French Roast: Nationalism and Consumer Preferences Prior to the 2003 Iraq Invasion*

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Abstract

Nationalism's role in economic choices is widely suggested but difficult to demonstrate. The 2003 dispute between the US and France over the proposed invasion of Iraq provides the backdrop for a novel test of this claim. We compile brand-name portfolios for 48 food and beverage firms traded on US stock exchanges. Using distinctive characteristics of French orthography that marketers exploit when choosing brand names, we identify which brands appear to be French. An examination of daily abnormal stock returns shows that firms with French-sounding brands in their brand portfolio underperformed relative to the market average between mid-February to mid-March 2003, the height of US-France tensions. These findings show market reactions consistent with nationalist sentiments in American consumers' food and beverage purchases.

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Some of the sharpest disagreements over international economic integration assume a nationalist tone. Consider recent controversies in the US over the acquisition of American companies by foreign firms, the worldwide uproar over sovereign wealth funds, or disputes over mineral rights in developing countries. All of these issues are complex but one component of each is a vociferous opposition to foreign control in the national economy. Modern theories of international political economy have only begun to grapple with nationalism's role in economic preferences. Extant studies analyze survey data and focus on the effect of education on respondents' stated preference for integration.[1] Some scholars interpret a significant correlation between educational attainment and support for economic integration as an expression of cosmopolitan preferences cultivated by higher education while other contend that education raises the expected gains in income with economic openness. Though these studies have drawn attention to nationalist preferences, they have perhaps reached the limit of what survey data can tell us. The self-consciousness and low level of commitment inherent in surveys raises unavoidable questions about external validity; as methodologists have long contended, unobtrusive behavioral measures are more likely to illuminate real-world political action (Webb et al. 2000).

We consider a novel behavioral manifestation of nationalist preferences: American consumers' demand for products with foreign-sounding brand names. Brand names are integral part of firms' marketing strategies. In selecting a brand name that resembles a foreign language firms seek to link their product to a country that has a reputation for producing high quality products of that variety; consider German beer, Swiss chocolate, or Italian clothing. Accompanying marketing campaigns invoke images associated with these countries to reinforce the link between country and product. This strategic use of nationality in marketing commodifies foreign countries' national identity. When consumers' associations with countries change we have an opportunity to examine how nationalism manifests in economic choices.

In this paper we analyze how US-French tensions in early 2003 over the proposed invasion of Iraq influenced the US share prices of forty-eight food and beverage firms. For each firm we compile a list of the brand names of food and beverage products sold in 2003 in the United States. Using distinctive characteristics of French orthography that marketers exploit when choosing brand names, we identify which brands appear to be French. An examination of daily abnormal stock returns shows that firms with French-sounding brands in their brand portfolio underperformed relative to the market average between mid-February to mid-March 2003. After ruling out alternate explanations we interpret this finding as evidence of consumers' unwillingness to purchase goods that appear to be French captured in the reduced market value of firms that own such brands. Share prices for companies with French-seeming brand names saw their prices fall relative to the rest of the market during the period of greatest U.S.-France tension. Further, companies with French-toned brand portfolios saw particularly large relative falls in share prices on the day France officially announced its intention to veto any US-

[1] O'Rourke and Sinnott 2001 was an early entry focusing on the role of nationalism in preferences over international economic policy. Mayda and Rodrik 2005 and Hainmueller and Hiscox 2006, 2007 discuss the role of education in the formation of nationalist preferences for economic policy. Hiscox 2006 and Hainmueller and Hiscox 2010 use experiments embedded in surveys to consider trade and immigration preferences generally.

led moves in the United Nations Security Council and again when the issue attained renewed political salience through Congressional sanctioning of the phrase "Freedom Fries." While more work remains to establish the robustness of this result, it suggests that markets anticipated consumer backlash against products that appear to be French even when those products are produced by American companies.

These findings identify a new way in which consumer behavior is a vehicle for political expression. Consumer-based political action is familiar from boycotts of specific companies over their labor and environmental practices, and the growing popularity of fair trade products (Stolle et al 2005). We find a consumer response to a more diffuse stimulus, a geopolitical event, and we take account of consumers' information processing to identify which products are likely targets. The importance of perceived nationality can help to resolve mixed findings about the US-France dispute based on more aggregate phenomena like trade flows.[2] Perceived French nationality identifies a group of almost entirely US-based firms at risk of boycott whereas existing studies of the dispute focus on the products of French-owned firms.[3] By identifying the likely targets more precisely we can distinguish between the absence of a consumer response and a real but misdirected response. The strong response of American firms to the conflict suggests that they, and not their French counterparts, felt the brunt of consumer response. In 2004 a group of major US business leaders formed a non-profit organization called Business for Diplomatic Action to lobby against foreign policy choices that are detrimental to US business interests.[4]

This paper also makes a contribution to the larger study of International Relations by fleshing out a new type of link between geopolitics and political economy. Extant studies of economics and international security examine aggregate, state-level phenomena such as the correlation between trade flows and the propensity to militarized conflict. This paper identifies a micro-level link between conflict and political economy that operates through individual perceptions of foreign countries. With the specter of major war remote theories of commercial peace and the intersection of alliances and trade partners have less to tell us about contemporary security challenges. As growing proportion of international economic activity rests on assessments of trust and credibility between individuals and firms (Nunn 2007) the scope for geopolitical conflicts to disrupt productive relationships grows. Indeed Michael and Zhi (2010) interpret their findings of reduced US-France trade following the dispute to US managers' decision not to source inputs from French firms. Here too our techniques for measuring perceived nationality provide a useful innovation that can be used to measure the relative importance of national identity across different forms of international economic activity.

The paper is organized as follows. The next section provides the theoretical foundation of the paper by describing the origin of brand names, explaining how consumers interpret the nationality of brands, and summarizing existing evidence on consumer responses to geopolitical conflict. The third section forms the empirical core of

[2] See Davis and Meunier 2010 for an argument that the dispute had no discernable economic effects in aggregate bilateral flows and Michaels and Zhi 2010 for a finding that the dispute did reduce US-France trade as a proportion of total US-EU trade.

[3] This is so despite evidence that consumers frequently, though not universally, respond to country-of-branding cues more strongly than to country-of-origin cues (Wu and Fu 2007).

[4] http://www.businessfordiplomaticaction.org/

the paper with a discussion of data sources, coding schemes, and empirical results. In the conclusion we discuss a promising and innovative extension of this study currently underway that uses supermarket scanner data to assess changes in consumer demand for seemingly French products during the 2003 dispute.

Consumers, National Identity, and Brand Names

Consumers routinely use brand names to make buying decisions based on limited information. This reflects general cognitive processes: psychologists and behavioral economists have repeatedly shown that people resort to quick, simple decision processes when faced with large, complicated decision-making tasks (Kahneman 2003). One such choice problem is selecting which goods and services to consume. Consumers are especially likely to rely upon informational cues when purchasing low-cost goods because the cost of acquiring additional information exceeds the value of the product to the consumer. As a result, branding exerts a particularly large influence on nondurable consumer goods like food. Producers are aware of these dynamics and choose brand names to create positive associations that the consumer will remember when making product choices.[5]

Brand names provide consumers with a heuristic by conveying information about the experiential qualities of consuming the product. A common marketing strategy is to associate a product with a foreign country known to have a tradition of producing high quality products of that variety. This implies to the consumer that the branded product is of a similar quality to that found in the associated country. Brands can also piggyback on general associations of a particular country: nations that consumers associate with positive social conditions or enjoyable cultures may also enhance the value of a brand. This "national brand" manifests itself when, for example, more positive public opinion about a foreign country's achievements in sports and history increases cross-border economic flows with that country (Kalamova and Konrad 2010, 416). Academic marketing studies document a robust positive correlation between consumers' perceived national origin of goods and perceptions of quality. These studies show that consumers, faced with an unfamiliar product, infer characteristics like quality, design, and technological sophistication from what they perceive to be the product's national origin. Brand names cue nationality associations through spelling, use of special characters, and pronunciation.[6] This process produces American brand names such as Häagen-Däzs or Le Tigré (which emphasizes its Frenchness by including a diacritical not actually present in the French word), or, more subtly, faux-Japanese electronics brands such as Matsui and Saisho, both of which are in fact British (Harris 2009, 113). LeClerc et al. (1994) report experimental evidence on the effect of French branding of goods on the perceived quality of those goods. Testing the claim that a French brand name conveys hedonic and pleasurable qualities of a good, they found that subjects exposed to a French pronunciation of fictitious brands of fragrance and nail polish rated products to be of a higher quality than subjects exposed to an American English pronunciation of the same name. A similar experiment with yogurt found that subjects who given yogurt from a

[5] See Hoeffler and Keller 2003 for a comprehensive review of marketing research related to building and establishing brand equity.
[6] Balabanis and Diamantopoulos 2008.

container labeled with a French brand name reported higher levels of satisfaction than subjects given the same product labeled with an American brand name. Samiee et al. (2005) further find that consumers make inferences about the nationality of products based on brand names rather than investigating true national origin because the additional costs of obtaining accurate information.

