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Economic perspectives

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Leland Crane, Meredith A. Crowley, and Saad Quayyum

In this article, the authors present updated trade elasticities—measures of how much imports and exports change in response to income and price changes—for the U.S. and six other industrialized countries, collectively known as the Group of Seven. They find that the imports and exports of these countries are slightly more responsive to changes in a country's total income over a period that ends in 2006, compared with a period that ends in 1994.

18 Evidence on entrepreneurs in the United States: Data from the 1989–2004 *Survey of Consumer Finances*

Mariacristina De Nardi, Phil Doctor, and Spencer D. Krane

Using data from the Federal Reserve Board's *Survey of Consumer Finances*, the authors examine characteristics of entrepreneurs and the businesses they run. Their analysis confirms that business owners are important sources of saving and wealth creation in the U.S. and that they are less risk averse than other wealthy households. This discounts the notion that the wealth of entrepreneurs disproportionately reflects a buildup of precautionary balances to guard against financial risk.

37 A bank by any other name ...

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"Banks" are regulated by the government. However, because the generic term bank applies to a number of different types of financial institutions that provide different services, different types of regulation are required. This issue has attracted much attention in recent years as nonfinancial firms—including Wal-Mart—attempted to obtain a "bank." This article traces changes in the definition of the term commercial bank for the purposes of regulation and discusses the implications for one type of "bank": industrial loan companies.

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Understanding the evolution of trade deficits: Trade elasticities of industrialized countries

Leland Crane, Meredith A. Crowley, and Saad Quayyum

Introduction and summary

In 2006, Americans bought \$1,928 billion of goods and services produced in foreign countries. In the same year, American sales of goods and services to foreigners amounted to only \$1,304 billion.¹ The difference between American exports and imports of \$624 billion is known as the trade deficit. When this number is positive—that is, when the U.S. sells more to foreign countries than it buys—it is called a trade surplus. More generally, the difference between the value of a country's exports and imports is known as the trade balance. Over the past several years, the U.S. trade deficit has attracted a great deal of attention in the popular press and among policymakers in Washington, DC. Why is there so much interest in the trade deficit?

To place things in a historical context, the U.S.'s trade balance has been negative—that is, the U.S. has been importing more than it has been exporting—for much of the post-World War II period. Over the past 25 years, the trade deficit has tended to become a larger and larger fraction of the total output of the U.S. economy, or U.S. gross domestic product (GDP). In the first quarter of 2005, the U.S. trade deficit peaked at a post-World War II high of 5.7 percent of GDP. Most recently, in response to a weakening U.S. dollar, the trade deficit has shrunk a bit, standing at 5.2 percent of GDP in the first quarter of 2007. However, the U.S.'s trade deficit of more than 5 percent of GDP is large both by historical standards and in comparison with other industrialized countries.²

Why does the size of the U.S. trade deficit matter? Whenever the U.S. trade balance is in deficit, this means that the U.S. is borrowing from foreigners to finance its consumption of imports. Borrowing in and of itself is not necessarily a bad thing. In fact, one way to view the trade deficit is to recognize that foreigners are choosing to invest in the United States. One can imagine that they choose to do so because they think that the

returns they will earn on an investment here are better than the returns they will earn in other countries.

However, debts need to be repaid, and the large and persistent U.S. trade deficit means that the U.S. has been borrowing more and more from foreigners for a long time. This raises the concern that at some point in the future, foreigners may begin to doubt the ability of the U.S. to repay its debts and will cease lending. Or, more likely, that the cost of borrowing from foreigners will increase significantly. Trouble could also arise if the dollar experiences a “hard landing,” a sudden large fall in its value relative to other currencies. A large fall in the value of the dollar would eventually result in much higher prices for imports, which could leave U.S. consumers much worse off than they otherwise would be. So the size of the trade deficit matters because it could be a contributing factor to a sudden change in the value of the dollar. In turn, an abrupt change in the value of the dollar could, by raising the prices of imported goods and services, reduce the consumption of Americans (see box 1).

Given the importance of the trade balance, economists want to understand how it will evolve in the future. Two important factors in determining how much Americans import from other countries are U.S. national income and the relative price of imported goods to domestically produced ones. Similarly, important determinants of U.S. exports are the income of our trading partners and the relative price of U.S. exports

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BOX 1

The trade balance, the current account balance, and the macroeconomy

The trade balance represents the overwhelming share of another measure of a country's external balance—the current account. To gain some insight into the macroeconomic significance of the U.S. trade deficit, we review the three different, yet equivalent, definitions of the current account. Mann (2002) describes these as three perspectives on the current account. Ferguson (2005) refers to them as three different lenses through which to view the current account. Ultimately, the current account changes in response to the forces underlying all of its three different definitions. Each perspective highlights different forces that drive the current account and can be analyzed empirically by economists who wish to quantify the importance of different forces that change its value.

A first perspective on the current account emphasizes its domestic macroeconomic foundations. The current account balance is defined as the difference between a nation's total income and its expenditures on consumption and investment or, equivalently, as the difference between the nation's total (public and private) saving and its total (public and private) investment. From this perspective, we can see that the U.S. current account deficit reflects the fact that investment expenditures exceed saving in the U.S. Thus, many critics of the U.S. current account deficit argue that Americans should save more. It is true that an increase in the level of saving, holding the level of investment constant, will by definition lead to a smaller current account deficit. However, this argument tends to oversimplify the complexity of a world in which individuals make consumption and saving decisions in response to relative prices and investment returns.

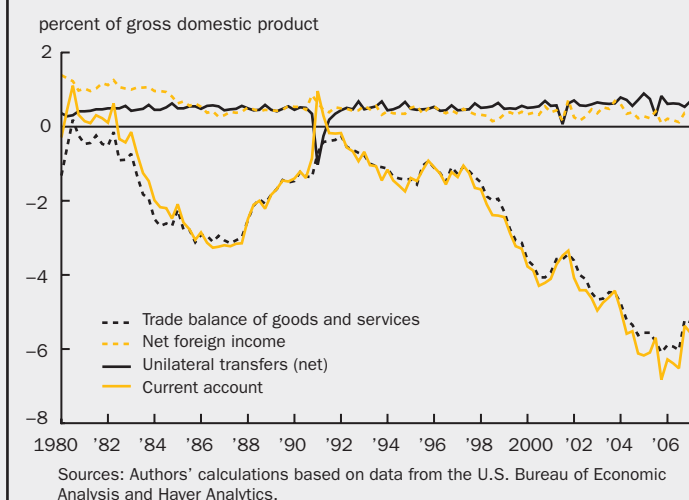
A second perspective on the current account deficit focuses on its international financial foundations. The current account measures international transactions as changes in current trade flows, income payments, and unilateral transfers. It is roughly equivalent to the financial account, which measures international transactions arising from changes in the stocks of real and financial assets, including foreign direct investment, as well as the public and private holdings of stocks, bonds, bank accounts, and currency. Thus, the financial account balance is equal to the difference between foreign spending for U.S. assets (U.S. capital inflows) and U.S. spending on foreign assets (U.S. capital outflows). The financial account surplus is loosely understood to reflect U.S. net borrowing from the rest of the world. That is, when U.S. expenditures exceed U.S. income, the shortfall is made up in a net inflow of capital to the U.S. or, equivalently, the purchase of U.S. assets by foreigners. One interpretation of the large U.S. current account in recent years is that it has been driven by foreign investors' strong desire for relatively secure U.S. assets (Bernanke, 2005).

A final perspective on the current account deficit is one that emphasizes the international trade flows that underlie it. The current account is equal to the sum of the trade balance (exports less imports), net foreign income, and unilateral transfers. Net foreign income is the difference between the overseas earnings of U.S. investors that are sent to the U.S. and the domestic U.S. earnings of foreign investors that are sent to their countries. Unilateral transfers are payments by governments or individuals to foreign governments or residents of foreign countries. This includes foreign aid and remittances from U.S. residents to family and friends overseas.

Figure B1 presents the components of the U.S. current account balance as a fraction of U.S. GDP from 1980 through 2007. The trade balance and current account move together closely throughout this period. Thus, one way to understand the evolution of the current account is to study the evolution of its largest component, the trade deficit. The international trade perspective examines how flows of imports and exports respond to changes in the national incomes of the importing countries and the relative prices of imported and exported goods and services.

FIGURE B1

Components of the U.S. current account



to the price of other goods that are available to consumers in foreign countries. In order to predict how exports or imports will change in the future, economists estimate trade elasticities. Trade elasticities measure how much a country's imports or exports will change in response to changes in national incomes or the relative price of imported goods and services to domestically produced ones. For example, the import elasticity with respect to income is a number that specifies how much imports will increase in response to a 1 percent increase in the total income of a country.

In this article, we present updated trade elasticities for the United States and six other industrialized economies—Canada, France, Germany, Italy, Japan, and the United Kingdom. These countries are collectively known as the Group of Seven (G-7) industrialized countries. We find that the imports of the G-7 countries are slightly more responsive to changes in a country's total income over a period that ends in 2006 compared with a sample period that ends in 1994.² Similarly, the exports of the G-7 countries appear to be as responsive or more responsive to changes in the trade-weighted average income of the country's trading partners over the period 1981–2006 compared with the period 1981–94. With respect to prices, we find that the imports of several G-7 countries are more responsive to import price changes than other studies have indicated. Our estimates of the responsiveness of G-7 exports to price changes for most countries differ from those in previous studies, but not in any systematic way.

What do our findings imply about the magnitude of the U.S. trade deficit? We can use the elasticities estimated in this article to make predictions about how large or small the U.S. trade deficit would have been if prices or incomes had been different. For example, suppose that the relative price of U.S. imports had been 10 percent higher and the relative price of U.S. exports had been 10 percent lower than they actually were in 2006. Our estimates of the price elasticity of demand for imports of -0.63 and of the price elasticity of demand for exports of -0.61 imply that the U.S. trade deficit in 2006 would have been \$424 billion instead of the actual \$624 billion.³

In addition to our national level estimates, we estimate elasticities for different U.S. industry sectors. We find that the U.S. export elasticity for services with respect to foreign income exceeds the U.S. import elasticity for services with respect to income over the period 1988–2006. This means that if the U.S. were to grow at the same rate as its trading partners and prices remained constant, over time the U.S. trade balance in services would move toward larger and larger trade surpluses.

In the following section, we discuss what trade elasticities are. Then, we review previous empirical studies of trade elasticities. Next, we present our econometric model and discuss the data we used in estimating trade elasticities for the G-7 countries. Finally, we present our results and draw some conclusions from them.

What are trade elasticities?

The theoretical model underlying the estimation of trade elasticities is an imperfect substitutes model—that is, a model in which it is assumed that exports and imports are imperfect substitutes for domestically produced goods. Goldstein and Khan (1985) provide a detailed discussion of this model.

In an imperfect substitutes model, the foreign demand for U.S. goods and services is determined by three main factors: foreign income, the prices of U.S. goods and services, and the prices of goods and services that compete with U.S. goods and services in the foreign market. Similarly, U.S. demand for foreign goods and services is determined by U.S. income, the prices of foreign goods and services, and the prices of goods and services that compete with foreign goods and services in the U.S. market.

The income elasticity of demand for imports measures to what extent changes in an importing country's income affect changes in its imports. Similarly the income elasticity of demand for exports measures to what extent changes in foreign countries' incomes affect the exporting country's exports.

Theoretically, the import and export elasticities with respect to income are positive. That is, an increase in a country's income leads it to buy more from foreign countries. An income elasticity of imports or exports that is equal to one implies that imports or exports increase proportionately with income. Deviations from this imply long-term imbalances in the global economy. Specifically, an income elasticity for imports of more than one implies that domestic consumers have a stronger preference for foreign goods than for domestic goods. If prices do not adjust, having imports increase more than proportionately to income growth means that imports would eventually exceed GDP. Because estimates of the elasticity with respect to income that are greater than one yield this kind of implausible prediction, they are hard to reconcile with a view of long-term balance in the global economy.

Turning to the relationship between prices and imports, we estimate how imports respond to the price of imported goods and services *relative* to the price of domestically produced goods and services that compete with imported goods. As imported

goods become more expensive relative to domestic goods, economic theory predicts that the volume of imported goods will fall. In other words, the import elasticity with respect to the relative price of imports is negative. A similar relationship holds for prices and exports. As the price of exported goods increases relative to the price of domestically produced goods in the importing countries, the volume of exports falls. Thus, the export elasticity with respect to the relative price of exports is also negative.

Figure 1 presents the U.S. trade balance from 1955 through 2006 as a fraction of U.S. GDP, along with two measures of international prices—the relative price of imports and the relative price of exports. In this figure, we see that an increase in the relative price of imports leads to a fall in the volume of goods and services imported, which, in turn, leads the U.S.’s trade deficit to shrink. In a similar manner, an increase in the relative price of exports (which often coincides with an appreciation of a country’s currency) makes exports less attractive to foreign consumers and, thus, leads to a fall in the volume of goods and services that a country exports. This, in turn, leads to an increase in a country’s trade deficit.

From figure 1, we can see that a relationship between relative prices and the trade balance is apparent, but it is not strikingly clear. The econometric analysis we conduct in this article will allow us to precisely

quantify the relationship between relative prices and trade flows.

