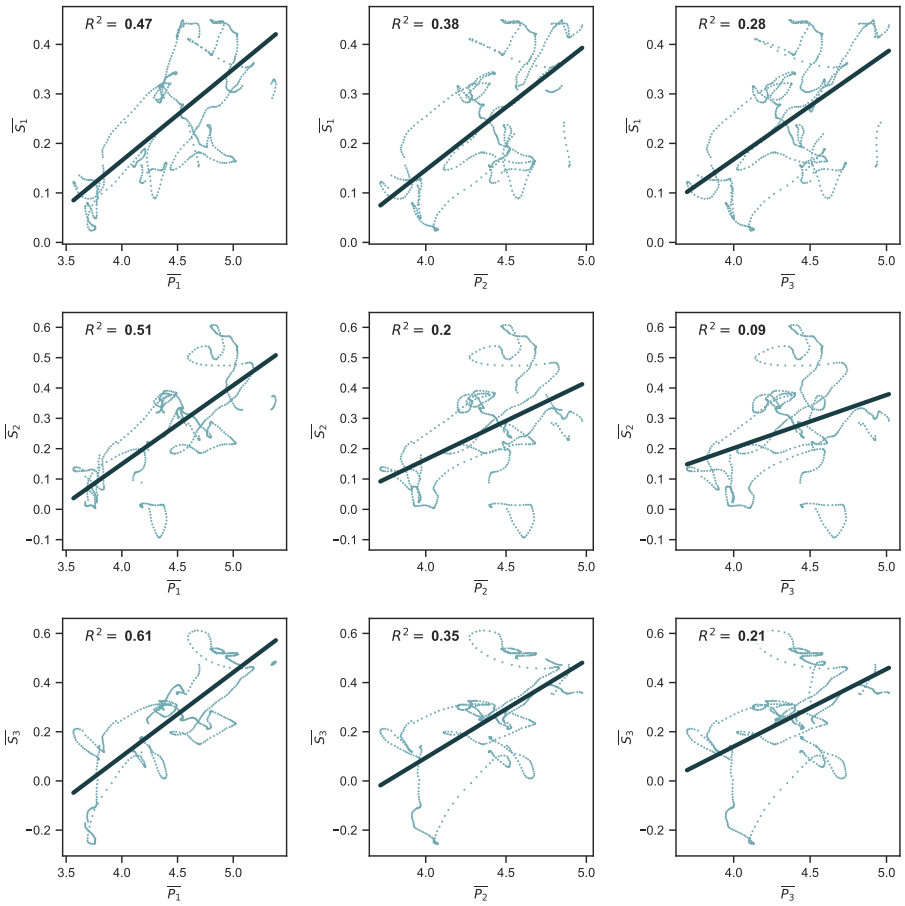

Figure 15: Relationships between sampled means, monthly: $\overline{S_1}$, $\overline{S_2}$, ... , $\overline{P_3}$

Source and methods: See Table 2 for the creation of S_1, S_2 and S_3. See Table 3 for the creation of P_1, P_2 and P_3. See Appendix for breakdown of data by country.

[5]It should not be surprising that P_1 has the largest slope and a longer-term trajectory upward. Compared to a wage rate (all activities or manufacutring), the denominators in P_2 (average income per capita) and P_3 (nominal GDP per capita) are prone to rise when the social average is pulled up by the top percentiles of income.

5 Conclusion

As content in Baines and Hager's *NPE* article, systemic fear's relation with power is the second of four parts. After systemic fear they continue down the path of Bichler and Nitzan's argument and test other relationships: the power index with the inversed growth of employment (labeled "strategic sabotage" in reference to Bichler and Niztan's usage of Thorstein Veblen's term (Nitzan & Bichler, 2009; Veblen, 2004)) and the growth of employment with the yield of 10-year government bonds (labeled the "CasP Policy Cycle" (Baines & Hager, 2020, p. 124)). The sum of their results lead Baines and Hager to conclude that the CasP model of the stock market is in a tough position going forward. The CasP model could "treat the US as a unique case", but this comes at the high price of explaining what is happening in other major stock markets: "The main lesson from our analysis here is that the evolution of the stock market in other advanced capitalist countries cannot simply be read off from the US experience" (Baines & Hager, 2020, p. 137).

I will have to leave it to the reader to judge the manner in which Baines and Hager use systemic fear as a premise for the steps that follow its analysis. However, this paper has shown that, as a political economic concept, systemic fear is likely more promising than Baines and Hager believe. In fact, the closer we look at systemic fear, the more we can see how it can *support, rather than undermine*, Baines and Hager's goal of explaining "the global unevenness and continued national diversity in capitalist development" (Baines & Hager, 2020, p. 137). There is global unevenness and national diversity across the systemic fear of twelve countries–Australia, Canada, France, Germany, Great Britain, Japan, Netherlands, South Africa, South Korea, Sweden, Switzerland and the United States. But this national diversity is not so great that we are unable to conceptualize and model systemic fear's international characteristics. There is, despite national differences, evidence of rising systemic fear at an international level. And there is, despite national differences, a positive relationship between expected systemic fear and expected power at an international level.