While nationality branding typically makes consumers more likely to purchase the branded product, it can work in the opposite direction when consumers independently have a negative association with the country in question. Naturally, firms are unlikely to choose associations that are inherently negative; however, associating products with a particular country creates risks that future attitudes towards the country may decline or suffer a negative shock. Ettison and Klein (2005) document the response of Australian consumers to French nuclear tests in the South Pacific. During the highly unpopular tests, their survey revealed that respondents with higher levels of expressed animosity towards France reported a lower willingness to purchase French goods and a fewer actual purchases of French goods. Even a year after the cession of nuclear testing respondents' consumption of French goods had not recovered to their pre-testing level.[7] In all iterations of the survey respondents rated the quality of French goods to be high. Marketing scholars take these two findings together to distinguish between targeted animosity towards a specific country, a general aversion to all foreign goods, and concerns about product quality that might be associated with specific countries.[8] As consumers continued to perceive French goods to be of high quality their expressed aversion to French goods in more likely to be a political statement.

We take these relationships between brand names, nationality, and consumer choice as a model of how American consumers reacted to the growing tensions between the US and France over the proposed invasion of Iraq. Michaels and Zhi (2010) chronicle the deterioration of US-French relations in early 2003. Numerous public opinion polls showed a dramatic decline in favorable attitudes towards France and there were popular calls for the boycott of French goods; corporations like Au Bon Pain and brands like French's mustard felt the need to reassure customers of their American *bona fides* through major, costly branding campaigns (Schoolman and Dillon 2003). At the same time there was a smaller counter-boycott to encourage purchase of French goods to express opposition to the proposed invasion of Iraq. The contribution of this paper is to identify which branded products consumers were affected and to demonstrate that these are not necessarily products produced and sold by French firms, rather it is those products that are manipulated to appear that way.

These micro-level perceptions and individual choices have repercussions for more macro-level outcomes. Most notably, consumers' recognition and favorable impression

[7] Klein (2002) finds in an American survey that Americans with higher expressed animosity towards Japan are less likely to express an intent to purchase Japanese goods. These surveys control for respondents' perceived quality of Japanese goods, thereby suggesting that broader, less specifically product-related attitudes towards a country may influence consumer behavior, at least in a survey setting.

[8] This form of targeting animosity is distinct from what marketing scholars call consumer ethnocentrism, a consumer attitude that is averse to all foreign made goods, regardless of their origin, out of a belief that consumption of domestic produced goods is better for the national economy. These consumers are unlikely consumers of French-branded goods under any circumstances so we interpret changes in share prices to reflect a targeted consumer boycott of ostensibly French products. See Klein et al (2004) for a theoretical model of how consumers choose to participate in boycotts.

of brands are recognized financial assets. In corporate finance, brand equity refers to the income generated by a branded product in excess of what would be earned by an otherwise identical unbranded product (Simon and Sullivan 1993). Brand equity reflects a positive reputation with consumers that make it more likely that consumers will purchase goods and services sold under the brand name. It is reflected in the market value of the firm as the present value expected future income due to this positive reputation among consumers. This suggests that changes in consumers' perception of a brand can significantly affect the value of a firm. For example, in Proctor and Gamble's 2005 acquisition of Gillette, nearly half the acquisition price was the financial value of Gillette's brands. This is by no means a unique case: Bahadir et al. (2008) demonstrate empirically that brand equity raises acquisition prices in M&As.[9]

The importance of brand equity to market value provides the link between consumer sentiment and firms' market value. We expect markets to react to perceived consumer antipathy towards France by selling shares of companies with seemingly French brands.[10] Previous results show that the basic connection between consumer sentiment towards a brand and stock prices. Of particular relevance, Pruitt and Friedman (1986) demonstrate a consistently negative effect of consumer boycotts on the target firms' share prices. Their result holds when considering general boycotts of commodities, e.g. unbranded products, in addition to boycotts of specific firms. Retailers' concerns about brand equity can magnify this effect inasmuch as retailers, witnessing shifting consumer sentiment, pull ostensibly French products from their shelves or do less to promote them.[11] Even when the product is not actually French, the potential boycott may force firms to divert branding and advertising resources to emphasizing non-French identity and combating the perceived threat rather than typical sales-enhancing activities (as with the Au Bon Pain and French's examples above). All these forces should lead firms holding larger portfolios of French brands to suffer relatively lower profits and hence lower market valuations during 2003's American-French tensions.

Share prices surrounding the Iraq invasion make for a relatively clean test of the effect of consumer behavior, as there are few plausible alternatives that could produce the same effect. The prospect of actual armed conflict between the two countries was remote so that share prices do not reflect potential disruption of distribution channels or supply chains. Nor is there an obvious theoretical reason why French names should correlate with other economic factors (such as oil prices) that would create adverse consequences in the event of the Iraq conflict. Similarly, we can identify no way in which causation would be reversed. Brand names are determined long before the onset of the crisis, and while certain products may be more likely to choose French associations, comparing

[9] On the role of brand equity in market values outside of M&As see Chu and Keh (2006), Ailawasi et al. (2003), and Barwise et al. (1990).

[10] We assume that asset prices reflect a reasonably efficient market: forces that lead to lower sales (and hence profits) should also lead to lower stock prices, even if the information is not perfectly priced in. Our assumption excludes some kinds of very large deviations from efficient outcomes identified in behavioral finance. We acknowledge the potential for such deviations but leave their further consideration to future research.

[11] Balduff et al. (2009) demonstrate with findings from a retailer survey that retailers perceive national origin in much the same way that individual consumers do despite access to superior information about the quality of goods.

brands with and without French names in the same product category should control for these possibilities

Nationalism and Stock Market Returns: Empirics

We examine stock market returns for food and drink companies listed on US stock exchanges.[12] We selected the industry as one of the most likely to be affected by a US-French diplomatic dispute. Given the country of origin effects described above the hedonistic qualities of France are strongly linked to the food industry.[13] Academic marketing research shows that food purchases are among the most susceptible to nationality marketing as the average consumer does not invest consider time in educating herself about the brand's true origins and it more likely to make inferences about quality on the basis of brand names. By contrast a consumer purchasing an automobile will also have country of origin associations but is more likely to obtain additional information about quality. Finally food products are among the most homogenous in their national origins, simplifying consumers' nationality associations.

This paper marshals new data on corporate brand names and nationality codings of those brands. We draw brand data from the 2003 edition of *Advertising Red Books*, an annual publication of the Lexis-Nexis Corporation that lists brand names for a comprehensive set of public and private American and foreign firms that market and sell products in the US. This is among the most comprehensive sources of corporate brand names available. Several alternative sources were investigated including other proprietary directories of companies and their brands, as well as corporations' own annual reports and mandatory filings with the US Securities and Exchange Commission; *Advertising Red Books* was the most complete source of brands available. In our data brands sometimes spanned multiple companies, an artifact of firms that are organized into subsidiaries, licensing agreements and other forms of corporate partnerships. In order to resolve these ambiguities regarding brand ownership we turned to another Lexis-Nexis publication, *Corporate Affiliations*, to identify each brands' originating firm. We also used these data to identify the subset of publically traded firms for which we had brand data.