Previous research on trade elasticities

A highly influential paper by Houthakker and Magee (1969) estimated the income elasticity of demand for imports and exports with ordinary least squares for 15 industrialized countries, using annual data from 1951 through 1966. They identified an important robust empirical relationship that has become known as the Houthakker–Magee asymmetry. Specifically, the U.S.’s income elasticity with respect to imports was higher than its income elasticity with respect to exports by a factor of roughly 1.5. See table 1. Houthakker and Magee’s estimate of the U.S. income elasticity with respect to imports of 1.51 implies that for every 1 percent increase in U.S. GDP, Americans increase their purchases of imports by 1.51 percent. In contrast, Houthakker and Magee’s estimate of the U.S.’s income elasticity with respect to exports of 0.99 means that for every 1 percent increase in the GDP of the U.S.’s trading partners, the U.S.’s exports increase by only about 1 percent. The asymmetry between these two estimates has important implications for the U.S. trade deficit.

Johnson (1958) noted that how the trade balance evolves over time depends crucially on each economy’s income elasticity of exports and imports. Johnson

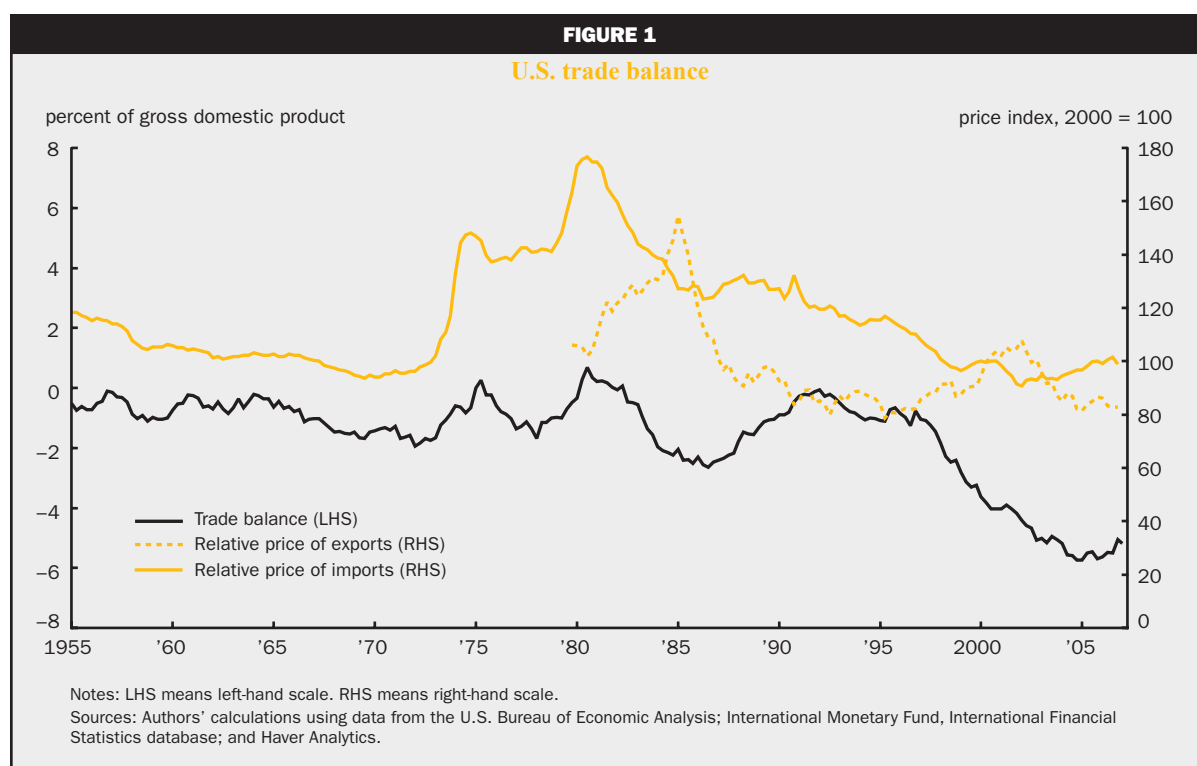


TABLE 1

Selected estimates of U.S. long-run trade elasticities

	Imports			Exports			Methods	Sample period
	Income	Relative price	Real effective exchange rate	Income	Relative price	Real effective exchange rate		
Houthakker and Magee's estimates	1.51	-0.54		0.99	-1.51		OLS	1951-66
Hooper, Johnson, and Marquez's estimates	1.79	-0.31		0.83	-1.47		Johansen ML	1961-94, imports 1976-94, exports
Chinn's estimates	2.29		-0.12	1.62		-0.73	Johansen ML	1975-2003
Cardarelli and Rebucci's estimates	2.03	-0.69		1.85	0.02		OLS	1973-2006
Cardarelli and Rebucci's estimates—correcting for aggregation bias	1.68	-1.45		1.60	-0.26		OLS	1972-2006
Authors' estimates	1.93	-0.63		2.34		-0.61	Johansen ML	1960-2006, imports 1981-2006, exports

Notes: OLS means ordinary least squares. Johansen ML means Johansen's (1988) maximum likelihood estimator.

Sources: Authors' calculations; Haver Analytics; Houthakker and Magee (1969); Hooper, Johnson, and Marquez (2000); Chinn (2004); and Cardarelli and Rebucci (2007).

showed that if trade between two countries is initially balanced, relative prices are constant, and income growth is constant in both economies, and if an economy's income elasticity of demand for imports is not the same as the foreign income elasticity of demand for its exports, then the trade balance in each economy can change over time. Johnson's model and the Houthakker-Magee asymmetry together imply that if the U.S. and the rest of the world grew at the same rate, the U.S. trade deficit would widen over time if relative prices remained constant.

Various reasons have been put forward to explain the Houthakker-Magee asymmetry in the literature. Mann (2002) lists demographic differences between the U.S. population and its major trading partners as possible reasons for the asymmetry. Citing Gould (1994) and Marquez (2002), Mann notes that there is a relatively high share of immigrants in the U.S. population and that these immigrants have a strong preference for goods from their respective home countries. Furthermore, a relatively young population in the U.S. has a greater demand for goods, especially imported goods, compared with the relatively older populations in Europe and Japan that spend proportionally more on domestic services, such as health care.

A misspecified model could also be behind the asymmetry. Krugman (1989) developed a model in which countries grow by producing new goods that can be exported. His theory implied that empirical models used to estimate elasticities should include a supply term in the import demand equation. Gagnon (2004) includes a supply term—the GDP of the exporting country—in the import demand equation, and finds strong evidence of a supply effect. The inclusion of this variable in the equation leads to a reduction in the estimate of the U.S.'s income elasticity for imports.

The U.S.'s trade elasticities have been estimated in numerous papers since Houthakker and Magee's findings were published in 1969, but the asymmetry has proven to be robust across time periods and econometric methods.⁴ See table 1.

Table 1 summarizes the results of several recent papers. An important contribution by Hooper, Johnson, and Marquez (2000) uses Johansen's (1988) cointegration technique to estimate the long-term trade elasticities for the G-7 countries, and finds that the U.S. income elasticity of imports is roughly twice as high as the income elasticity of exports. Chinn (2004), using different measures of relative import and export prices and several additional years of more recent data, estimates

income elasticities of imports and exports that are larger in magnitude than both Houthakker and Magee (1969) and Hooper, Johnson, and Marquez (2000). While the absolute difference between the import and export elasticities is a substantial 0.7, the relative asymmetry appears more modest than in earlier studies, with the income elasticity for imports only 1.4 times larger than the income elasticity for exports.

Continuing down the rows of table 1, Cardarelli and Rebucci (2007) estimate large income elasticities for imports and exports of 2.0 and 1.9, respectively. Their study notes that trade elasticities are affected by aggregation bias. Specifically, aggregate price elasticities might be understated relative to a trade-weighted average of sector elasticities if goods with relatively low price elasticities face stronger price variation than goods with relatively high price elasticities. Cardarelli and Rebucci correct for aggregation bias by estimating separate trade elasticities for 17 categories of imports and 16 categories of exports and then taking the simple average of these separate estimates. Income elasticities are lower and price elasticities are higher when the aggregate estimate is constructed from sector-level estimates. It is interesting to note that the Houthakker–Magee asymmetry almost disappears in Cardarelli and Rebucci’s estimates that correct for aggregation bias.

Finally, one important feature of U.S. imports and exports that has been changing recently is that services trade is becoming more prominent. To the extent that trade elasticities for services differ from those for goods, this could have important implications for the evolution of the U.S. trade balance. For example, Wren-Lewis and Driver (1998) find that the elasticity of U.S. exports of services to foreign income of 1.95 is much higher than that of manufactured goods (1.21), and they find that the elasticity of U.S. imports of services with respect to U.S. income (1.72) is much lower than that of manufactured goods (2.36).⁵ In other words, the Houthakker–Magee asymmetry is reversed for U.S. trade in services. Mann (2002) argues that the Houthakker–Magee asymmetry between the import and export elasticities of trade in *goods and services* might gradually attenuate as the world’s economies mature and spend more on services and less on manufactured goods.

Econometric model

The empirical model relating imports to national income and relative import prices and the model relating exports to foreign national income and relative export prices come from Hooper, Johnson, and Marquez (1998, 2000). These models assume that income and price elasticities of demand for imports and exports

are constant over time. We estimate each system of equations using quarterly data for each of the G-7 countries.

The system for real imports is

$$\begin{aligned} 1) \quad m_{it} &= \sum_{j=1}^n \alpha_{ij} m_{it-j} + \sum_{j=1}^n \gamma_{ij} y_{it-j} + \sum_{j=1}^n \lambda_{ij} rpm_{it-j} + \varepsilon_{it}, \\ 2) \quad y_{it} &= \sum_{j=1}^n \tau_{ij} m_{it-j} + \sum_{j=1}^n \nu_{ij} y_{it-j} + \sum_{j=1}^n \phi_{ij} rpm_{it-j} + \zeta_{it}, \\ 3) \quad rpm_{it} &= \sum_{j=1}^n \theta_{ij} m_{it-j} + \sum_{j=1}^n \psi_{ij} y_{it-j} + \sum_{j=1}^n \chi_{ij} rpm_{it-j} + \varphi_{it}, \end{aligned}$$

where m_{it} is the log of real imports of country i at time t , y_{it} is the log of real GDP of country i at time t , and rpm_{it} is the log of the relative price of imports to domestic goods and services, or more precisely, the log of import prices relative to the GDP deflator for country i at time t .

Similarly, the system for real exports is given by

$$\begin{aligned} 4) \quad x_{it} &= \sum_{j=1}^n \delta_{ij} x_{it-j} + \sum_{j=1}^n \kappa_{ij} fy_{it-j} + \sum_{j=1}^n \xi_{ij} rpx_{it-j} + \mu_{it}, \\ 5) \quad fy_{it} &= \sum_{j=1}^n \rho_{ij} x_{it-j} + \sum_{j=1}^n \eta_{ij} fy_{it-j} + \sum_{j=1}^n \iota_{ij} rpx_{it-j} + \sigma_{it}, \\ 6) \quad rpx_{it} &= \sum_{j=1}^n \omega_{ij} x_{it-j} + \sum_{j=1}^n \varsigma_{ij} fy_{it-j} + \sum_{j=1}^n \psi_{ij} rpx_{it-j} + e_{it}, \end{aligned}$$

where x_{it} is the log of real exports of country i at time t , fy_{it} is the log of real trade-weighted foreign GDP of country i ’s export partners at time t , and rpx_{it} is the log of a measure of the relative price of exports for country i at time t . Construction of all variables is detailed in the next section.

In brief, we construct a trade-weighted foreign GDP series for each exporting country i , using data on all of its trading partners for which we could obtain a quarterly real seasonally adjusted GDP series over a sufficiently long time horizon. Thus, our confidence in the estimated export elasticities with respect to prices and income rises with the coverage of our foreign GDP series. For the U.S., we also estimate the model using real annual data because although this reduces the number of observations in our data sample considerably, it increases the country coverage of our foreign GDP variable.

We use two different price series as the relative price of exports. The first measure follows Hooper, Johnson, and Marquez (1998, 2000) and is essentially the log of the ratio of export prices to the trade-weighted GDP deflators in the importing countries. Although this measure is theoretically preferred, our relatively low level of country coverage led us to use also the International Monetary Fund's (IMF) real effective exchange rate, or REER (the ratio of unit labor costs in the exporting country divided by export-weighted unit labor costs in the destination markets), as a proxy for the relative price of exports.

We estimate both the import system and the export system by using Johansen's (1988) full information maximum likelihood estimator, and report estimates for which test statistics support our assumption that at least one cointegrating relationship is present in the data. This estimator essentially assumes that each variable in the system is stationary in first differences, but information on the level of a variable or variables also helps to describe the system.

Data

Quarterly data on real seasonally adjusted imports and exports of goods and services and chained price indexes of imports and exports of goods and services for each of the G-7 countries come from Haver Analytics' Group of Ten (G-10) database.⁶ Data on quarterly real GDP and GDP deflators for the G-7 countries and their trading partners come from Haver Analytics' G-10 database and the Organization for Economic Cooperation and Development's (OECD) *Main Economic Indicators*.⁷ The GDP data for six additional G-7 trading partners—Argentina, Brazil, China, Hong Kong, Singapore, and Taiwan—come from internal estimates of Federal Reserve Board staff. The periods for which data are available vary by country. The periods used in estimating the import and export systems of each G-7 country are reported in tables 3 and 4.