Going forward, we should certainly not ignore some of the negative results. For example, my results for Great Britain and France are similar to those of Baines and Hager. Further testing and research would be needed to explain why it is that certain countries–countries like Great Britain, France, Netherlands and South Africa–are different from those that have positive relationships between S_i and P_i.

In addition to diving deeper into some of the negative results, there is opportunity to building a richer picture of *when* advanced capitalist countries are experiencing systemic fear at the same time. Figure 7 deconstructed the country-to-country 60-month correlations of S_1. The aggregate of these correlations, plotted in Figure 16, shows there are visible peaks of high average country-to-country 60-month correlations of S_1. These peaks have occurred near or during some of the major political economic crises of the past forty years. As of this writing, we are living through another peak of cross-correlated S_1. If one decides to take a closer look at the concept of systemic fear, the

significance of this pattern is certainly worth investigating.

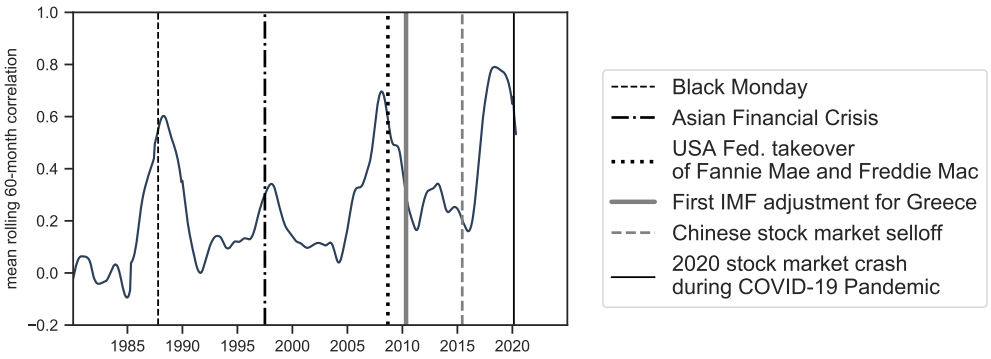

Figure 16: Average 60-month correlation of S_1 (all countries)

Source and methods: see Figure 7 for the 60-month rolling correlation of each country's S_1 with other countries in the dataset. Dates of financial events were taken from Wikipedia.

6 Appendix

The following tables provide country breakdowns for the data in this paper. As stated in many of the titles for the tables, the majority of the data was accessed through Global Financial Data. The notable exception is found in Table 7.

Table 4: Data sources for Composite Index Prices – from Global Financial Data

Country	Ticker	Frequency	Start Date	End Date
Australia	_AORDD	Monthly	01/31/1950	04/30/2020
Canada	_GSPTSED	Monthly	01/31/1950	04/30/2020
France	_CACTD	Monthly	01/31/1950	04/30/2020
Germany	_CXKXD	Monthly	01/31/1950	04/30/2020
Japan	_TOPXD	Monthly	01/31/1950	04/30/2020
Netherlands	_AAXD	Monthly	01/31/1950	04/30/2020
South Africa	_JALSHD	Monthly	01/31/1950	04/30/2020
South Korea	_KS11D	Monthly	01/31/1962	04/30/2020
Sweden	_OMXSPID	Monthly	01/31/1950	04/30/2020
Switzerland	_SPIXD	Monthly	01/31/1950	04/30/2020
United Kingdom	_FTASD	Monthly	01/31/1950	04/30/2020
United States	_SPXD	Monthly	01/31/1950	04/30/2020

Table 5: Data sources for P/E ratios – from Global Financial Data

Country	Code	Frequency	Start Date	End Date
Australia	SYAUSPM	Monthly	07/31/1969	04/30/2020
Canada	SYCANPTM	Monthly	01/31/1956	03/31/2020
France	SYFRAPM	Monthly	09/30/1971	04/30/2020
Germany	SYDEUPM	Monthly	07/31/1969	04/30/2020
Japan	SYJPNPTM	Monthly	01/31/1956	12/31/2019
Netherlands	SYNLDPM	Monthly	07/31/1969	01/31/2020
South Africa	SYZAFPM	Monthly	01/31/1960	01/31/2020
South Korea	SYKORPM	Monthly	03/31/1974	01/31/2020
Sweden	SYSWEPM	Monthly	07/31/1969	04/30/2020
Switzerland	SYCHEPM	Monthly	07/31/1969	04/30/2020
United Kingdom	_PFTASD	Monthly	12/31/1950	04/30/2020
United States	SYUSAPM	Monthly	01/31/1950	04/30/2020