The next step was to code brand names as French. Translating the brand information into a measure of the degree to which a company's portfolio of brands cues French associations requires several steps. There are many ways that brands can be associated with particular nationalities. An advertising campaign can for example feature flags or logos associated with a country, as when Big Ben and Beefeaters are used to signify Britishness. However, this material is both not readily available and not necessarily intrinsic to a brand: marketing themes can change over time to drop or emphasize national associations, and those encountering the product in a store without having seen an advertisement may not encounter any cues that signify nationality. Both of these considerations suggest using features of the brand names themselves to identify the national associations of a brand. Changing a brand name is rare and a wholesale abandonment of brand equity, so that brand names represent a relatively strong

[12] These are firms whose products are classified under the Standard Industrial Classification code 2500.
[13] Marketing scholars refer to "product ethnicity" as an association of classes of goods with specific countries. See Usunier and Cestre 2007.

commitment to the national identity. Moreover, even though the choice of a strongly French-appearing brand name does not give direct evidence of broader nationality-based branding efforts, the two are likely to correlate strongly. A firm that chooses to name a brand "Poulets Morts" is apt to invoke French concepts and images in its advertising than would an otherwise identical firm with the brand "Dead Chickens" – and the fact that national branding cues are often unsubtle, as with the Le Tigré example above, suggests that marketing firms do strive to emphasize the linguistic foreignness of a brand. As a result, even consumers who may not recognize a name as being French are likely to associate the French-named brand with France.[14] Certainly marketers have long been advised to consider the linguistic implications of their brand names (e.g., Usunier and Shaner 2002).

In determining how French-tinged a brand name is, the obvious place to look is orthography. French, like many languages, has distinctive patterns of spelling that make some words simply look French: the letter combination "oeu," for example, only very rarely arises in English or most other major languages,[15] but is relatively common in French. Even in cases such as "oeuvre" where English has borrowed a word with that letter grouping, the word still retains French overtones. Conversely, a letter grouping such as "ock" is much more common in English than in French.[16] Nor are these patterns an idle observation; evidence suggests that such spelling cues are an important part of how humans identify languages and form associations with the nationality of unfamiliar words (Grainger and Beauvillain 1987, Vaid and Frenck-Mestre 2002), and marketers can use these impulses to associate their brands with nationalities.[17]

To compute how French the letter groupings in a particular brand name appear, we first needed to identify which letter groupings were characteristically French – appearing frequently in French but infrequently in other languages likely to appear in brand names. To this end, we assembled a corpus of approximately 180,000 characters of written language in each of English, French, Spanish, Italian, and German.[18] After stripping these of all punctuation except apostrophes, the texts were broken down to every three- or four-character combination: for example, the three-character version of the phrase "foreign direct investment" would include the groupings "for," "ore," "rei," and so on, including groupings with spaces (such as "gn " and " di"). This produced a distribution of combinations in each language, allowing for isolating character groupings that are very likely to be and read as French. Examples of the most French-tinged letter

[14] Advertisers do habitually change the content of their marketing materials to correspond to the tastes and knowledge of their audience, so that branding efforts targeting a less educated clientele differ from those focused on people with college degrees (Stephens et al. 2007). Firms worrying that some audiences may not recognize the linguistic cues embedded in brand names can therefore target those audiences with informative further advertisements.

[15] "Oeu" does habitually crop up in Milanese dialect and other smaller languages.

[16] A related approach concerns "orthographic neighbors," where the language of unfamiliar words is deduced based on the number of familiar words that are just one letter different in spelling (van Heuven et al. 1998).

[17] Distinctive orthography also represents a strong commitment to the national branding effort, as consumers tend to associate unfamiliar spellings with risk, a detrimental response for most consumer goods (Song and Schwarz 2009).

[18] Some versions of the corpus also included rōmaji (transliterated Japanese), without greatly changing the results.

groupings include "tait" (278 appearances in the French corpus and 0 in other languages'), "eux " (342 French; 0 other), and "auv" (54 French; 0 other).[19]

These language-keyed groupings could then be compared to the set of letters in a particular brand name. Each brand[20] was broken into its full set of three- and four-character groupings. Each of these groupings was assigned a score for its propensity to associate with each language; in the specifications reported below, this was simply a binary variable noting if the letter grouping appeared at least 20 times in the corpora, with at least 95% of its occurrences being in the language in question.[21] If the difference between the count of a brand name's letter groupings that met this standard of Frenchness and the count of those that met this standard of association with other languages was (strictly) greater than zero, the brand was deemed French.[22] Examples where this difference was positive include brands such as "Fleur de Lait," "Lesieur," and "Maison Bordeaux Millesimes."[23] Brands where this score was negative and thus highly non-French-seeming included "Busch Light," "Mazzetti Grappa di Barbera 'La Scacchiera,'" and "Swans Down Cake Flour." With this information, we calculated the fraction of French-cuing brand names out of the company's entire spectrum of brands, including brands owned by subsidiaries. This served as the final measure for how tied the corporation was to seemingly French brands.

Several caveats are in order. First, the *Red Books* brand list removes all diacritical marks from included names. Hence Unilever's Calvé brand of sauces appears in the data as CALVE: the distinguishing foreignness of the acute accent renders as a standard English word, with no obvious sign of its original foreign character. As diacritical marks are typically emphatic signals of foreignness in English, especially in branding, this stripping of accent marks obscures observations that should properly be coded as having French associations. Thus our coding likely underestimates how many brands consumers

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[19] Obviously, other languages can contain letter clusters that were exclusively French in the collected corpora: English, for example, contains "auv" in words such as "mauve" or "chauvinism," and even "tait" can crop up in words like "minnesotaite" or "staithe." However, the fact that these words and combinations did not appear in the language samples suggests that they are likely to be rare and possibly foreign-seeming where they do arise.

[20] A space was appended at the beginning and end of each name to catch linguistically distinctive word-openings and -endings.

[21] Several other means of coding the language point to most of the same brands as having French names. With pure binary specifications, we adjusted both the threshold of stringency for identifying a letter grouping as belonging to a language (e.g., deeming anything where at least 90%, or 99%, of the appearances were from a single language as associating with that language) and for considering a letter grouping (for example, accepting only groups that appeared 50 times in the corpora, or anything that appeared at least ten times). We also included some continuous specifications of language-specific overtones, such as the fraction of occurrences in a particular language – so that "vez ," which occurred 37 times in each of French and Spanish (but nowhere else) received a French score of 0.5 – or a Herfindahl index that summed the squares of language share times multiplied by either 1 or -1 depending on whether the share was or was not French.

[22] Again, a variety of operationalizations here tended to point to the same set of brands: counting the share of letter combinations that appeared French, for example, or requiring brands to have scores greater than 1 rather than 0.

[23] As a robustness test, we sometimes supplemented this measure with codes for brands that included "France," "French," and "Paris" in their names. This affected fewer than ten brands in total and had corresponding little effect on the measure of corporate brand portfolios (or on regressions using that measure).

perceive as French. Second, this coding looks for French language, which does not correspond perfectly to French nationality: some brands may seek to associate with another Francophone nation (e.g., Stella Artois and Belgium) but still turn up as "French" here. This may not be a problem if consumers do not in their purchasing behavior differentiate France from Belgium, Québec, and other Francophone areas – or if the market assumes that consumers do not do so – but nevertheless is worth noting. Finally, this coding scheme is based on the appearance of words in general text, where the distribution of words is quite different than in food and branding. Some words that do not much appear in the corpora come up frequently in branding. In marking French brands, this is particularly problematic with "bourbon" and "stout," both of which contain characteristically French letter clusters ("bon " and "tout," respectively). Although these words' etymologies do reflect a connection to French and "bourbon" in particular may have some French associations, these generic product labels are unlikely to be perceived as French in practice. For such cases, then, the measure used here may overestimate the French quality to firms associated with these products.