While we have tried to use data from the OECD whenever possible, estimates for France, Germany, and Japan utilize additional data sources.⁸

The construction of all variables follows Hooper, Johnson, and Marquez (2000). The relative price of imports (rpm_i) is constructed as:

$$rpm_i = \log (PM_i / PY_i),$$

where PM_i is the chained price index of imports for country i and PY_i is the GDP deflator for country i .⁹

The relative price of exports ($rp x_i$) is constructed as follows:¹⁰

$$rp x_i = \log (PX_i \times E_{\$/i} / GPF_i),$$

$$GPF_i = \Pi (GDPF_j \times E_{\$/j})^{w_{ij}}, \Sigma w_{ij} = 1,$$

where PX_i is the export price of country i and GPF_i is the geometric mean of the domestic prices of country i 's export partners adjusted by the nominal exchange rate index. Note that $GDPF_j$ is the GDP deflator for country j .¹¹ Also, note that $E_{\$/j}$ is an exchange rate index for country j that normalizes the amount of dollars that can be bought with a unit of local currency to a value of 1 in the year 2000. The weight w_{ij} is the proportion of country i 's exports going to country j . The weights are constructed using bilateral exports of goods in 2000, which were obtained from the OECD's STAN Bilateral Trade Database.¹² For estimates reported in table 2 on a data sample that ends in 1994, we construct foreign GDP, using weights on bilateral exports of goods in 1995.

The foreign income used in the export equation is constructed as the geometric mean of the real GDP of each of country i 's export partners weighted by the export shares of trade in goods. It is calculated as follows:

$$FY_i = \Pi (Y_j \times E_{\$/j})^{w_{ij}}, \Sigma w_{ij} = 1,$$

where FY_i is the aggregate foreign income for country i , Y_j is the real GDP of trading partner j for country i , and the weight w_{ij} is the proportion of country i 's exports going to country j .

Lastly, we also estimate the export system using the IMF's real effective exchange rate as a measure of the relative price of exports. The appendix contains a description of the REER and compares it with the relative price of exports ($rp x_i$) measure described previously.

Results: Long-run elasticities

Estimates of long-run trade elasticities are presented in table 2 through table 6. Our results are generally in line with previous studies, but some interesting differences exist. Notably, our estimates of the import elasticities with respect to income for the G-7 countries over a period of time that ends in 2006 are generally higher than those reported by Hooper, Johnson, and Marquez (1998, 2000), whose sample period ends in 1994. Further, many of our import price elasticities are larger and more negative than those reported by Hooper, Johnson, and Marquez. On the export side, our estimates of the export elasticities with respect to income are as large as or larger than Hooper, Johnson, and Marquez's estimates, which cover an earlier period. The export price elasticities we report differ markedly from those in Hooper, Johnson, and Marquez's research, but not in any systematic way.

TABLE 2								
Long-run elasticities of industrialized countries through 1994								
A. Estimates								
	Income				Price			
	Hooper, Johnson, and Marquez's estimates		Authors' estimates		Hooper, Johnson, and Marquez's estimates		Authors' estimates	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Canada	1.1*	1.4*	1.56*	1.50*	-0.9*	-0.9*	-0.61*	-1.14*
France	1.5*	1.6*	—	1.30*	-0.2	-0.4*	—	-0.50*
Germany	1.4*	1.5*	2.06*	2.26*	-0.3	-0.06*	-0.79*	-0.42*
Italy	1.6*	1.4*	1.64*	1.63*	-0.9*	-0.4*	-0.57*	-0.33*
Japan	1.1*	0.9*	0.99*	1.65*	-1.0*	-0.3*	-0.74*	-0.15*
UK	1.1*	2.2*	0.97*	1.70*	-1.6*	-0.6	-1.31*	-0.38*
U.S.	0.8*	1.8*	2.33*	1.92*	-1.5*	-0.3*	-0.24*	-0.25*
U.S., annual	—	—	1.06*	1.78*	—	—	-0.97*	-0.19*
B. Lags and sample periods								
	Number of lags				Sample period start dates			
	Hooper, Johnson, and Marquez's estimates		Authors' estimates		Hooper, Johnson, and Marquez's estimates		Authors' estimates	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Canada	9	8	4	2	1976:Q1	1961:Q1	1981:Q1	1961:Q1
France	2	3	—	5	1975:Q4	1971:Q3	—	1978:Q1
Germany	2	2	3	3	1977:Q4	1968:Q1	1981:Q1	1979:Q4
Italy	2	4	3	5	1976:Q1	1971:Q2	1981:Q1	1981:Q1
Japan	5	6	3	8	1976:Q1	1955:Q2	1981:Q1	1980:Q1
UK	4	5	6	4	1976:Q1	1955:Q1	1981:Q1	1955:Q1
U.S.	2	9	3	4	1976:Q1	1959:Q3	1981:Q1	1955:Q1
U.S., annual	—	—	3	3	—	—	1981	1955

*Significant at the 5 percent level.
Note: All sample periods end in 1994:Q4.
Sources: Authors' calculations; Haver Analytics; and Hooper, Johnson, and Marquez (2000).

To summarize, most of our estimates appear reasonable; however, some estimates, discussed in detail later, appear questionable. Interestingly, our estimates suggest that trade elasticities with respect to income are increasing over time. This is consistent with a globalizing world economy in which trade is becoming more important.

Comparing our results with previous research

Table 2 presents our estimates of the long-run trade elasticities of the G-7 countries for the period through the fourth quarter of 1994.¹³ The objective of this exercise is to replicate as closely as possible the long-run elasticities of Hooper, Johnson, and Marquez (2000). This is a useful starting point because before we can draw any conclusions about whether elasticities have changed over time, we would like to understand how closely our data and econometric techniques are able to reproduce previous work.

Overall, our import elasticities with respect to income and prices are close to those of Hooper, Johnson,

and Marquez (2000), but they do not match perfectly. We suppose that the differences are due to three causes:

1) Hooper, Johnson, and Marquez have a longer time series of data extending further back into history than ours; 2) they likely made adjustments to some data series;¹⁴ and 3) we report estimates using a different number of lags than Hooper, Johnson, and Marquez.¹⁵

As for the estimates of export elasticities with respect to income and prices, the differences between our estimates and those of Hooper, Johnson, and Marquez (2000) using data through 1994 are small for most countries. However, our estimate for the U.S. income elasticity using quarterly data seems implausibly large. In addition to the differences in sample periods,¹⁶ there are likely two additional causes for the discrepancies between our estimates and Hooper, Johnson, and Marquez's estimates of export elasticities: 1) We use the IMF's REER as a measure of the relative export prices (see the discussion in the appendix) and 2) Hooper, Johnson, and Marquez likely have a measure of foreign GDP that covers a larger share of each country's

trading partners. Because Johansen's (1988) estimator uses information on the level of foreign GDP as well as the growth rate, the estimated elasticities are sensitive to the construction of the foreign GDP variable.

Turning to columns 2 and 4 of panel A of table 2, we see the estimates of the import elasticities with respect to income of Hooper, Johnson, and Marquez (2000) and our own, respectively. The major discrepancies between the Hooper, Johnson, and Marquez's estimates and our estimates occur for the UK, Germany, and Japan. Our estimated income elasticity of 1.7 for the UK is closer to the long-run equilibrium elasticity of 1 suggested by economic theory. Further, we estimate a statistically significant negative price elasticity of -0.38 in line with the negative elasticity predicted by theory, whereas Hooper, Johnson, and Marquez's estimate was not statistically different from zero.

For both Japan and Germany, our estimated income elasticities with respect to imports diverge from Hooper, Johnson, and Marquez's by more than a factor of 1.5. We attribute these differences to the longer time span of their data and possible differences in their handling of German reunification. They use German data series that begin in 1968, while ours start in 1979. Moreover, we constructed long time series of German imports, import prices, and GDP from series on West Germany and reunified Germany. Also, Hooper, Johnson, and Marquez's Japan data series begins in 1955, while ours begins in 1981.

In columns 1 and 3 of panel A of table 2, we show Hooper, Johnson, and Marquez's (2000) estimates for export elasticities with respect to income, as well as our own. There are small differences between the two sets of estimates for most countries. For Italy, Japan, and the UK, our export elasticities with regard to income are quite close to Hooper, Johnson, and Marquez's. However, we estimate substantially larger income elasticities for Canada, Germany, and the U.S. We do not report export coefficients for France because no specification gave sensible results. On the price side, our estimated elasticities are uniformly smaller, with the exception of Germany.

Lastly, we estimated the import and export systems using annual data for the U.S. through 1994 (last row of panel A of table 2). Our annual estimates of trade elasticities are close to or the same as Hooper, Johnson, and Marquez's estimates using quarterly data. On the export side, by estimating the system on annual data, we were able to incorporate a measure of foreign GDP that includes several of the U.S.'s smaller trading partners for which we only have annual data on real GDP. The annual model's generally better agreement with Hooper, Johnson, and Marquez's results suggests that the construction of foreign GDP is of primary importance.

Import elasticities for industrialized countries through 2006

In table 3, we present our estimates of the import elasticity with regard to income and prices through 2006 alongside our estimates for the period through 1994. For all countries except the UK, the estimated import elasticities with respect to income are higher over the sample period through 2006, suggesting that income elasticities might be increasing over time.¹⁷

Income and price elasticity estimates for Canada, France, Italy, the UK, and the U.S. are of the expected sign, and they are statistically significant at a 5 percent significance level. Estimates for Germany and Japan, which are unreasonably high for income and no different from zero for price, may be attributed to the data issues outlined earlier.

The import income elasticities are substantially greater than one for all countries over both sample periods. As mentioned earlier, this implies a long-run imbalance in that, as a nation grows, if relative prices are constant, imports will eventually exceed GDP. Second, the income elasticities have increased in all of the G-7 countries except the UK and possibly the U.S. Estimates of the income elasticity for the U.S. using quarterly data show no change between the earlier and later sample periods. However, estimating the import system on annual U.S. data suggests that the income elasticity has increased over time. Estimates of the U.S. price elasticity appear to have increased over time using either quarterly or annual data.

The higher price elasticities that we estimate for France, the UK, and the U.S. could be the result of increasing global price competition. As tariffs and other trade barriers fall, consumers might be able to switch their purchases to lower-cost producers more easily, resulting in an increased sensitivity of imports to prices.

Two different phenomena could be behind the apparently higher income elasticities in the sample that includes data through 2006. First, import price indexes tend to overstate the true price of imports. It is well known that much trade growth comes from new products, which could be an old product that is coming from a new, cheaper market (for example, China) or a truly new product that is likely to be of higher quality or a relatively lower price than the previously existing product. Because statistical agencies tend to treat imports of new products as having the same price as old products, this creates an upward bias in import prices. As increasing shares of imports come from developing countries, this bias could be increasing. In estimating the import elasticity with respect to income and prices, an upwardly biased price measure would lead to a larger income elasticity and a smaller (in absolute value) price elasticity.

TABLE 3				
Long-run import elasticities for industrialized countries through 2006				
A. Estimates				
	Start through 2006		Start through 1994	
	Income	Price	Income	Price
Canada	1.67*	−1.17*	1.50*	−1.14*
France	1.62*	−0.61*	1.30*	−0.50*
Germany	3.28*	0.08	2.26*	−0.42*
Italy	2.48*	−0.23*	1.63*	−0.33*
Japan	1.94*	0.05	1.65*	−0.15*
UK	1.65*	−0.60*	1.70*	−0.38*
U.S.	1.93*	−0.63*	1.92*	−0.25*
U.S., annual	1.95*	−0.47*	1.78*	−0.19*
B. Sample periods				
	Start through 2006		Start through 1994	
Canada	1961:Q1–2006:Q4		1961:Q1–1994:Q4	
France	1978:Q1–2005:Q2		1978:Q1–1994:Q2	
Germany	1979:Q4–2006:Q4		1979:Q4–1994:Q4	
Italy	1981:Q1–2006:Q4		1981:Q1–1994:Q4	
Japan	1980:Q1–2006:Q3		1980:Q1–1994:Q3	
UK	1955:Q1–2006:Q4		1955:Q1–1994:Q4	
U.S.	1955:Q1–2006:Q4		1955:Q1–1994:Q4	
U.S., annual	1955–2006		1955–1994	
C. Number of lags				
	Start through 2006		Start through 1994	
Canada	4		2	
France	3		5	
Germany	2		3	
Italy	7		5	
Japan	3		8	
UK	4		4	
U.S.	3		4	
U.S., annual	3		3	
*Significant at the 5 percent level.				
Sources: Authors' calculations and Haver Analytics.				

Second, vertical integration is thought to be behind much of the recent rapid expansion of trade. Vertical integration is the process by which firms have spread their production processes across several countries so that production processes requiring lower-skilled labor (such as manual assembly) happen in less developed countries, whereas production processes that are more capital intensive and require higher-skilled labor (such as building an engine) happen in more developed countries. An example of a vertically integrated production process would be a car manufacturer that previously produced an entire car from start to finish in the U.S. Under a vertically integrated production process, the engine and other higher-tech components would be made in the U.S. and then exported to Mexico, where the assembly of the car would take place. When the

finished car is imported into the U.S., the total value of the car (including not only the value created in Mexico when the car was assembled, but also the value of the parts exported from the U.S.) is recorded in U.S. import statistics. Thus, because the total value of imports increases with vertical integration, this leads estimates of the import elasticity with respect to income to be overstated.¹⁸

Lastly, returning to our estimates in table 3, we note that Germany has the largest increase in income elasticity across the two periods as well as the largest income elasticity in both periods. The sizable increase may be attributable to the inclusion of both reunification and postunification Germany in the sample. Reunification (West) Germany had relatively higher import growth and GDP growth than postunification Germany. The sample of data through 1994 includes only a few years of unified German data; thus, the model essentially estimates elasticities for reunification Germany. In contrast, the sample through 2006 includes several years of both reunification and postunification data. The differences in GDP and import growth rates between the reunification and postunification periods might make it appear that there is a particularly strong relationship between income and imports.