Table 6: Data sources for Nominal GDP per capita – from Global Financial Data

Country	GDP Code	GDP Frequency	Pop. Code	Pop. Freq.	Start Date	End Date
Australia	GDPAUS	Annual until 1959; trimonthly after	POPAUS	Annual	06/30/1950	12/31/2019
Canada	GDPCAN	Annual until 1957; trimonthly after	POPCAN	Annual	12/31/1950	12/31/2019
France	GDPFRA	Annual until 1966; trimonthly after	POPFRA	Annual	12/31/1950	12/31/2019
Germany	GDPDEU	Annual until 1961; trimonthly after	POPDEU	Annual	12/31/1950	12/31/2019
Japan	GDPJPN	Annual until 1981; trimonthly after	POPJPN	Annual	12/31/1950	12/31/2019
Netherlands	GDPNLD	Annual until 1978; trimonthly after	POPNLD	Annual	12/31/1950	12/31/2019
South Africa	GDPZAF	Annual until 1960; trimonthly after	POPZAF	Annual	12/31/1950	12/31/2019
South Korea	GDPKOR	Annual until 1961; trimonthly after	POPKOR	Annual	12/31/1953	12/31/2019
Sweden	GDPSWE	Annual until 1981; trimonthly after	POPSWE	Annual	12/31/1950	12/31/2019
Switzerland	GDPCHE	Annual until 1971; trimonthly after	POPCHE	Annual	12/31/1950	12/31/2019
United Kingdom	GDPGBR	Annual until 1956; trimonthly after	POPGBR	Annual	12/31/1950	12/31/2019
United States	GDPUSA	Trimonthly	POPUSA	Annual	03/31/1950	12/31/2019

Table 7: Data sources for Wage rates (2015 = 100)

Country	Code	Category	Source	Frequency	Start Date	End Date
Australia	LCWRTT01AUA661N	All Activities	OECD (via FRED)	Annual	1977	2018
Canada	LCEAMN01CAA661N	Manufacturing	OECD (via FRED)	Annual	1960	2018
France	LCWRMN01FRA661N	Manufacturing	OECD (via FRED)	Annual	1960	2018
Germany	LCEAMN01DEA661N	Manufacturing	OECD (via FRED)	Annual	1960	2018
Japan	LCEAMN01JPA661S	Manufacturing	OECD (via FRED)	Annual	1960	2018
Netherlands	LCEAMN01USA661N	Manufacturing	OECD (via FRED)	Annual	1960	2018
South Africa	NA	NA	NA	NA	NA	NA
South Korea	LCEAMN01KRA661S	Manufacturing	OECD (via FRED)	Annual	1992	2018
Sweden	LCEAMN01SEA661N	Manufacturing	OECD (via FRED)	Annual	1971	2018
Switzerland	T 39	All Activities	Swiss Statistical Office	Annual	1950	2018
United Kingdom	LCEAMN01GBA661S	Manufacturing	OECD (via FRED)	Annual	1963	2018
United States	LCEAMN01USA661N	Manufacturing	OECD (via FRED)	Annual	1960	2018

Table 8: Data sources for 'Buffet Indicator' (Market cap / GDP) – from Global Financial Data

Country	Code	Frequency	Start Date	End Date
Australia	SCAUSMPC	Annual	12/31/1950	12/31/2019
Canada	SCCANMPC	Annual until 1951; monthly after	12/31/1950	12/31/2019
France	SCFRAMPC	Annual until 1955; monthly after	12/31/1950	02/29/2020
Germany	SCDEUMPC	Annual until 1960; trimonthly until 1968; monthly after	12/31/1950	01/31/2020
Japan	SCJPNMPC	Monthly	01/31/1950	01/31/2020
Netherlands	SCNLDMPC	Annual until 1991; monthly after	12/31/1950	02/29/2020
South Africa	SCZAFMPC	Monthly	01/31/1950	01/31/2020
South Korea	SCKORMPC	Annual until 1978; monthly after	12/31/1961	01/31/2020
Sweden	SCSWEMPC	Annual until 1991; monthly after	12/31/1950	02/29/2020
Switzerland	SCCHEMPC	Annual until 1990; montly after 11/30/1990	12/31/1950	01/31/2020
United Kingdom	SCGBRMPC	Annual until 1995; monthly after	03/31/1952	01/31/2020
United States	SCUSAMPC	Monthly	01/31/1950	01/31/2020

Table 9: Data sources for CAPE3 ratio – from Global Financial Data

Country	Code	Frequency	Start Date	End Date
Australia	SYAUSCAPE3M	Monthly	06/30/1972	12/31/2019
Canada	SYCANCAPE3M	Monthly	12/31/1958	12/31/2019
France	SYFRACAPE3M	Monthly	08/31/1974	02/29/2020
Germany	SYGBRCAPE3M	Monthly	06/30/1972	04/30/2020
Japan	SYJPNCAPE3M	Monthly	12/31/1958	04/30/2020
Netherlands	SYNLDCAPE3M	Monthly	06/30/1972	04/30/2020
South Africa	SYZAFCAPE3M	Monthly	12/31/1962	04/30/2020
South Korea	SYKORCAPE3M	Monthly	02/28/1977	04/30/2020
Sweden	SYSWECAPE3M	Monthly	06/30/1972	04/30/2020
Switzerland	SYCHECAPE3M	Monthly	06/30/1972	01/31/2020
United Kingdom	SYGBRCAPE3M	Annual until 1961; monthly after 04/30/1962	12/31/1950	01/31/2020
United States	SYUSACAPE3M	Monthly	01/31/1950	04/30/2020

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