The dependent variable, as is typical in event studies, is the "abnormal return": the difference between observed stock prices during the event period and what would be expected based on the performance of a broader portfolio of stocks during a "normal," non-event period. Here, that broader portfolio is the Dow Jones U.S. Food Producers Index (ticker symbol: DJUSFO).[24] For each of the 48 public corporations for which we have brand data, a separate regression estimates the daily change in the individual stock's price (dependent variable) as predicted by changes in the index price over the first five months of 2002, well before the onset of the Iraq war and the tensions with France.[25] The dependent variable in the regressions of interest is then the error (residual) of these estimates: the portion of a stock price's daily performance that was not explained by its sensitivity to general market conditions during the time of the crisis in relations with France.

This requires dating the period of that crisis. Such dating is typically a key question in the construction of an event study, as the window is an explicit measure of when the event had its impact. Misdating this can thereby miss the expected effect altogether or swamp the event in a flood of irrelevant noise. The timing question is particularly problematic when the event is anticipated: insofar as market players are rational, they should price in the event to the extent that they know it is coming (discounted for any uncertainty of its consequences). In this case, looking at the apparent aftermath of the event will entirely overlook its price effects (Bhattacharya et al. 2000). Indeed, if the market overestimates the size of the effect *ex ante*, the reaction *ex post* could be the opposite of that expected as the market effect reverts to the actual size of the observed effect.

These concerns are very much in play when considering the 2003 Iraq affair. Unlike an earthquake or other sudden, unpredictable shock, the event in 2003 was diffuse

[24] Using the overall S&P 500 price in place of the Food Producers Index produces virtually identical results.

[25] Of the 48 firms in our sample seven are multinational companies whose headquarters are outside of the US and are traded in the US via American Depository Receipts: Cadbury plc, Groupe Danone SA, Diageo plc, Heineken NV, Nestle SA, Unilever plc, Unilever NV. Only Groupe Danone SA (France) and Nestle SA (Switzerland) are the only French-speaking countries in the group; there is no sign that consumers or markets were reacting to the nationality of these firms.

and heavily foreshadowed. Although the American invasion began only on March 20, talk of a boycott had emerged and received widespread, prominent media attention from several weeks earlier, certainly by mid-February (Chavis and Leslie 2009). Indeed, the peak of the contretemps and the media attention to it probably occurred before the invasion itself; with the actual placing of American troops in combat, attention to the French position faded (Ashenfelter et al. 2007). Indeed, some (e.g., Michaels and Zhi 2010) would date the upsurge in anti-French feeling to as early as October 2002, while Vannerson (2004), followed closely by Ashenfelter et al. (2007), starts the boycott on January 27. Other potential events and scholarly analysts point to later dates. Ashenfelter et al. (2007) report that the first mentions of "freedom fries" in print and television news were February 20 and February 17 respectively. March 5 was the date on which France (along with Russia and Germany) formally announced that it would veto any American attempt to get the sanction of the United Nations Security Council for an invasion of Iraq – an assertion reiterated with increasing vehemence over the next week (most prominently by France's Foreign Minister Dominique de Villepin on March 7 and French President Jacques Chirac on March 10). These announcements kicked off a new wave of anti-French sentiments and actions: March 11 was when the cafeteria of the United States House of Representatives famously renamed French fries (and, less famously, French toast).

As this disagreement over the most appropriate choice among the range of possibilities suggests, studies on changes in sales volumes (as opposed to stock prices or media reports) tend not to find abrupt changes in response to any single incident in the international spat. In addition, the literature on the progress of the boycott suggests that opponents of the war discussed *increasing* their consumption of France-related goods, and that this movement may not have coincided temporally with the move to boycott such goods (see especially Ashenfelter et al. 2007). Specifying a particular date or episode as the key moment is correspondingly unlikely to capture the dynamics of the public and market reaction, which likely varied day by day, and aggregating across different days may obscure any real effects on stock prices. In addition, with the US-France dispute over Iraq policy, the set of events that might be expected to produce abnormal returns applied to all affected stocks simultaneously. This makes it harder to use a traditional event study: distinguishing among the multiple events that are likely to have occurred within a cumulative event window is difficult.

To limit parameterization in the face of these uncertainties, the models below consider each day separately. That is, for each trading day during the period under study, there is an indicator variable for the day's fixed effect, plus an interaction of that fixed effect with the measure of how French the firm's brand portfolio is. Besides not imposing a definite event window, this methodology has the advantage of great scalability: it can expand to incorporate earlier or later periods as desired. Moreover, if a more cumulative analysis is desired – e.g., to consider whether the market ultimately punished companies owning French brands over the course of the whole month of February 2003 – the individual coefficients can be totaled and subjected to an F test. There are, naturally, countervailing disadvantages to the day-by-day approach; it requires many variables for a large dataset, and some of these variables are likely to correlate and thereby reduce the reliability of the estimated effect sizes. It may also inflate sample sizes and thereby confidence by taking each stock-day as a separate observation. While these caveats

demand some caution about inference, such a model can still be useful, especially for exploratory analysis. The basic model is then an OLS regression predicting abnormal returns on the basis of these daily fixed and interaction effects.

Figure 1 presents the results of this model, in the form of the predicted difference between a firm with five percent of its brand portfolio having French-overtoned names and one have no French-sounding brands.[26] The y-axis shows the daily – not cumulative – abnormal return to share price, measured in percentage points: a value of +0.1 indicates that the firm with 5% French brands overperformed a firm with no French content by 0.1 percentage points. The x-axis marks trading days, so that every five trading days comprise a trading week (except during the week of February 17, when the Washington's Birthday holiday closed American stock exchanges for one day). Day 10 would then be February 4, day 20 is February 19, day 30 is March 5, and so on. The period shown on the graph thus extends from January 21 to April 9.[27] The gray line shows the predicted daily difference in returns based on French-sounding brands, while the blue line shows a lowess smoothing of these predicted values with 95% confidence interval in gray, but note that the uncertainty in the confidence interval includes only the variation in the predicted values, not the uncertainty embedded within those predictions.

Daily returns did fluctuate considerably, as is typical of stock prices. Still, during this period, firms having a portfolio more slanted towards French-named brands saw generally less positive abnormal returns to their stock prices than did firms with a smaller share of French-named brands. This difference is especially marked over the period from mid-February to mid-March (roughly day 20 to day 40 on Figure 1), the few weeks before the invasion. In addition, the pattern of daily results is sometimes suggestive: there are significant negative effects of have French-inflected brand portfolios on March 5, when France officially announced it would veto Security Council action against Iraq, and March 11, the day of the "Freedom Fries" resolution. These results hardly rise to the level of proof of the idea that stock markets reacted against French brands during the Iraq debate (whether in response to actual customer behavior or not), though they raise the possibility.

As discussed above, cumulation may not be very revealing, since countervailing trends in different market segments – for example, one group choosing to boycott French-named goods while another group chooses to buy more French-themed items to show opposition to the war.[28] Nevertheless, it is of interest to track whether the net effect of these daily price shifts over the period was positive or negative for firms with French-branded portfolios. To this end, Figure 2 shows the predicted daily returns using Figure 1's model for two hypothetical firms, one with no French-seeming brands (shown in blue) and one with 5% of its brands having French-like names (shown in red). There may be some mild effect of superior performance of French-inflected firms during the first few weeks of the graph as the red line rises above the blue until about day 20 (mid-February). Thereafter, the trend reverses, and firms with French brands proceed to lose

[26] The Appendix provides the raw coefficients (and t-statistics) used to generate this figure.
[27] Extending the graph further in either direction produces similar results.
[28] Such patterns might be identifiable using interactions of buyer characteristics: French-named products served by young, urban, or otherwise generally Iraq-war-opposing populations might not be expected to see smaller effects of any boycott than would goods served by populations that more generally supported the Bush administration's policies. However, such information is not readily available for all brands in the analysis, so fully incorporating such possibilities is a task for future research.

market value vis-à-vis firms without, eventually losing back more than the advantage they gained in the first few weeks of the period. These potential differences are however swamped by the imprecision of the estimates. Cumulating across the daily returns adds ever-increasing uncertainty to the point predictions, as shown by the expansion of the confidence intervals over the course of the graph. Such imprecision could be reduced for any given date by starting the period of cumulation later on, but even dredging the data to choose the interval that maximizes the negative effect of French branding leaves the difference between the two brands' performance swamped by the errors of daily prediction.[29] Any results here of an effect of French branding are accordingly much nearer to being suggestive than conclusive.