Export elasticities for industrialized countries in 1981–2006

Table 4 compares our estimates of export elasticities on data from 1981 through 1994 with our estimates on data from 1981 through 2006. The last column reports the share of each country's exports that each foreign GDP series covers. With the exception of Canada, estimates of the income elasticity for the G-7 countries over the period 1981–2006 are as large as or larger than those for the period 1981–94. This could be interpreted as evidence that export elasticities with respect to income are increasing over time.

For Canada, France, Germany, Italy, Japan, and the U.S., estimates of the export elasticities with regard to income and prices are of the expected sign and are statistically significant. The estimate of the UK's export elasticity with respect to income is of the correct sign, but its elasticity with respect to relative export prices is positive. This implies that the UK

TABLE 4

Long-run export elasticities for industrialized countries through 2006

A. Estimates

	1981–2006		1981–94		Export share
	Income	Price	Income	Price	
Canada	1.06*	–0.18*	1.56*	–0.61*	95
France	1.22*	–2.86*	—	—	57
Germany	2.67*	–1.15*	2.06*	–0.79*	55
Italy	1.74*	–0.74*	1.64*	–0.57*	70
Japan	1.70*	–0.34*	0.99*	–0.74*	72
UK	1.28*	1.17*	0.97*	–1.31*	61
U.S.	2.34*	–0.61*	2.33*	–0.13*	77
U.S., annual	—	—	1.06*	–0.97*	83

B. Number of lags

	1981–2006	1981–94
Canada	8	4
France	4	—
Germany	3	3
Italy	4	3
Japan	4	3
UK	4	6
U.S.	2	3
U.S., annual	—	3

*Significant at the 5 percent level.

Note: Estimates use a 1981:Q1–2006:Q4 sample and a 1981:Q1–1994:Q4 sample.

Sources: Authors' calculations and Haver Analytics.

exports more when its products are more expensive than its competitors' and, consequently, is difficult to reconcile with an imperfect substitutes model of trade.

The export share of a country's trading partners included in its foreign GDP measure (column 5) appears to be highly correlated with the quality of the estimates. The countries that have the most implausible income (Germany) and price (France, Germany, and the UK) elasticities also have the smallest share of their trading partners included in their respective foreign GDP measures. For example, we cover only 57 percent of French exports in constructing the foreign GDP measure for France, and estimate an extremely large price elasticity over the period 1981–2006. As stated previously, we estimate a positive and significant price elasticity for the UK, where our foreign GDP series covers only 61 percent of exports. These results contrast sharply with the estimates for Canada, where we cover 95 percent of Canada's trade-weighted trading partners in our foreign GDP variable and the coefficients are much closer to those implied by theory.

Comparing the import and export elasticities on the samples through 2006, we see that the Houthakker–Magee asymmetry holds for all the G-7 nations except the U.S. Of particular interest, in our estimates the asymmetry holds for Japan, both on the sample

through 2006 and on the sample through 1994. This diverges from previous estimates that found that Japan's export elasticity for income exceeded its import elasticity for income (Houthakker and Magee, 1969; and Hooper, Johnson, and Marquez, 2000).

There is no obvious time trend in the Houthakker–Magee asymmetry across countries. The asymmetry appears to have increased in Canada, Germany, and Italy, while it moderated in Japan and the UK. Returning to table 1 (p. 6), we see that studies of U.S. elasticities incorporating the most recent data have tended to find a more moderate relative asymmetry in the U.S.

Estimates of import elasticities for the U.S. by sector

Table 5 presents disaggregated import elasticities with respect to income and prices for three periods: 1967–2006, 1967–87, and 1988–2006.¹⁹ In choosing 1988 as a somewhat arbitrary breakpoint, we hoped to split the sample into an early period of relatively high trade barriers and high inflation and a later period of

lower trade barriers and more stable prices. Moreover, by 1988, much of the U.S. dollar depreciation formalized in the Plaza Accord of 1985 and the Louvre Accord of 1987 is likely to have fully passed through into import prices.²⁰ Comparing the early and later sample periods across disaggregated imported goods and services, we generally observe higher income elasticities and, with some exceptions, higher price elasticities in the later period.

The first two columns present the estimates on the 1967–2006 sample. The next two present the estimates on the 1967–87 sample. The following two columns present the estimates on the 1988–2006 sample. To give the reader a sense of how important each category is, the final column of table 5 shows each end-use category's share of year 2000 imports.

Beginning in the top row of table 5, the income elasticity for total imports appears to have increased over time. The price elasticities for total imports show the same upward trend over time as the estimates in table 3.²¹ We turn next to the estimates for industrial durables (row 4) and industrial nondurables excluding oil (row 5). Imports of industrial durables are primarily composed of iron, steel, other metals, and building materials. In the 1988–2006 period, the estimated price elasticity of industrial durables is not significantly

TABLE 5							
Long-run U.S. import elasticities, by sector							
	1967–2006		1967–87		1988–2006		2000 import share
	Income	Price	Income	Price	Income	Price	
Total imports	1.98*	−0.47*	1.94*	−0.37*	2.11*	−0.62*	100
Goods	2.10*	−0.42*	1.98*	−0.22*	2.18*	−0.69*	84
Industrial goods except oil	1.33*	−0.43*	1.12*	−0.32*	1.82*	−0.41*	12
Industrial durables	1.14*	−0.89*	0.62*	−0.21*	2.11*	−0.04	6
Industrial nondurables	1.63*	−0.32*	1.71*	−0.41*	1.56*	−0.79*	6
Petroleum	1.05*	1.00*	0.30	0.82*	1.23*	−0.03	8
Capital goods except autos	2.54*	−1.04*	4.08*	−0.87*	−1.20	−2.39*	24
Autos	1.64*	−0.38	3.07*	−1.10*	2.03*	0.11	13
Consumer goods except autos	2.42*	−0.84*	2.83*	−0.97*	1.76*	−1.78*	19
Durable consumer goods	2.21*	−1.05*	2.68*	−0.90*	2.56*	−0.87*	10
Nondurable consumer goods	2.41*	−1.02*	3.05*	−1.04*	3.68*	1.34	9
Services	1.58*	−1.32*	1.80*	−1.55*	1.64*	0.06	16
Nonpetroleum goods	2.20*	−0.63*	2.41*	−0.81*	1.82*	−1.07*	76

*Significant at the 5 percent level.

Notes: All estimates were calculated using three lags. The 2000 import share column presents that sector's or subsector's import value as a percent of total imports. Because we present the import shares of both aggregated sectors (for example, goods and services) and some of the finely disaggregated subsectors (for example, industrial durables and nondurables), the shares do not necessarily add up to 100.

different from zero. The high income elasticity and the low price elasticity may be indicative of price mismeasurement or vertical integration. Alternatively, since steel and other metals form a large share of industrial durables, government intervention and the threat of trade policy restrictions may play a role. The prospect of government action to protect the domestic industry may discourage price competition among exporters. In contrast, imported industrial nondurables are mostly chemicals and paper products. The increasing price elasticity we observe for industrial nondurables might suggest international price competition is increasing in this sector.

Continuing down to row 7, the income and price elasticities of demand for imports of capital goods excluding automobiles are of particular interest, since capital goods represent almost a quarter of total imports. Unfortunately, our estimates for this sector are not easily interpretable. The large negative price elasticity for the period 1988–2006 is probably an artifact of rapidly falling, yet difficult to measure, computer prices. Because computers make up a large share of this category, we might expect there would be significant difficulties in the construction of a price index for this sector. On both the 1967–2006 sample and the 1967–87 sample, the income elasticity of capital goods is quite high, higher than any other category. This is consistent with investment or purchases of capital goods being strongly pro-cyclical. These results are consistent with Chinn (2004), who found high income elasticities on capital goods.

Next, we turn to the estimates of the elasticities for consumer durables (row 10) and consumer nondurables (row 11). As with capital goods, income elasticities of consumer goods are higher than those of most other categories. This suggests that luxury goods may be playing an important role in imports of consumer goods. The elasticities for consumer durable imports are remarkably stable over both the 1967–87 and 1988–2006 samples. The pattern of change in the consumer nondurables coefficients suggests price mismeasurement. Given that this category is primarily apparel, one might not expect price measurement problems to be present (as opposed to a sector including computers). However, price varies widely across import source, and the end of textile quotas has led to a great deal of change in the source of apparel imports.

Finally, elasticities for imported services are presented in row 12 of table 5. We estimate the income elasticity for services imports to be 1.64 over the period 1988–2006, considerably lower than our estimated elasticity for imports of goods of 2.18. These estimates are close to those reported by Wren-Lewis and Driver (1998), who found the income elasticity for services imports to be 1.72 and for goods to be 2.36 by using the same methodology over an earlier period (1980–95).

Estimates of export elasticities for the U.S. by sector

Table 6 reports the disaggregated export elasticities by end-use category. Because quarterly real foreign GDP data are only available since 1981, we only estimate on the 1981–2006 and 1988–2006 samples. We present estimates that use the real effective exchange

TABLE 6

Long-run U.S. export elasticities, by sector

	Real effective exchange rate				Relative price of exports				2000 export share
	1981–2006		1988–2006		1981–2006		1988–2006		
	Income	Price	Income	Price	Income	Price	Income	Price	
Total exports	2.34*	−0.61*	1.86*	−5.07*	2.76*	0.12	3.83*	1.78*	100
Goods	2.51*	−0.63*	1.91	−8.56*	3.04*	0.20	4.90*	2.21*	72
Industrial goods except oil	1.62*	0.03	1.65*	−0.07	1.62*	0.07	1.58*	0.26*	15
Industrial durables	1.85*	−0.16	1.78*	0.30	2.16*	0.23	8.70	−76.98*	6
Industrial nondurables	1.48*	0.04	1.57*	−0.18*	1.48*	0.06	1.54*	−0.09	9
Agriculture	0.98*	0.19	1.10*	0.07	1.41*	0.55*	1.27*	0.30*	5
Capital goods except autos	3.33*	−1.79*	−5.94	−63.07*	7.12*	1.28*	−21.51*	−11.47*	24
Autos	2.42*	−0.01	2.53*	−0.82*	2.83*	0.35*	2.68*	0.19	7
Consumer goods except autos	2.79*	−0.83*	2.76*	−0.49*	2.77*	−0.75*	2.53*	−0.39	8
Durable consumer goods	3.00*	−1.11*	2.91*	−0.59*	2.79*	−1.09*	2.53*	−0.56*	4
Nondurable consumer goods	2.59*	−0.44*	2.59*	−0.41*	2.78*	−0.26	2.58*	−0.10	4
Services	2.04*	−0.25*	1.87*	−0.61*	2.38*	0.10	2.00*	0.31	28
Nonagricultural goods	2.70*	−0.77*	1.96	−10.14*	3.32*	0.23	5.60*	2.60*	67

*Significant at the 5 percent level.

Notes: All estimates were calculated using two lags and year 2000 weights. The 2000 export share column presents that sector's or subsector's export value as a percent of total exports. Because we present the export shares of both aggregated sectors (for example, goods and services) and some of the finely disaggregated subsectors (for example, industrial durables and nondurables), the shares do not necessarily add up to 100.

Sources: Authors' calculations and Haver Analytics.

rate in the first four columns and, for comparison, estimates using the relative price of exports in columns 5 through 8. The final column shows each end-use category's share of total U.S. exports in the year 2000.

While both price measures produce some problematic estimates, the REER estimates in general appear more reasonable. Using the REER as our price variable, most of the disaggregated categories have sensible estimates. These include the consumer goods categories, industrial goods, services, and automobiles. Some of these sectors have price elasticities that are not significantly different from zero. The very small price elasticities might be attributable to high-quality or unique U.S. exports, for which few substitutes exist. The major problem is the extreme capital goods price elasticity, which further appears to dominate any aggregate measure that includes capital goods. Given that U.S. exports include not only a large amount of high tech but also airplanes, we should expect problems.

Lastly, row 12 of table 6 presents the income and price elasticities of demand for exported services. Using the REER as the foreign relative price measure, we find that the income elasticity for services over the 1988–2006 period is a relatively large 1.87. Consistent with the findings of Wren-Lewis and Driver (1998), we find that the Houthakker–Magee asymmetry is reversed for services trade. Our income elasticity for services exports is considerably larger than the elasticity of services imports reported in table 5 of 1.64.

Conclusion

In this article, we present new estimates of trade elasticities for seven industrialized countries using data through 2006. We find that the Houthakker–Magee asymmetry, which implies an increasing trade deficit if relative prices are held constant, is present in all countries, with the exception of the U.S. Our high estimate of the U.S. income elasticity of demand for exports is found to be highly sensitive to the construction of foreign GDP. Thus, we do not think that our estimate is definitive.

While the Houthakker–Magee asymmetry has been present for most of the G-7 countries for a long time, our article is the first that we know of to find Japan's estimated import elasticity with respect to income is larger than its export elasticity with respect to income.

Finally, in estimating elasticities for disaggregated sectors, we find that our estimate of the U.S. export elasticity for services with respect to foreign income of 1.87 exceeds the U.S. import elasticity for services with respect to income of 1.64. This means that if the U.S. were to grow at the same rate as its trading partners, over time the U.S. trade balance in services would move toward larger and larger trade surpluses. This is consistent with previous research (Wren-Lewis and Driver, 1998) and suggests that the Houthakker–Magee asymmetry for aggregate trade in goods and services could gradually attenuate as services trade increases as a share of total trade.