There is, however, reason to doubt the robustness of even this modest result. One worry is the highly abnormal distribution of French names in brand portfolios in the sample. Table 1 lists the French brands by corporation. As the table shows, only a few of the 48 firms have any French brands (and some of the ostensibly French brands are questionable). Most of the companies with many French brands are those that simply have very large brand portfolios to begin with – major conglomerates like Sara Lee and Unilever. There are two conspicuous exceptions, however: Diageo and Heineken. Both of these companies have around 20% of their brands marked as French-sounding, many times higher than the proportion of French brands for the other corporations in the sample. As such extreme outliers, they are highly influential in the predicted effects of French brands. Moreover, both being companies dominated by alcoholic beverage production, these two firms may both be atypical in other dimensions that could affect stock returns.[30] Figure 3 therefore repeats Figure 1's analysis when these firms are excluded from the sample.[31] There, the negative effect of French brands on abnormal returns is very modest at best. Including these firms in the sample yet reducing their influence by using a dummy variable to indicate any corporation with one or more French brands, shown in Figure 4, also erases any negative effects of French brands as seen in Figure 1.

Even though this makes for a small effect of nationality-associated brand names, it is nonetheless promising that there does appear to be a negative drift in the share prices of companies with French-named brands during the period of greatest tensions with France. The fact that the incident produced some currents agitating in favor of France moderated the expected effects of any potential boycott. Moreover, most of the firms in this sample had relatively little exposure to French brand names; the expectations for effect sizes were correspondingly modest. A clearer or less politically divisive event, or one affecting a greater share of foreign-tinged brands, might be expected to magnify the observed effects here considerably.

[29] Treating the data as a classic cross-sectional event study with a well-defined event window instead of compounding daily errors can produce statistically significant differences in performance, but these results are not very robust.

[30] There are a small number of other alcohol-dominated firms in the sample (e.g., Anheuser-Busch), but most firms rely more on soft drinks or comestibles.

[31] Again, the appendix provides the associated table of results.

Conclusion

That nationalism plays a role in economic choices is widely suggested but rarely demonstrated. The 2003 dispute between the US and France over the proposed invasion of Iraq provides the backdrop for a novel test of this claim. We identify which brand name food and beverage products American consumers were likely to boycott in protest of France's position. These are products whose brand names suggest that they are French but are produced by American firms, foreign firms whose home government supported the Iraq invasion, and in the case Switzerland, a formally neutral country. The products' seemingly French origin reflects a common branding strategy that links food and beverages to the French tradition of culinary excellence. Under normal circumstances these brand names entice consumers to buy the products but in the months preceding the US invasion of Iraq the appearance of being French became a liability. We analyze the effect of owning French brand names on the stock market value of 48 food and beverage firms traded in American equity markets during the first four months of 2003. Although the precise date of US-French tensions is disputed we find that for a range of dates in February and March 2003 firms with French brands performed worse than an index of US food sector stocks. We take these findings to suggest that national sentiments guided consumers' buying choices in the weeks preceding the US invasion of Iraq.

The novelty of this study is in the use of behavioral measures of nationalist preferences. This represents an innovation over survey-based studies of nationalism and economic policy preferences that rest on an interpretation of respondents' education. We foresee many ways to build on the approach developed in this paper. Obvious extensions of this approach include expanding the industries considered as the salience of French nationality likely differs across product categories; incorporating additional parameters to models of abnormal returns to include firm characteristics that could mediate consumers' responses to French branding. Another route is to disaggregate firms' brand portfolios and examine brand-level profitability indicators. Though the data challenges may prove prohibitive, such a study could directly estimate the effect of perceived of perceived nationality on brand assets. Our current research tests the influence of perceived French nationality on consumer behavior using supermarket scanner data.[32] Event study analyses of these data allow us to identify finer-grained consumer responses to political events including variation across localities and their characteristics; the relative of effect of "truly" French goods versus perceived French products; product categories and price points; and a wider range of brands produced by both public and private companies. Product level marketing data allow us to control for producer responses to adverse events like expanded marketing efforts to counteract negative brand perception. Collectively, these ideas constitute a research program that can only strengthen the microfoundations of core theories of political economy.

[32] This is joint work with Raj Venkatesan of the Darden School of Business at the University of Virginia.

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Table 1. French-inflected brands, by company. Those marked with an "X" in the "Trigraph" column appear French to the algorithm using three-letter combinations, while those marked in the "Tetragraph" column appear French using four-letter combinations.

Company	Brand	Trigraph	Tetragraph
Anheuser-Busch	ANHEUSER-BUSCH	X	
Archer Daniels Midland	NUTRISOY	X	
Campbell Soup	LESIEUR	X	X
Campbell Soup	BATHCELORS		X
Campbell Soup	LACROIX	X	
Campbell Soup	ROYCO	X	
Coca-Cola	BARQ'S	X	
Dean Foods	CAIRO BEAUTIES	X	
Diageo	BEAULIEU VINEYARD WINES	X	X
Diageo	YUKON JACK CANADIAN LIQUEUR	X	X
Diageo	CHATEAU GLORIA	X	X
Diageo	CHATEAU GREYSAC	X	X
Diageo	CHATEAU LA CARDONNE	X	X
Diageo	WILD TURKEY BOURBON		X
Diageo	JANNEAU		X
Diageo	CHATEAU LAROSE-TRINTAUDON		X
Diageo	CHATEAU DE LA CHAIZE		X
Diageo	BOUCHARD PERE & FILS	X	
General Mills	YOPLAIT	X	X
General Mills	ORIGINAL YOPLAIT		X
General Mills	RAISIN NUT BRAN	X	
General Mills	SUPERMOIST	X	
General Mills	TOTAL RAISIN BRAN	X	
H.J. Heinz	JOHN MOIR		X
H.J. Heinz	BOURBON		X
Heineken	MURPHY'S IRISH STOUT		X
Kellogg	APPLE RAISIN CRISP	X	
Kellogg	NATURAL TOUCH	X	
Kellogg	NUTRI-GRAIN	X	
Kellogg	NUTRI-GRAIN BARS	X	
Kraft Foods	LOUIS RICH	X	X
Kraft Foods	MILKA L'IL SCOOPS	X	X
Kraft Foods	LOUIS RICH	X	X
Kraft Foods	RAISIN BRAN	X	
Kraft Foods	ROYAL LUNCH	X	
Leading Brands	1ST CHOICE	X	
McCormick	TOUR DE FLAVOUR	X	
Molson Coors	PILSNER	X	
National Beverage	LA CROIX	X	
Nestlé	NUTREN	X	X
Nestlé	MOIST & MEATY		X
Nestlé	PRAISE	X	
Nestlé	RAISINETS	X	

Sara Lee	MAISON DU CAFE		X	X
Sara Lee	CHATEAU MARQUE		X	X
Sara Lee	PETIT CHERI			X
Sara Lee	BRYAN		X	
Sara Lee	CHAT NOIR		X	
Sara Lee	NEUTRAL		X	
Sara Lee	NUTRIMETICS		X	
Sara Lee	NUTRINE		X	
Sara Lee	SINAI		X	
Sara Lee	SINAI 48		X	
Sara Lee	STATE FAIR		X	
Sara Lee	SUPERIOR CAFE ROYAL		X	
Smithfield Foods	VIRGINIA CHOICE		X	
Coca-Cola	BARQ'S		X	
Coca-Cola	DIET BARQ'S		X	
Unilever	LESIEUR		X	X
Unilever	YABON			X
Unilever	BOVRIL		X	
Unilever	CASA DE MATEUS		X	
Unilever	FRUCO		X	
Unilever	MATEUS		X	
Unilever	NUTRABLEND		X	
Unilever	ROYAL	X		

Figure 1. Daily returns to companies with French brands. The gray line shows the expected returns; the blue line shows the smoothed mean (with 95% confidence interval).