NOTES

¹These numbers are provided by the U.S. Bureau of Economic Analysis, and they are in real 2000 chain-weighted dollars. In current dollars, which do not adjust for inflation, 2006 imports were \$2,229 billion and exports were \$1,467 billion.

²The start dates for the estimation sample for each country vary according to data availability. We use the longest period available for each country. Sample start dates are reported in panel B of table 2 (p. 9).

³These numbers are in real 2000 chain-weighted dollars.

⁴Goldstein and Khan (1985) contain references to the early literature.

⁵Wren-Lewis and Driver's (1998) sample period is 1980–95. The cited numbers are those estimated using Johansen's (1988) maximum likelihood estimator.

⁶The Group of Ten actually comprises 11 nations: namely, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the UK, and the U.S. Luxembourg is an associate member of the G-10. Haver Analytics' G-10 database provides statistics from each country's national accounts in an easy-to-use format.

⁷Trading partners available from the OECD for sufficiently long periods include Australia, Canada, France, Germany, Italy, Japan, South Korea, Mexico, the Netherlands, Switzerland, Taiwan, the UK, and the U.S.

⁸For France, we follow Pluyaud (2006) and use the import price deflator from Eurostat, rather than the OECD, beginning in 1995. The two price indexes for French imports (Eurostat versus OECD) diverge after the introduction of the euro, apparently reflecting a difference in methodology. For Germany, we construct a time series for German real GDP growth by splicing the GDP series for the unified Germany to the (appropriately scaled) West German GDP series in 1991. Data on real German imports come from the IMF's International Financial Statistics (IFS) database. For Japan, real chain-weighted GDP is available from 1994 to the present. To obtain a longer time series of Japanese GDP, we splice a fixed-weighted GDP series for the period 1981–93 onto the chain-weighted series. For Japanese imports, we use real imports from the IMF's IFS database.

⁹The relative price measure has the same product coverage as our aggregate measure of trade. One disadvantage of this price measure is that it includes commodities such as oil, which should be perfectly substitutable across locations of production, and thus, the measure is somewhat inconsistent with the imperfect substitutes model of trade.

¹⁰The product coverage in the export price index of country i coincides with that country's aggregate measure of exports. This price measure is designed to incorporate price differences between exported goods from country i and the domestic goods at the export destination. It fails to incorporate the price of exports of other countries that compete with country i 's exports.

¹¹Countries included in the calculation of the relative price of exports are: Argentina, Australia, Brazil, Canada, France, Germany, Hong Kong, Italy, Japan, South Korea, Mexico, the Netherlands, Singapore, Switzerland, Taiwan, the UK, and the U.S. For Argentina, Brazil, Hong Kong, Singapore, and Taiwan, the GDP deflator was not available. We used the Consumer Price Index (CPI) in place of a GDP deflator for these countries.

¹²Table A1 in the appendix lists the cumulative share of exports accounted for by those countries listed in note 11 for each of the G-7 countries.

¹³As noted previously, the sample start dates vary by country according to data availability, and they are reported in panel B of table 2 (p. 9).

¹⁴For example, a long time series for German data must be built from historical data on West Germany and reunified Germany. In the process of constructing this series, different researchers are likely to make different adjustments to the raw data.

¹⁵We estimate the model using between two and nine lags and then select the shortest lag length that corresponds to at least one cointegration vector and produces plausible results.

¹⁶Hooper, Johnson, and Marquez's (2000) export series start in the mid to late 1970s, while ours start in 1981. The omission of the second period of oil shock years from our sample could be an important source of differences.

¹⁷We do not conduct any formal tests for structural breaks or parameter stability. Hooper, Johnson, and Marquez (2000) conduct parameter stability tests and find that export elasticities are generally more instable than import elasticities.

¹⁸Cardarelli and Rebucci (2007) estimate trade elasticities for the U.S. after making an adjustment for the value of U.S. exports in categories of goods that are likely to be parts in a vertically integrated production process. They find that this correction for vertical integration lowers the income elasticity with respect to imports.

¹⁹Data on quarterly imports and exports disaggregated by end-use category from the U.S. Bureau of Economic Analysis begin in 1967.

²⁰The Plaza Accord of 1985 was an agreement among the central banks of France, Germany, Japan, the UK, and the U.S. to reduce the value of the dollar through coordinated intervention in currency markets. The Louvre Accord of 1987 was a similar agreement in which the same central banks agreed to stop the dollar's decline.

²¹Differences between table 3 (p. 11) and table 5 (p. 13) are due to the use of slightly different sample periods.

APPENDIX

In this appendix, we discuss the IMF's real effective exchange rate and then compare the REER with the relative price of exports to foreign GDP deflators.

The IMF's real effective exchange rate

The REER for each of the G-7 countries is taken from the International Monetary Fund, Statistics Department (2007). It is calculated as:

$$REER_i = \log (ULC_i \times E_{\$/i} / ULCF_i),$$

$$ULCF_i = \Pi(ULC_j / E_{\$/j})^{w_{ij}}, \Sigma w_{ij} = 1,$$

where ULC_i is the unit labor cost of the i th country expressed in U.S. dollars and $ULCF_i$ is the unit labor cost for rest of the world expressed in U.S. dollars. Note that $ULCF_i$ is calculated as the geometric mean of the unit labor cost in country i 's trading partners, adjusted by the exchange rate. The 20 trading partners, denoted by j , are selected from the 21 industrialized countries.¹ The weights w_{ij} are based on aggregate trade flows for manufactured goods. An increase in the REER represents a real appreciation of the domestic currency.

According to the International Monetary Fund, Statistics Department (2007), unit labor costs are compensation of employees per unit of real output (or value added) in the manufacturing sector. It takes into account employer-paid social insurance premiums and other employment taxes in addition to wages and salaries. However, the International Monetary Fund, Statistics Department (2007) also notes that for the most recent quarters, indexes typically refer more narrowly to wages or wages and salaries per unit of total output of manufactured goods (rather than that of value added in the manufacturing sector).

The total trade weights were chosen to make the REER index sensitive to movements in costs affecting

exports and imports of manufactured goods. The weights, which are built up from aggregate trade flows for manufactured goods (Standard International Trade Classification 5–8, or SITC 5–8) and are averaged over the period 1999–2001, take into account the relative importance of a country's trading partners in its direct bilateral relations with them, in both the home and foreign markets; they also take into account the relative importance of the competitive relations with third countries in particular markets.

Chinn (2004) calls this measure an empirical proxy for “cost competitiveness” and points out that one of the drawbacks of this measure as a proxy for cost competitiveness is that it reflects competitiveness in terms of labor cost, and not total cost. Given that we are estimating trade elasticities of goods and services, the facts that the weights (w_{ij}) are based on only manufactured goods and the compensations are from the manufacturing sector are further drawbacks of this measure.

Comparing the REER with the relative price of exports to foreign GDP deflators

The REER has more extensive country coverage than the relative price term for France, Germany, Italy, and the UK. Table A1 reports the percentage of exports accounted for by the countries included in the calculation of the REER and the relative price of exports. The countries included in the REER account for 77 percent of France's exports, 73 percent of Germany's exports, 71 percent of Italy's exports, and 79 percent of the UK's exports.² The relative price term has a better coverage of export partners for Canada, Japan, and the U.S.

The weights in the relative price of exports are based on exports of all goods, while the weights in the REER are based on aggregate manufacturing trade flows. This makes the relative price measure a more appropriate price measure in the export equation.

Important emerging markets are left out of the REER. Countries such as Argentina, Brazil, Hong Kong, South Korea, Mexico, Singapore, and Taiwan are included in the relative price of exports, but not in the REER. Hooper, Johnson, and Marquez (2000) report that including developing countries in the relative price and foreign GDP measure affects the estimated trade elasticities.

¹The 21 countries included in the calculation of the REER are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the UK, and the U.S.

²The trade shares are the authors' own estimates using information from the IMF on countries included in the measure. Trade shares are calculated using 2000 bilateral trade of goods from the OECD's STAN Bilateral Trade Database.

TABLE A1

Percentage of trade accounted for in the relative price of exports and the real effective exchange rate

	Relative price	Real effective exchange rate
Canada	95	94
France	57	77
Germany	55	73
Italy	70	71
Japan	72	49
UK	61	79
U.S.	77	54

Sources: Authors' calculations and Haver Analytics.

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Evidence on entrepreneurs in the United States: Data from the 1989–2004 *Survey of Consumer Finances*

Mariacristina De Nardi, Phil Doctor, and Spencer D. Krane

Introduction and summary

A country's national saving rate is a crucial determinant of its ability to accumulate capital and generate growth; hence, it is an important determinant of the country's future prosperity. Another important determinant of a country's prosperity is innovation—the ability to generate new goods and services and provide existing ones in a more efficient manner. Accordingly, it is vital to study the households that are savers, as well as the managers of the businesses that are innovators. In this article, we consider the behavior of a group of individuals who play both roles in the U.S. economy—entrepreneurs.

First, entrepreneurs accumulate capital. As noted by Quadrini (1999, 2000), on average, entrepreneurs save a good deal more than other households: Even though households headed by entrepreneurs make up only 7–8 percent of the population, they own nearly one-third of the wealth in the United States.

Second, entrepreneurial risk-taking is thought to be an important way that individuals with skills, ideas, and business savvy introduce new products, technologies, and business strategies into the economy. This is the entrepreneur described by economists such as Schumpeter (1934) and Knight (1921). Such individuals are willing to put their financial well-being on the line in risky business ventures, with the expectation of earning large returns and expanding their wealth.

A third important feature of entrepreneurship is that the business owner's personal skills and financial resources are much more closely linked to the operations and performance of the firm than is the case with owners of widely held publicly traded corporations. Most shareholders of public firms have little say in the management of the business; and because their risk exposure is limited to the value of their shares, their personal portfolios are irrelevant to the assessment of the firm's creditworthiness. In contrast, entrepreneurs'

relationships with their businesses are anything but at arm's length. As managers, they make all of the day-to-day decisions about the firms' operations. As owners, they reap most of the rewards of success, but in many cases, their personal assets help finance the business and are at risk if the business fails. This means that there is a fundamental and bi-directional link between entrepreneurial households' portfolios and the performance of their businesses.

In this article, we present a number of stylized facts that can help us understand the roles that entrepreneurs play in the U.S. economy. First, we construct an empirical counterpart to Schumpeter and Knight's notion of the entrepreneur in the context of the information collected by the Federal Reserve Board's *Survey of Consumer Finances* (SCF).

Second, we use the SCF data to document a number of facts about entrepreneurs and the businesses that they run. We show that entrepreneurs, as a group, are very rich. They account for about 30 percent of the households in the top decile of the wealth distribution in the United States. They also earn more income than others, though the disparity is not as great as it is for wealth. They hold about as much total net wealth relative to their income as other rich people. Entrepreneurs also fall into two demographic categories that have more wealth than the population as a whole; that is, they are more educated and less likely to be a minority than the general population. Looking at their businesses, we see entrepreneurs operating in

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a wide range of industries. We also find large changes in the legal organization of their firms over time, with more of them being organized as less risky limited liability entities.

Third, we shed light on how entrepreneurs' success in business affects their personal wealth. The vast majority of entrepreneurs start their own businesses as opposed to buying or inheriting them—an indication that the businesses' performance reflects the entrepreneurs' personal skills. We also find a great deal of dispersion in measures of the businesses' success, such as firm size, income, and rates of return, and we find that rich entrepreneurs with large businesses have owned their firms for longer than others. In combination, these facts indicate that entrepreneurs can face very large risks in their business ventures, but successful ones can earn huge returns and become very wealthy.

Fourth, we turn the tables and look at the role of entrepreneurial wealth in supporting the operations of the business. Some households and firms are liquidity-constrained—that is, they cannot borrow as much as they would like to or can only borrow at higher interest rates than other market participants. Liquidity constraints cause households to save more in order to finance large expected expenditures or to have a precautionary buffer to insure against unexpected shocks. We find evidence that entrepreneurs face liquidity constraints: Many report having been turned down for credit, and many provide personal loans to their businesses or pledge personal assets as collateral to secure loans for their firms. But we also present some evidence that these borrowing constraints may have fallen over time.

Finally, we document that entrepreneurial households appear to be less risk averse than other comparable households. Despite large variation in the returns to their business ventures, relative to other rich households, they do not have higher net worth (relative to income), they tie up a large portion of their wealth in their business ventures, and they carry much more debt. In addition, entrepreneurs' responses to attitudinal questions suggest that they are more willing to take risks in order to achieve high financial returns.

Who are the entrepreneurs and how do we measure them?

It is difficult to define what an entrepreneur is and to determine the best empirical counterpart to that definition (see Gentry and Hubbard, 2004). We think of entrepreneurs as people who actively manage their own businesses *and* invest their own wealth in them. Our entrepreneurs are not simply managers, because managers may not have risked a personal investment stake in the firm. Nor are our entrepreneurs simply

investors, because investors may not have a key active role in the decision-making of the firm. Finally, our entrepreneurs are not people simply working on their own because they can't find a suitable job at another firm.

Our unit of observation is the household. We classify entrepreneurs as those households in which the head declares being self-employed as a primary job, owning a business (or a share of one), and having an active management role in the firm. We refer to these households as self-employed business owners, or SEBs.¹

By requiring the respondent to be self-employed, we exclude people who have a full-time wage-earning job and are running a business as a hobby. By requiring that the entrepreneur manages the firm, we help reduce the reverse causation between business ownership and wealth—that is, we likely eliminate many people who simply are rich and acquire a business as a passive investment. Finally, by requiring that the entrepreneur has an investment stake in the business, we also likely exclude those who are self-employed only because their outside wage opportunities are very poor.

We investigate the characteristics of the SEBs using six waves of the *Survey of Consumer Finances*: 1989, 1992, 1995, 1998, 2001, and 2004.² The SCF is well suited for this exercise. First, one of the primary purposes of the SCF is to measure household balance sheets: Accordingly, the survey has been designed to capture comprehensive information about the value of assets and liabilities as accurately as possible. Second, since the distribution of wealth is highly skewed in the U.S., with a small fraction of the population holding much of the wealth, the SCF oversamples wealthy households in order to better measure economy-wide aggregates. Because SEBs are disproportionately wealthy, the SCF will sample more SEBs than other surveys that sample according to standard demographic probability weights. Each of the six SCF waves we consider contains between 565 and 930 SEBs; this is a large number when compared with other data sets, such as the University of Michigan's *Panel Study of Income Dynamics*, or PSID. (See the appendix for details.)

Third, in addition to wealth, the survey contains a wide range of detailed information on income, employment, borrowing activity, business history, and demographic characteristics.³ It also records respondents' subjective attitudes toward saving and risk.

One drawback of the SCF is that it is a series of cross-sectional surveys as opposed to a panel that follows individual households over time. Accordingly, we do not have data on the flow of savings. Instead, following standard practice, we study the wealth of the household, which is the accumulated flow of its past savings (where savings are broadly measured to

include capital gains and losses) plus any inherited wealth. The lack of a panel also prevents us from analyzing linkages between entrepreneurial behavior, business failure, and the process of taking successful firms public. This means our analysis is susceptible to two types of “survivor bias.” The first bias is that our sample does not allow us to identify individuals who are no longer entrepreneurs because their past businesses ventures failed. The second bias is that we do not capture those entrepreneurs who have successfully taken their businesses public. This first bias would leave our SEB sample with households that are more successful than the entire population of people who have undertaken entrepreneurial activity; the second would push us toward underestimating entrepreneurial performance. While there is no way to quantify these biases with our data, the first is likely more relevant for younger and smaller businesses, while the second is likely more relevant for older and larger firms.

Entrepreneurs are rich and what else?

Table 1 displays data for total household net worth and total pretax household income of SEBs and compares them with other households in the U.S. We find that SEBs are wealthier than other households.⁴ They own about one-third of the household wealth in the U.S., and the median net worth of SEB households varies between four times to six and a half times greater

than the median net worth of non-SEBs. The median wealth of SEBs runs between \$260,000 and \$540,000 (in 2004 dollars). On average, about 55 percent of SEBs fall in the top wealth quintile, and SEBs make up about 20 percent of the total number of households in the top 20 percent of the wealth distribution in the U.S.⁵ There is no systematic cyclical variation or time trend in the allocation of SEBs over the aggregate wealth distribution during the 1989–2004 period.

The SEBs also earn more income than other households, but the difference is not as dramatic as it is for wealth. The median income of SEBs is about two times greater than the median income of other households, and they earn between 15 percent and 20 percent of total pretax household income as measured by the SCF. As with wealth, there is no clear trend or cyclical pattern to the share of income earned by SEBs.

As noted by Quadrini (1999, 2000), higher income does not account for the higher share of wealth held by the SEBs. As seen in the bottom half of table 1, the wealth-to-income ratios of SEBs are a good deal higher than the ratios for other households. For the non-SEB households, the median wealth-to-income ratio was about 1.5 in the late 1980s and early 1990s, and then rose to 1.9 in 2004. For the SEBs, the ratio varied between 4.7 and 5.7 over the first four SCF waves we consider and then rose to 6.5 in 2004. Clearly, because SEBs own businesses, a good deal of the

TABLE 1

Wealth and income of SEBs and others

	1989	1992	1995	1998	2001	2004
SEB percentage of total						
Wealth	33.1	31.3	29.2	30.6	30.8	31.9
Income	21.3	17.3	14.0	17.9	17.9	18.3
Median wealth (2004 dollars)						
SEBs	388,704	274,726	262,421	384,235	487,850	536,000
Others	60,139	56,399	63,606	72,318	79,728	80,600
Median income (2004 dollars)						
SEBs	68,841	67,475	52,927	70,492	85,403	79,069
Others	36,715	33,738	35,285	37,596	40,511	41,075
Median ratio of wealth to income						
SEBs	5.7	4.8	5.1	4.7	6.2	6.5
Others	1.5	1.5	1.6	1.8	1.8	1.9
Median ratio of wealth (excluding business net equity) to income						
SEBs	2.6	2.3	2.7	2.6	3.4	3.5
Others	1.5	1.5	1.5	1.7	1.7	1.8

Note: SEB means self-employed business owner.

Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

difference between wealth-to-income ratios reflects business assets. Overall, the median SEB household holds about one-third of its wealth as net equity in its business ventures. Non-SEB households hold very little business wealth. Even excluding business net equity, however, SEB households are wealthier than non-SEB households. The last two rows of table 1 show that excluding business net equity, SEBs still hold one and a half to two times more wealth relative to income than other households.

Are the self-employed business owners different from the other rich households?

Comparing median income, wealth, and wealth-to-income ratios of all SEBs with all other households is of limited value because SEBs fall disproportionately in the upper wealth categories. For a more useful comparison, therefore, table 2 compares the wealth and income of SEBs with those of only the households in the top decile of the wealth distribution. Thirty-six percent to 43 percent of SEBs are in this category (row 1), and they account for between one-quarter and one-third of the total number of households in this portion of the wealth distribution (row 3). Even in this narrower category, SEBs are concentrated in the upper ends of the wealth and income distributions—their median wealth is 30–47 percent more than the others, and their median income ranges between 18 percent and 66 percent more.

Although they are wealthier and earn more income, as seen in the bottom two rows of table 2, there is no systematic difference between wealthy SEBs and other rich households in the ratio of total household wealth to income. Note, though, that while the wealth-to-income ratio of non-SEBs has shown a fairly steady uptrend since 1989, there has been more noticeable variation in the ratios for SEBs. This reflects volatility in the business net equity portions of the SEBs' portfolios.

Demographics

Table 3 describes the demographic characteristics of SEBs. As we noted previously, SEBs account for between 7 percent and 8 percent of the households in the U.S. There are no trends in the share of SEBs in the population over the 1989–2004 period. Some commentators and researchers have postulated that the share of self-employed should be countercyclical, as some workers who cannot find work for pay when job prospects are poor turn to self-employment. We do not find much evidence for such behavior among SEBs.⁶

There is no systematic difference in the ages of the heads of SEB households and other households in the SCF. This means that there are no life-cycle reasons for SEBs to have accumulated more wealth than other households. However, SEBs do fall disproportionately into two other demographic groups that have higher-than-average saving rates. First, SEBs are more educated than the rest of the population.

TABLE 2						
Wealth and income for the top decile of the wealth distribution						
	1989	1992	1995	1998	2001	2004
Percentage of SEBs in top decile	42.8	37.9	35.9	39.2	37.1	37.6
Percentage of others in top decile	7.2	7.5	8.1	7.7	7.7	7.8
Percentage of top decile who are SEBs	32.7	30.9	24.0	29.2	28.8	28.1
Median wealth (2004 dollars)						
SEBs	1,215,984	1,038,488	1,100,371	1,277,309	1,848,665	1,956,500
Others	923,723	752,902	765,240	980,487	1,279,169	1,331,200
Median income (2004 dollars)						
SEBs	140,742	125,504	114,676	140,984	206,937	164,300
Others	110,146	94,465	97,033	92,815	125,914	133,494
Median ratio of wealth to income						
SEBs	10.5	8.8	10.4	9.9	11.8	13.9
Others	9.7	9.6	9.0	11.0	11.9	12.3

Note: SEB means self-employed business owner.
Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

TABLE 3

Demographic characteristics of SEBs and others

	1989	1992	1995	1998	2001	2004
SEB percentage of households	7.6	8.1	6.7	7.4	7.8	7.5
Average age						
SEBs	45.4	46.9	47.7	47.6	49.7	50.0
Others	48.1	48.6	48.5	48.8	48.9	49.5
Average education level ^a						
SEBs	2.8	3.1	3.0	3.1	3.1	3.1
Others	2.4	2.6	2.6	2.7	2.7	2.7
Percentage of minority ^b						
SEBs	9.5	13.3	10.6	7.7	8.0	10.8
Others	26.5	25.7	23.3	23.4	25.1	27.7

^aIndex: 1 corresponds to no high school degree; 2 to high school degree only; 3 to some college; and 4 to college degree.

^bPercentage other than white.

Note: SEB means self-employed business owner.

Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

The SCF records education according to four categories: no high school degree, high school degree but no college, some college, and college degree or more. Table 3 shows an index from these responses.⁷ On average, SEBs score about 0.4 points higher than non-SEBs. The fraction of SEBs with a college degree is 15–20 percent higher than the fraction for the rest of the population. Similar percentages of SEBs and others have some college education, and the fraction of SEBs with a high school degree or less is 15–20 percent lower than the rest of the population. Second, the share of SEBs who are minorities is well below the share of non-SEB households headed by a minority. As documented by Altonji, Doraszelski, and Segal (2000) and Altonji and Doraszelski (2005), higher educated households have higher-than-average saving rates, while minority households tend to save at less-than-average rates.

What kinds of businesses do self-employed business owners run?

Self-employed business owners are found in many different industries. The SCF asks detailed questions regarding the type of business the SEB manages; since 1995, however, the public use data sets have aggregated the responses into categories that are too broad to discern much about the industrial composition of the SEBs. Still, the detailed data for 1989 and 1992 reveal some interesting facts. As seen in table 4, on average in those surveys, the largest single category of SEBs was in professional practices, such as law, medicine, and accounting; these represented a little over 16 percent of the SEB households. The next largest categories were contracting and construction, farming and agricultural

services, and general retail and wholesaling—each with between 12 percent and 15 percent. Real estate and insurance, manufacturing, business services, and personal services have shares from 4.5 percent to 7 percent. While some of these occupations and industries might not be the first that would come to mind when we think about entrepreneurship, any of them could include individuals testing the market with some combination of innovative technologies, new products, or novel business practices.

Legal structure

The SEBs can choose a variety of legal structures for their businesses. The firms can be sole proprietorships or partnerships, in which there is little legal distinction between personal assets and liabilities and those of the business operation. They also can be limited liability companies (LLCs), closely held C corporations, or S corporations.⁸ These entities are subject to more legal restrictions on governance and management than proprietorships and partnerships, but have the advantage of sheltering personal assets from the firm's creditors. They may also provide certain fringe benefits tax free to owners. Furthermore, distributions of LLCs and S corporations are treated as personal income and thus avoid double taxation of dividends.

As seen in table 5, the legal structure of SEBs has changed over time. The percentages of respondents whose businesses are sole proprietorships or partnerships have trended down, while the percentages of LLCs, C corporations, and S corporations have moved up. These trends reflect a variety of factors. Limited liability companies were first introduced in

TABLE 4	
SEBs, by type of business	
	Percent
Professional practice (law, medicine, etc.)	16.2
Contracting/construction	15.2
Farm, agricultural services, and landscaping	13.3
General retail/wholesale	12.1
Real estate/insurance	6.7
Manufacturing	6.1
Other business services	5.6
Personal services	4.5
Business management/consulting	2.2
Restaurant/bar	2.1
Food/liquor	1.4

Notes: SEB means self-employed business owner. The values here are derived from the pooled 1989 and 1992 waves of the *Survey of Consumer Finances*. The column does not total because there are other types of businesses owned by SEBs that are not reported here.

Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

the U.S. by Wyoming in 1977, and it took some time for other states to offer this option. The favorable tax treatment for distributions is relatively new—1986 for S corporations and 1988 for LLCs. Furthermore, some legal restrictions on ownership and operation have changed over time; notably, they were relaxed for S corporations in 1997. Finally, there have been several changes in the relative tax rates on corporations, individuals, and self-employment over the 1989–2004 period. On net, however, the increased attractiveness of the limited liability structures appears to have only shifted the share of SEBs taking on these legal structures and not produced an uptrend in the overall share of SEBs in the population.

Are self-employed business owners wealth creators?

Do SEBs create wealth by operating successful business ventures? Or are they primarily rich people who buy existing successful business operations? In order to address this issue, we first look at how the

SEBs acquired their businesses and how long they have owned and managed their firms. In order to link the business operation to the creation of wealth, we then consider the relationships between ownership tenure, the size of the firm, and the income and rates of return that it generates. These results will also be useful for our discussion of credit constraints and risk aversion later in this article.

Business acquisition and ownership tenure

Table 6 presents some more facts about SEB businesses. One indication that our SEB classification is capturing entrepreneurial activity is the fact that between 65 percent and 79 percent of the SEBs started their own business as op-

posed to buying an existing operation, being promoted to ownership/management status, or inheriting the firm or receiving it as a gift. Personally starting an operation likely takes more initiative and is more amenable to the incorporation of new ideas than taking over an existing operation. Furthermore, the share of SEBs starting their own businesses has risen over time—a fact that we will return to later when discussing credit constraints on entrepreneurial borrowing.

The SCF asks SEBs how long they have owned and operated their businesses. We will refer to the response to this question as ownership tenure. If the SEB also started the firm, then ownership tenure would correspond to firm age. If instead the SEB acquired an existing firm through purchase, promotion, inheritance, or gift, then the tenure would underestimate the firm's age. Of course, since most of the businesses we observe were started by the SEB, ownership tenure equals firm age for most of our sample.