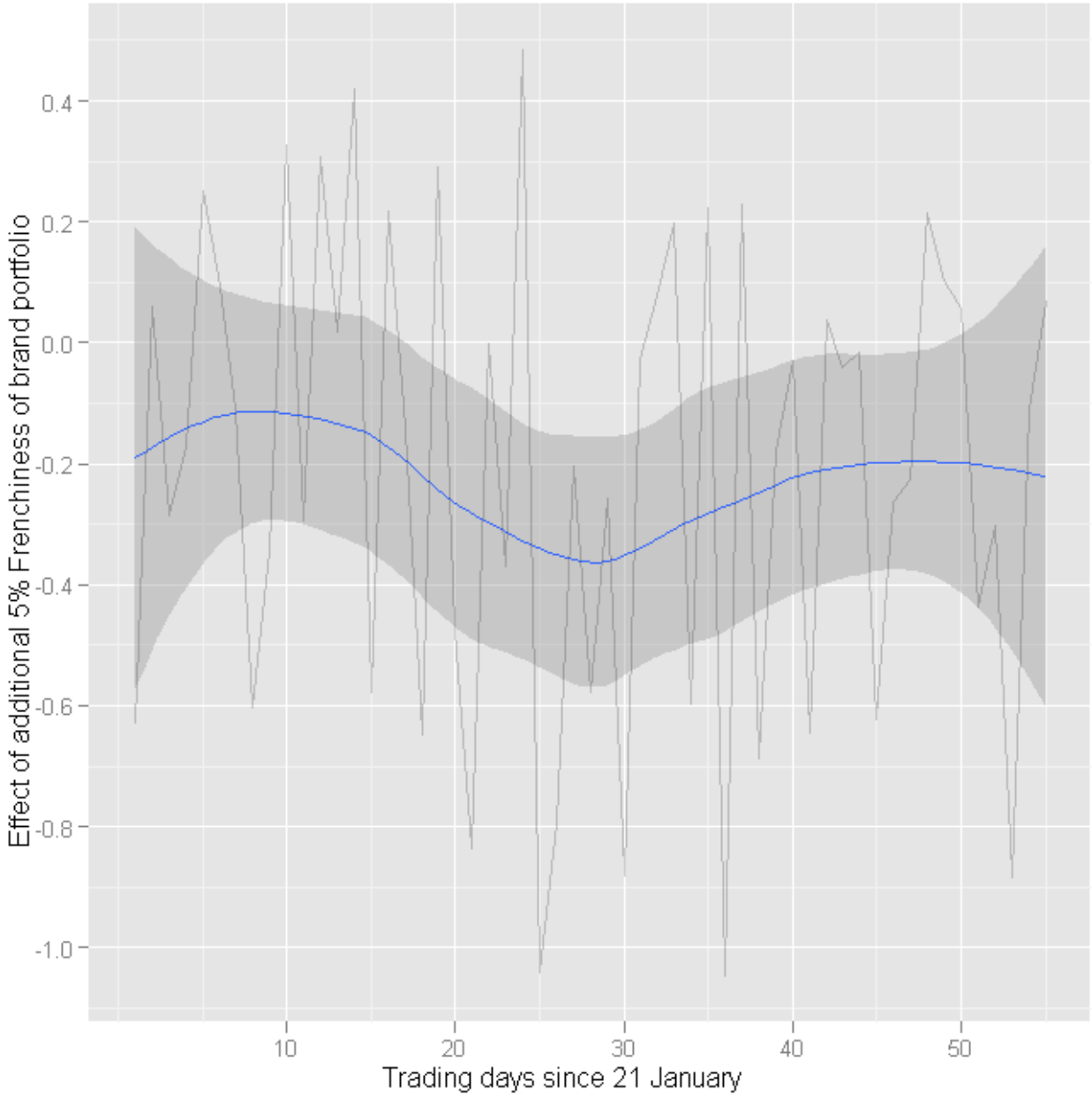


Figure 2. Cumulative predicted returns to companies with 0% (red) and 5% (blue) French brands, starting cumulation from January 21. The line shows the predicted return; the shaded area shows the 95% confidence interval.

Figure 3. Daily returns to companies with French brands, excluding Heineken and Diageo. The gray line shows the expected returns; the blue line shows the smoothed mean (with 95% confidence interval).

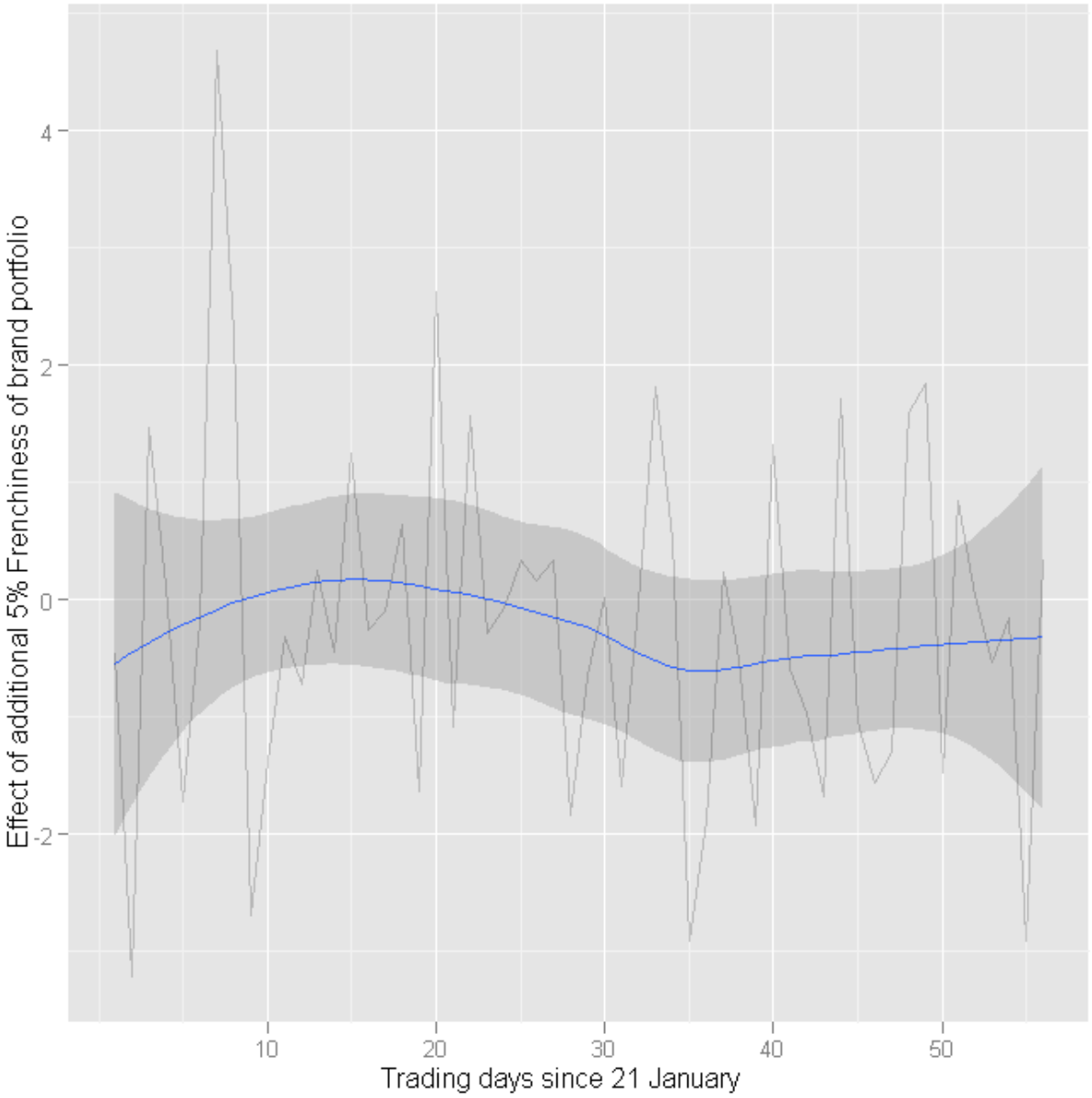
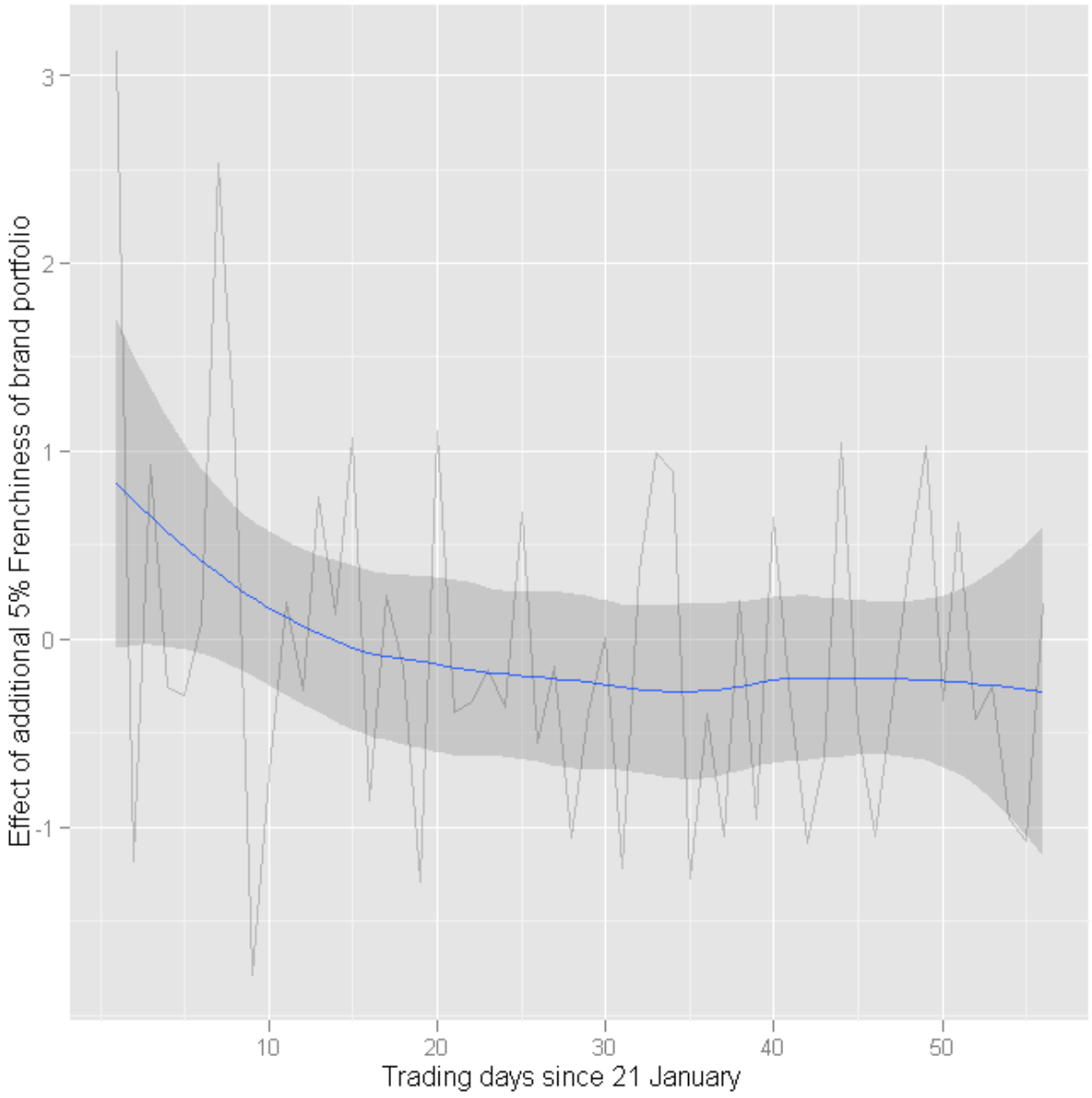


Figure 4. Daily returns to companies with French brands, using indicator specification. The gray line shows the expected returns; the blue line shows the smoothed mean (with 95% confidence interval).



Appendix

Table A1. Abnormal returns to food sector stocks (OLS model). All columns refer to a single regression; the "Base Coefficient" shows the day's expected abnormal return for a stock with no French brands, while the "French Coefficient" shows the effect of French brands on the day's expected abnormal return. Days shaded in gray see (95%, two-tailed) significantly worse returns for French-branded corporations; days shaded in blue see significantly better returns.

	Base Coefficient	t-statistic	French Coefficient	t-statistic
21 Jan	0.600	1.40	3.127	0.48
22 Jan	1.427	2.96	-9.501	-2.11
23 Jan	0.963	3.36	4.343	0.92
24 Jan	0.880	1.98	-2.596	-0.88
27 Jan	0.988	2.42	-0.286	-0.05
28 Jan	0.107	0.27	8.155	1.04
29 Jan	1.244	2.15	4.987	0.92
30 Jan	0.030	0.03	0.904	0.14
31 Jan	-1.475	-2.62	-8.915	-2.28
3 Feb	0.936	1.76	-3.764	-0.46
4 Feb	0.052	0.14	9.662	3.97
5 Feb	0.283	0.48	-2.776	-0.63
6 Feb	0.974	1.89	9.278	2.02
7 Feb	0.455	1.43	3.511	1.16
10 Feb	-0.525	-0.84	11.529	1.86
11 Feb	1.727	3.07	-8.450	-2.21
12 Feb	0.885	0.95	7.450	1.03
13 Feb	-0.364	-1.18	0.283	0.13
14 Feb	-0.163	-0.52	-9.832	-4.02
18 Feb	-0.606	-1.37	8.918	1.82
19 Feb	1.355	5.65	-6.370	-3.63
20 Feb	0.805	2.28	-13.605	-2.98
21 Feb	-0.361	-1.69	3.076	0.85
24 Feb	0.847	3.46	-4.266	-1.86
25 Feb	-0.479	-1.29	12.820	2.73
26 Feb	0.895	2.77	-17.690	-1.72
27 Feb	-0.071	-0.22	-12.738	-1.34
28 Feb	0.961	2.89	-0.946	-0.31
3 Mar	0.601	1.67	-8.438	-2.76
4 Mar	1.373	5.42	-1.999	-0.54
5 Mar	1.138	2.98	-14.518	-5.32
6 Mar	0.581	1.10	2.595	0.62
7 Mar	-0.652	-0.95	4.690	1.01
10 Mar	1.048	3.02	7.093	1.73
11 Mar	-0.079	-0.26	-8.824	-2.36

12 Mar	0.529	1.47	7.604	1.81
13 Mar	-0.825	-1.75	-17.788	-5.47
14 Mar	0.115	0.36	7.729	3.51
17 Mar	-1.404	-4.84	-10.605	-4.83
18 Mar	0.070	0.15	-0.460	-0.12
19 Mar	-0.845	-1.73	2.508	0.45
20 Mar	0.844	1.90	-9.781	-3.27
21 Mar	-1.420	-3.40	3.865	1.31
24 Mar	1.747	5.06	2.302	0.94
25 Mar	-0.586	-1.60	2.796	0.64
26 Mar	0.648	1.72	-9.307	-1.99
27 Mar	0.389	1.09	-2.146	-0.84
28 Mar	0.821	2.51	-1.386	-0.28
31 Mar	-0.150	-0.40	7.394	1.62
1 Apr	-0.060	-0.20	5.166	1.00
2 Apr	-1.564	-3.72	4.247	0.78
3 Apr	0.943	3.57	-5.596	-1.66
4 Apr	0.196	0.63	-2.937	-1.12
7 Apr	0.078	0.26	-14.571	-6.70
8 Apr	0.353	1.38	0.887	0.27
9 Apr	-0.037	-0.17	4.478	1.66

Table A2. Abnormal returns to food sector stocks (OLS model), excluding Heineken and Diageo. All columns refer to a single regression; the "Base Coefficient" shows the day's expected abnormal return for a stock with no French brands, while the "French Coefficient" shows the effect of French brands on the day's expected abnormal return. Days shaded in gray see (95%, two-tailed) significantly worse returns for French-branded corporations; days shaded in blue see significantly better returns.

	Base Coefficient	t-statistic	French Coefficient	t-statistic
21 Jan	0.632	1.35	-9.344	-0.38
22 Jan	1.575	2.99	-64.144	-2.62
23 Jan	0.896	2.88	29.272	1.56
24 Jan	0.867	1.82	2.245	0.08
27 Jan	1.079	2.42	-34.504	-1.51
28 Jan	0.141	0.33	-3.593	-0.17
29 Jan	1.006	1.74	93.635	1.21
30 Jan	-0.089	-0.09	45.137	0.95
31 Jan	-1.354	-2.23	-53.703	-1.40
3 Feb	1.002	1.71	-27.358	-1.05
4 Feb	0.095	0.24	-6.428	-0.29
5 Feb	0.314	0.48	-14.396	-0.52
6 Feb	0.985	1.73	5.046	0.20
7 Feb	0.490	1.41	-8.967	-0.49
10 Feb	-0.561	-0.81	25.108	0.84
11 Feb	1.718	2.78	-5.306	-0.16
12 Feb	0.910	0.89	-2.058	-0.04
13 Feb	-0.397	-1.18	12.735	0.64
14 Feb	-0.101	-0.30	-32.731	-1.40
18 Feb	-0.725	-1.50	52.357	2.36
19 Feb	1.395	5.42	-21.542	-1.24
20 Feb	0.685	1.85	31.213	1.15
21 Feb	-0.336	-1.45	-5.603	-0.41
24 Feb	0.839	3.14	-1.322	-0.10
25 Feb	-0.461	-1.13	6.579	0.35
26 Feb	0.836	2.37	3.218	0.20
27 Feb	-0.126	-0.38	6.838	0.28
28 Feb	1.057	2.97	-36.714	-1.73
3 Mar	0.614	1.57	-13.113	-0.59
4 Mar	1.368	5.03	0.249	0.01
5 Mar	1.184	2.85	-31.879	-1.49
6 Mar	0.590	1.01	-0.501	-0.02
7 Mar	-0.737	-0.97	36.132	1.02
10 Mar	1.040	2.76	10.283	0.49
11 Mar	0.055	0.17	-58.101	-3.41
12 Mar	0.652	1.69	-37.615	-1.72
13 Mar	-0.886	-1.72	4.682	0.17

14 Mar	0.163	0.46	-10.175	-0.58
17 Mar	-1.328	-4.23	-38.567	-1.74
18 Mar	-0.003	-0.01	26.413	0.92
19 Mar	-0.807	-1.51	-11.878	-0.42
20 Mar	0.870	1.80	-19.416	-0.78
21 Mar	-1.319	-2.92	-33.433	-1.17
24 Mar	1.661	4.63	34.146	1.10
25 Mar	-0.521	-1.32	-20.909	-0.96
26 Mar	0.708	1.73	-31.163	-1.50
27 Mar	0.453	1.16	-25.961	-1.43
28 Mar	0.729	2.14	32.068	1.30
31 Mar	-0.231	-0.55	36.715	1.84
1 Apr	0.035	0.11	-29.589	-1.47
2 Apr	-1.597	-3.46	16.886	0.77
3 Apr	0.925	3.29	0.680	0.03
4 Apr	0.218	0.66	-10.723	-0.47
7 Apr	0.047	0.14	-3.027	-0.15
8 Apr	0.513	1.90	-58.194	-3.45
9 Apr	-0.043	-0.19	6.642	0.48

Table A3. Abnormal returns to food sector stocks (OLS model), using indicator measure of French brands. All columns refer to a single regression; the "Base Coefficient" shows the day's expected abnormal return for a stock with no French brands, while the "French Coefficient" shows the effect of French brands on the day's expected abnormal return. Days shaded in gray see (95%, two-tailed) significantly worse returns for French-branded corporations; days shaded in blue see significantly better returns.

	Base Coefficient	t-statistic	French Coefficient	t-statistic
21 Jan	0.600	1.40	3.127	0.48
22 Jan	1.543	2.84	-1.181	-1.79
23 Jan	0.836	2.62	0.929	2.17
24 Jan	0.898	1.85	-0.251	-0.30
27 Jan	1.041	2.27	-0.301	-0.49
28 Jan	0.180	0.41	0.092	0.13
29 Jan	0.825	1.41	2.530	1.80
30 Jan	-0.147	-0.14	0.999	0.86
31 Jan	-1.240	-1.99	-1.782	-2.21
3 Feb	1.028	1.70	-0.715	-1.02
4 Feb	0.122	0.30	0.196	0.27
5 Feb	0.303	0.45	-0.273	-0.38
6 Feb	0.935	1.60	0.754	1.08
7 Feb	0.468	1.31	0.138	0.29
10 Feb	-0.598	-0.84	1.071	1.33
11 Feb	1.794	2.82	-0.859	-1.18
12 Feb	0.924	0.87	0.235	0.20
13 Feb	-0.332	-0.96	-0.151	-0.30
14 Feb	-0.030	-0.09	-1.288	-2.53
18 Feb	-0.715	-1.43	1.107	1.90
19 Feb	1.357	5.18	-0.389	-0.80
20 Feb	0.718	1.90	-0.338	-0.38
21 Feb	-0.295	-1.24	-0.167	-0.46
24 Feb	0.867	3.17	-0.359	-0.93
25 Feb	-0.464	-1.11	0.675	1.10
26 Feb	0.803	2.21	-0.553	-0.68
27 Feb	-0.185	-0.55	-0.141	-0.16
28 Feb	1.148	3.17	-1.055	-1.89
3 Mar	0.581	1.45	-0.391	-0.63
4 Mar	1.349	4.84	0.009	0.02
5 Mar	1.206	2.82	-1.220	-1.98
6 Mar	0.542	0.90	0.362	0.56
7 Mar	-0.785	-1.01	0.987	1.14
10 Mar	0.960	2.49	0.889	1.55
11 Mar	0.061	0.18	-1.269	-2.67
12 Mar	0.687	1.74	-0.396	-0.55
13 Mar	-0.826	-1.56	-1.049	-1.25

14 Mar	0.162	0.45	0.205	0.42
17 Mar	-1.341	-4.16	-0.960	-1.86
18 Mar	-0.056	-0.11	0.644	0.98
19 Mar	-0.756	-1.37	-0.328	-0.46
20 Mar	0.938	1.90	-1.078	-1.47
21 Mar	-1.258	-2.70	-0.634	-0.97
24 Mar	1.576	4.35	1.048	1.38
25 Mar	-0.465	-1.15	-0.481	-0.75
26 Mar	0.741	1.76	-1.048	-1.79
27 Mar	0.429	1.06	-0.340	-0.73
28 Mar	0.730	2.12	0.404	0.52
31 Mar	-0.260	-0.61	1.023	2.05
1 Apr	0.058	0.18	-0.327	-0.58
2 Apr	-1.634	-3.43	0.620	1.11
3 Apr	0.960	3.34	-0.421	-0.76
4 Apr	0.210	0.62	-0.249	-0.43
7 Apr	0.096	0.29	-0.955	-1.68
8 Apr	0.563	2.03	-1.069	-2.59
9 Apr	-0.022	-0.09	0.184	0.56