Between 9 percent and 15 percent of the businesses we observe were formed or acquired within the current or

TABLE 5						
SEBs, by legal structure of business						
	1989	1992	1995	1998	2001	2004
	(percent)					
Sole proprietorship	54.6	58.8	56.5	53.9	51.4	47.3
Partnership	22.4	15.2	17.7	14.8	11.6	12.1
LLC, C corporation, or other	12.9	14.7	11.2	15.8	17.4	22.4
S corporation	10.1	11.3	14.6	15.5	19.7	18.2

Notes: SEB means self-employed business owner. LLC means limited liability company. Columns may not total because of rounding.

Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

previous year of the SCF sampling date, about one-quarter two years to five years prior to the sampling date, and about 60 percent at least six years prior to the date. Accordingly, our data set likely contains a fairly good mix of start-ups and established firms. There is no trend in these tenure shares. However, there is a noticeable increase in the share of businesses that were started or acquired one year ago or less in 1992 and a marked drop in this share in 2001. Both of the 1992 and 2001 SCF waves are capturing entrepreneurial activity during periods of macroeconomic weakness. Thus, the data provide conflicting readings on whether small business formation serves as a substitute for work for pay during periods of economic weakness.

A somewhat larger share—between 23 percent and 27 percent—of wealthy SEBs (those in the top decile of the wealth distribution) purchased their businesses (panel B of table 6). Still, in every year we consider, about two-thirds of the rich SEBs started their businesses themselves. So it is likely that much of the business wealth accumulated by the rich SEBs reflects their efforts to start and nurture a successful business plan.

Since rich SEBs hold a good deal more business wealth and older firms have more net equity, it is likely the case that wealthy SEBs own older operations. This is indeed true. Panel B of table 6 presents the tenure of the businesses managed by SEBs in the top decile of the wealth distribution. Only between 6 percent and

8 percent of these firms fall in the one year or less category—somewhat less than the 9 percent to 15 percent for the SEB population as a whole. And between 73 percent and 80 percent are in the six years or more year classification, about 10–20 percentage points more than for the overall SEB population.

Business net equity

The SCF calculates business net worth by taking the respondent's assessment of the net value that the household would receive if the business were sold today plus the net of any lending or collateral provision from the personal accounts of the household to the business ledger. (See the appendix for more details.⁹) Figure 1 shows histograms of the net equity in the businesses that entrepreneurs actively manage. We have combined all six waves of the SCF, recorded net equity in 2004 dollars, and combined all businesses valued at \$1 million or more in the rightmost bar of the histograms. For reference, table 7 shows the businesses' median net equity by SCF year.

Panel A of figure 1 plots net equity for all firms and shows that there is large variation and skewness in business net equity. Most firms are small. The leftmost bar of the histogram corresponds with business net worth between –\$2,200 and \$22,000, and indicates that 27 percent of firms fall in this category.¹⁰ Median business net equity is a bit under \$100,000. However,

TABLE 6

Characteristics of businesses

	1989	1992	1995	1998	2001	2004
	(percent)					
A. All SEBs						
Acquisition method						
Started	65.3	72.4	71.4	73.9	78.5	77.9
Purchased	24.7	23.0	21.3	20.4	17.5	17.3
Joined/promoted	0.7	0.0	1.4	1.9	1.5	2.8
Inherited/gift	9.4	4.6	5.9	3.8	2.5	2.0
Ownership tenure						
0–1 year	13.2	15.2	13.7	12.6	9.2	12.6
2–5 years	27.3	21.0	24.8	26.9	23.4	25.6
6 or more years	59.5	63.8	61.5	60.6	67.4	61.8
B. Wealthy SEBs						
Acquisition method						
Started	59.2	65.1	63.1	69.7	68.8	67.1
Purchased	25.9	26.5	26.7	23.3	27.4	25.2
Joined/promoted	0.3	0.0	1.3	2.8	1.0	3.2
Inherited/gift	14.6	8.4	9.0	4.2	2.9	4.5
Ownership tenure						
0–1 year	8.2	5.5	5.7	6.0	6.2	6.2
2–5 years	19.1	16.2	15.2	14.4	17.4	18.0
6 or more years	72.7	78.3	79.1	79.7	76.4	75.8

Notes: SEB means self-employed business owner. Wealthy SEBs are those in the top decile of the wealth distribution. Columns may not total because of rounding.

Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

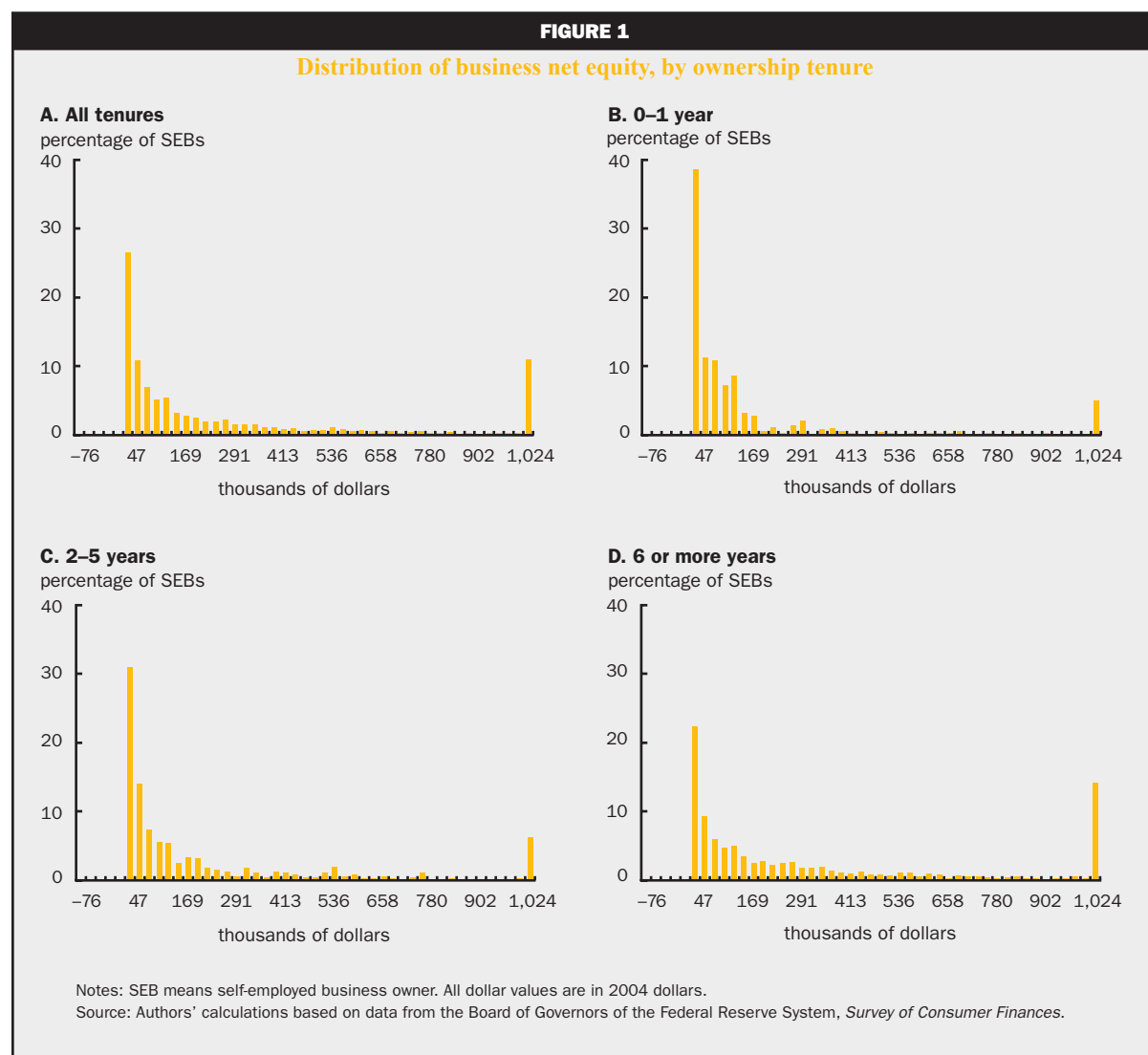
many entrepreneurs own firms worth a good deal more; about one-third own firms valued at greater than \$275,000, and 11 percent—the rightmost bar in the histogram—own operations valued at \$1 million or more.

The net equity in the business varies substantially by how long the SEB has owned the business. Panels B, C, and D of figure 1 plot net equity histograms by length of ownership tenure. As one would expect, young firms are disproportionately small: 16 percent of firms with tenure of one year or less have zero net equity, and 39 percent have net equity of less than \$22,000 (the leftmost hand bar in the histogram). Still, there are a few medium-sized young firms, with 10 percent of them having net equity above \$365,000. Older operations are much bigger; the median net equity in businesses with ownership tenure of six years or more is about \$135,000, and nearly 15 percent have net equity greater than or equal to \$1 million.

Business income

We study two measures of pretax business income. (See the appendix for details.) The first reflects profits from operations or net equity extracted during a given SCF year. We call it “business income cash flow,” or BCF, and compute it as wage and salary income and other distributions drawn from the business by the entrepreneur and his or her spouse.

The second income measure accounts for unrealized capital gains. The SEB may extract only a fraction of the profits earned by the firm, leaving the rest in the business to support and expand its operations. In addition, some of the SEB’s efforts may not increase current cash flow, but still raise the value of the firm by enhancing its ability to generate cash flow in the future. Following Moore (2004), we compute our second measure of business income by adding an estimate of the average annual unrealized capital gains earned by



the SEB since acquiring the firm to business income cash flow.¹¹ We compute average unrealized capital gains for the SEB by taking the difference between current firm value and the acquisition costs of the firm divided by business tenure. The acquisition cost is the tax cost basis the owner would declare if he sold the business today. We call this measure BCF–CG for the ratio of business income to cash flow including unrealized capital gains. The difference between the two income measures is hence an estimate of how much the SEB has been able to boost the net value of the firm through retained earnings, debt reduction, and successful entrepreneurial effort that increases the value of the firm.

Figure 2 plots histograms of BCF that combine all six waves of the SCF that we use. The histograms combine all firms with earnings greater than or equal to \$513,000 and those with a loss in excess of \$10,000 in the rightmost and leftmost bars, respectively. Table 7 presents firms' median income by SCF year.

As with net equity, there is a large variation in income, and the distribution is skewed: 30 percent of the firms make less than \$25,000, but 30 percent make more than \$81,000, and 10 percent more than \$200,000. While there are some differences in the distribution of income by ownership tenure, they are not as great as the disparities in net equity. For example, the median income of firms with ownership tenure of one year or less is \$36,000, while the median income of businesses with tenure of six years or more is \$50,000. There are some differences in the tails of the distributions. About 10 percent of the newer firms experience losses, while fewer than 5 percent of the longest-held ones do; 10 percent of the firms with the shortest tenure

earn \$130,000 or more, while 20 percent of the firms with the longest tenure have such income.

Figure 3 and table 7 show BCF–CG. Unrealized capital gains significantly boost the business income for SEBs. Over all years, the median BCF–CG measure of income is \$56,800, compared with \$47,000 for the median BCF measure. As noted by Moore (2004), the increases are sizable across the entire income distribution. Still, the BCF–CG distribution is more skewed than the BCF distribution. For example, the 30th percentile of the BCF–CG distribution is \$30,450, compared with \$25,000 for that of BCF; the 70th BCF–CG percentile is \$104,900 versus \$81,000 for that of BCF; and the 90th BCF–CG percentile is \$287,000—almost one and a half times greater than that of BCF. The increase in the median income of firms with ownership tenure of one year or less is large: It rises from \$36,000 to \$50,000.¹² The gains (in percentage terms) are smaller for more established operations—from \$45,000 to \$59,400 for firms with tenure of two years to five years and from \$50,000 to \$56,700 for firms with tenure of six years or more.

Rates of return

We also compute two measures of the rate of return from running one's business. The first measure, which we call RBCF, divides BCF by business net equity. It measures the return extracted from the business by the entrepreneur in the year covered by the SCF. The second measure, which we call RBCF–CG, replaces BCF in the numerator with BCF–CG. Thus, it is a more comprehensive measure that includes both extracted returns and the unrealized increase in value due to retained earnings, debt reduction, and entrepreneurial labor.

TABLE 7

Financial returns from the business

	1989	1992	1995	1998	2001	2004
Median business wealth net equity (2004 dollars)	95,343	78,990	61,514	92,685	106,518	144,000
Median income (2004 dollars)						
BCF ^a	35,000	42,031	37,018	52,999	55,999	59,028
BCF–CG ^b	40,500	49,663	47,104	60,200	70,752	79,000
Median rate of return (percent)						
RBCF ^c	21.1	28.6	36.2	39.0	33.5	30.0
RBCF–CG ^d	32.3	37.6	46.4	50.7	45.5	45.8

^aBusiness income plus wages and salaries of household heads and spouses working for the business as a percent of total household income.

^bBusiness income cash flow including unrealized capital gains.

^cBusiness income divided by business net equity.

^dBusiness income cash flow including unrealized capital gains divided by business net equity.

Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

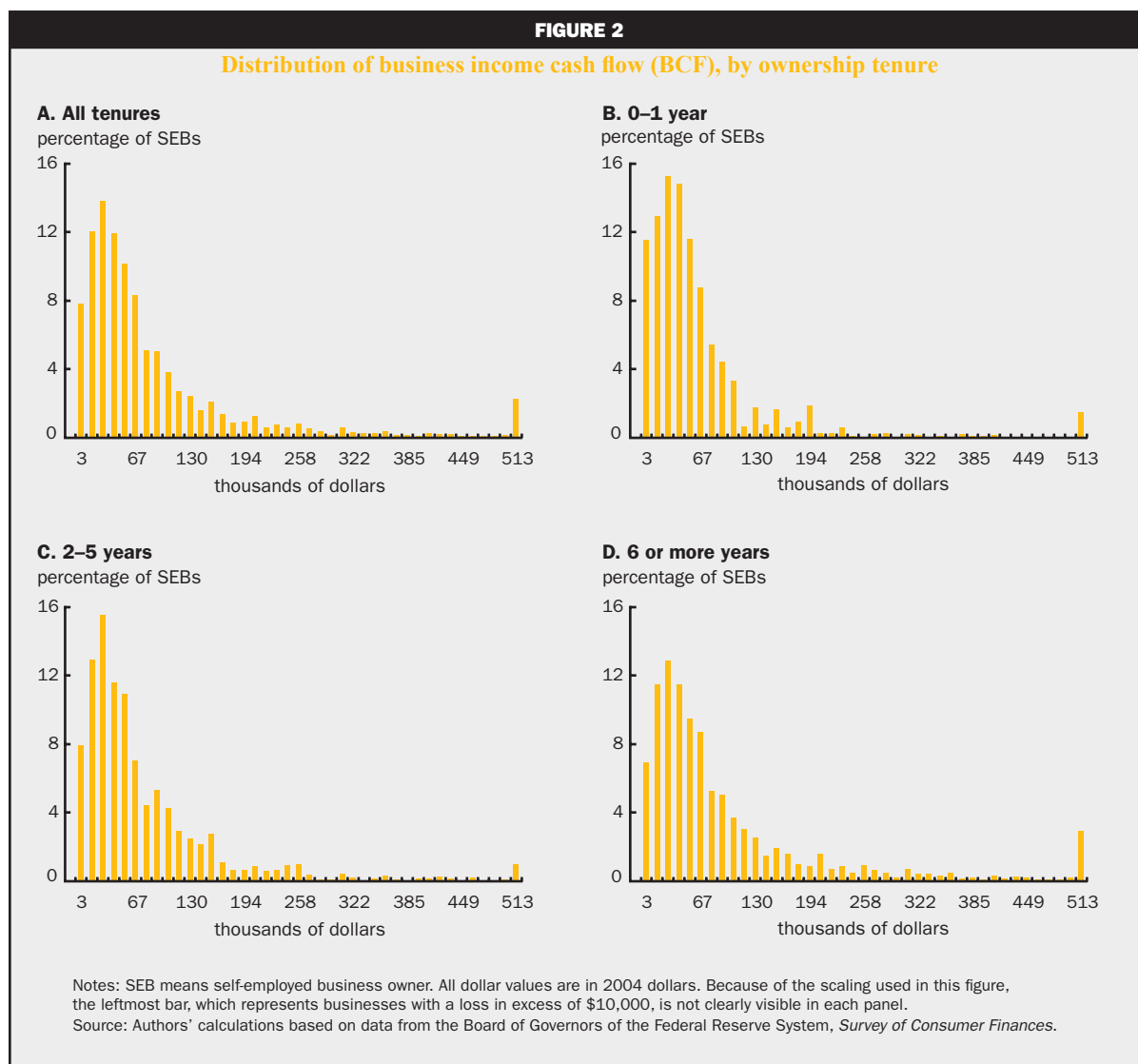
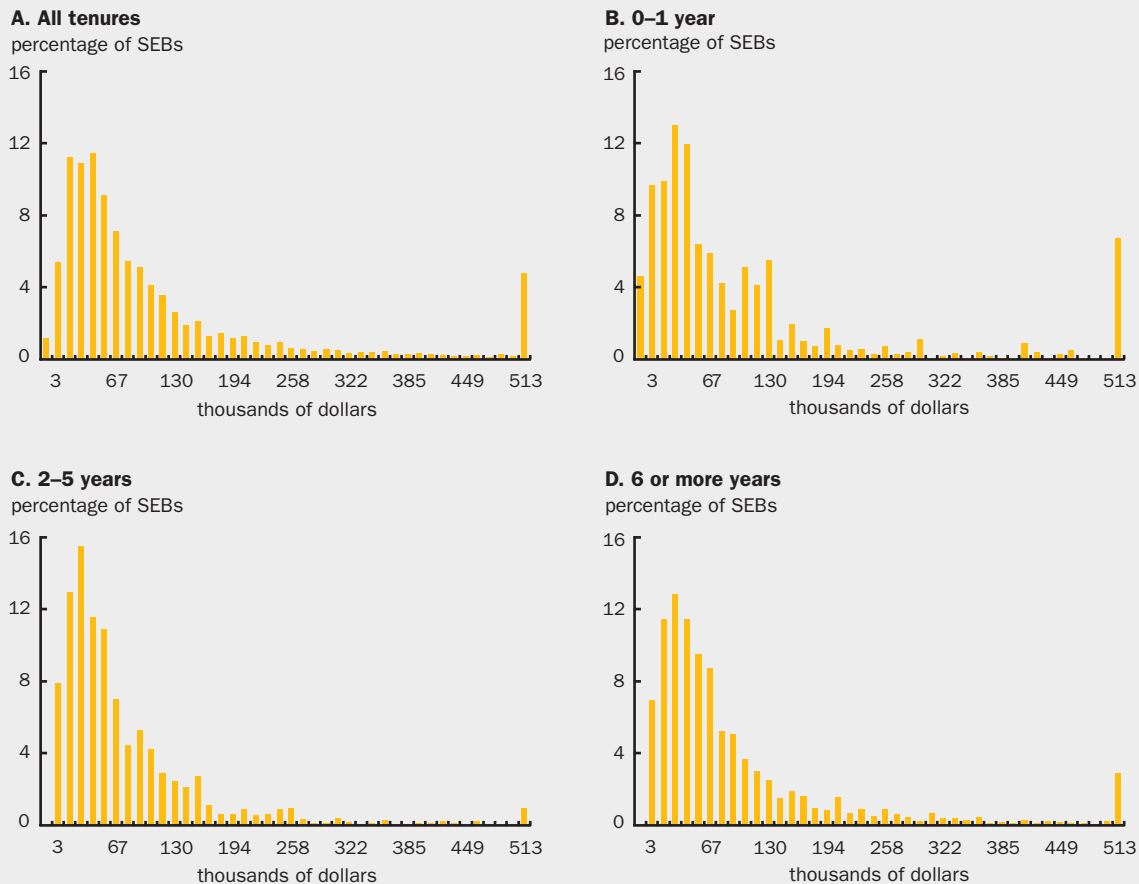


Figure 4 reports data on RBCF, while figure 5 (on p. 30) reports data on RBCF–CG. These figures display histograms of the rate of return on the businesses by ownership tenure for the pooled surveys. In both figures, we have combined the rates of return of 250 percent or more and all negative rates of return in the rightmost and leftmost bars, respectively.¹³ Table 7 shows the businesses' medians of RBCF and RBCF–CG for each SCF year.

With regard to the cash flow measure, the median RBCF over all years and SEBs is 33 percent. If this were simply a one-year return to capital, then it would be a very high rate—after all, this measure excludes capital gains, and for comparison, the annual nominal rate of return on the Standard & Poor's 500 stock index was about 8.5 percent over the 1989–2004 period.

However, the SEBs' return includes the return to the entrepreneurs' labor efforts, and so it should exceed the return to capital by a good deal.

The median RBCF masks a wide range of outcomes. About 5 percent of the SEBs lose money, and over one-third of them earn less than a 15 percent return. But many of them earn very large rates of return—30 percent of them earn more than an 80 percent rate of return. So clearly there is a good deal of financial risk involved with the business ventures of SEBs. Much of this risk-taking appears to be undertaken by smaller, younger businesses. As seen in figure 4, the dispersion of returns for firms with the shortest ownership tenure is much greater than that for older firms.¹⁴ Among firms with ownership tenure of one year or less, 9.4 percent experience losses and another 8.7 percent

FIGURE 3**Distribution of business income including unrealized capital gains (BCF–CG), by ownership tenure**

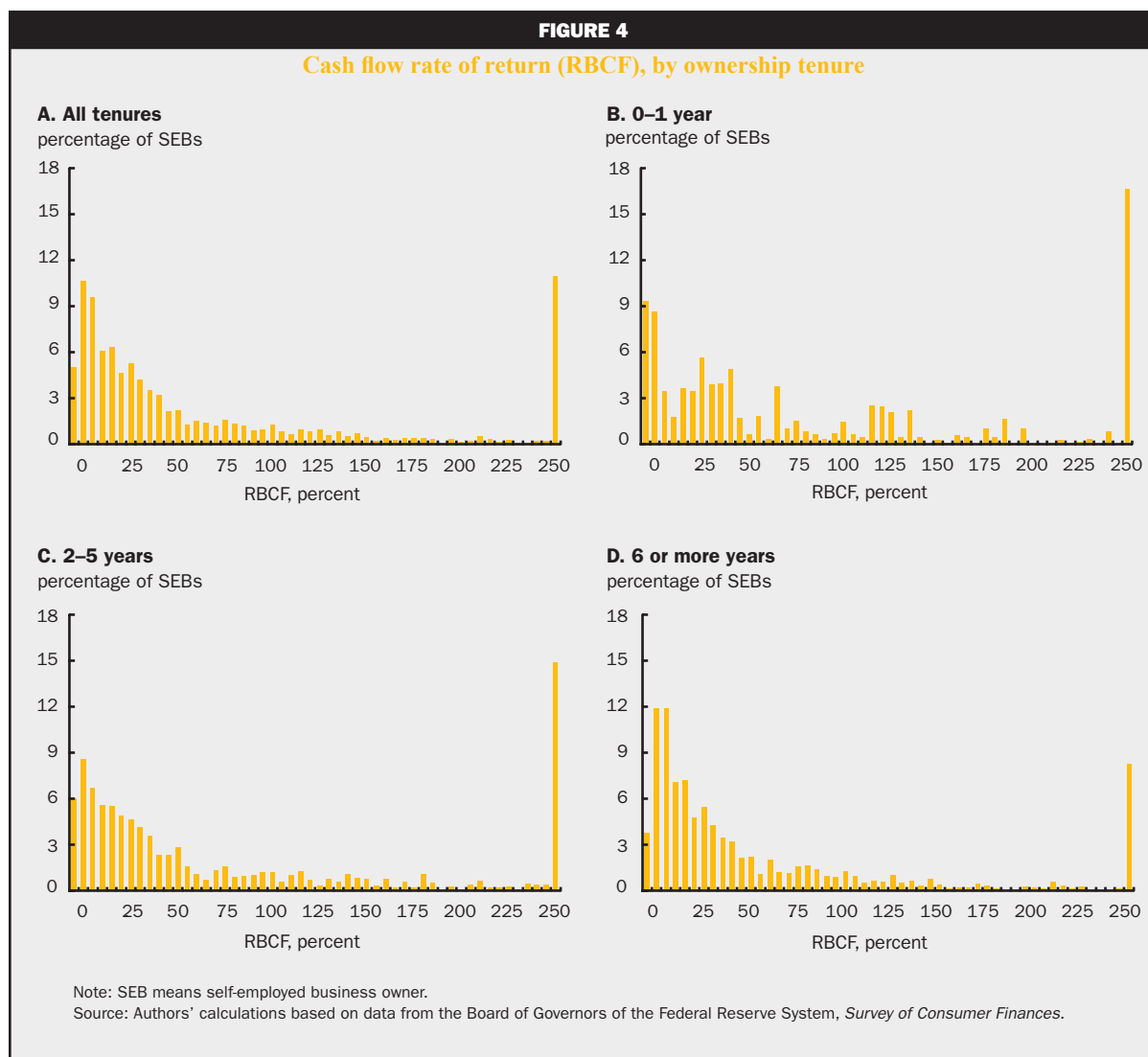
Notes: SEB means self-employed business owner. All dollar values are in 2004 dollars. Because of the scaling used in this figure, the leftmost bar, which represents businesses with a loss in excess of \$10,000, is not clearly visible in panels C and D.
Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

have positive returns of less than 5 percent. But the median RBCF of the businesses is about 50 percent, and about 30 percent of SEBs earn rates of return greater than 125 percent. As firms mature, they are less likely to suffer very poor annual cash flows, but they are also less likely to experience very large returns. Only about 4 percent of the businesses with ownership tenure of six years or more experience losses. But their median RBCF is more than 20 percentage points less than the median for the new businesses, and only 20 percent of the mature ventures earn cash flow returns greater than 100 percent.

As seen in figure 5, including an estimate of unrealized capital gains in the income measure changes the rate of return histograms a good deal. But it does not change the basic story that entrepreneurs take on

a great deal of risk and that much of this risk-taking in search of large returns appears to be done by smaller, younger businesses.

First, RBCF–CG is substantially larger than RBCF: The median return for all SEBs and all years rises from 33 percent to 43 percent. Second, unrealized capital gains boost the returns across all categories of business ownership tenure. But the gains are larger for ventures with short ownership tenure. For the firms with ownership tenure of one year or less, the median for RBCF is 49 percent, while the median RBCF–CG is 102 percent. For firms with tenure of two to five years, the median RBCF and RBCF–CG rates are 40 percent and 58 percent, respectively, and for businesses with tenure of six years or more, the median RBCF and RBCF–CG rates are 28 percent and 32 percent, respectively.



Third, according to RBCF–CG, few surviving firms experience very low returns. For example, even among the firms in the shortest ownership tenure category, only 7.5 percent experience losses and 90 percent of the firms earn returns greater than 16 percent.

Survivorship and buyout biases

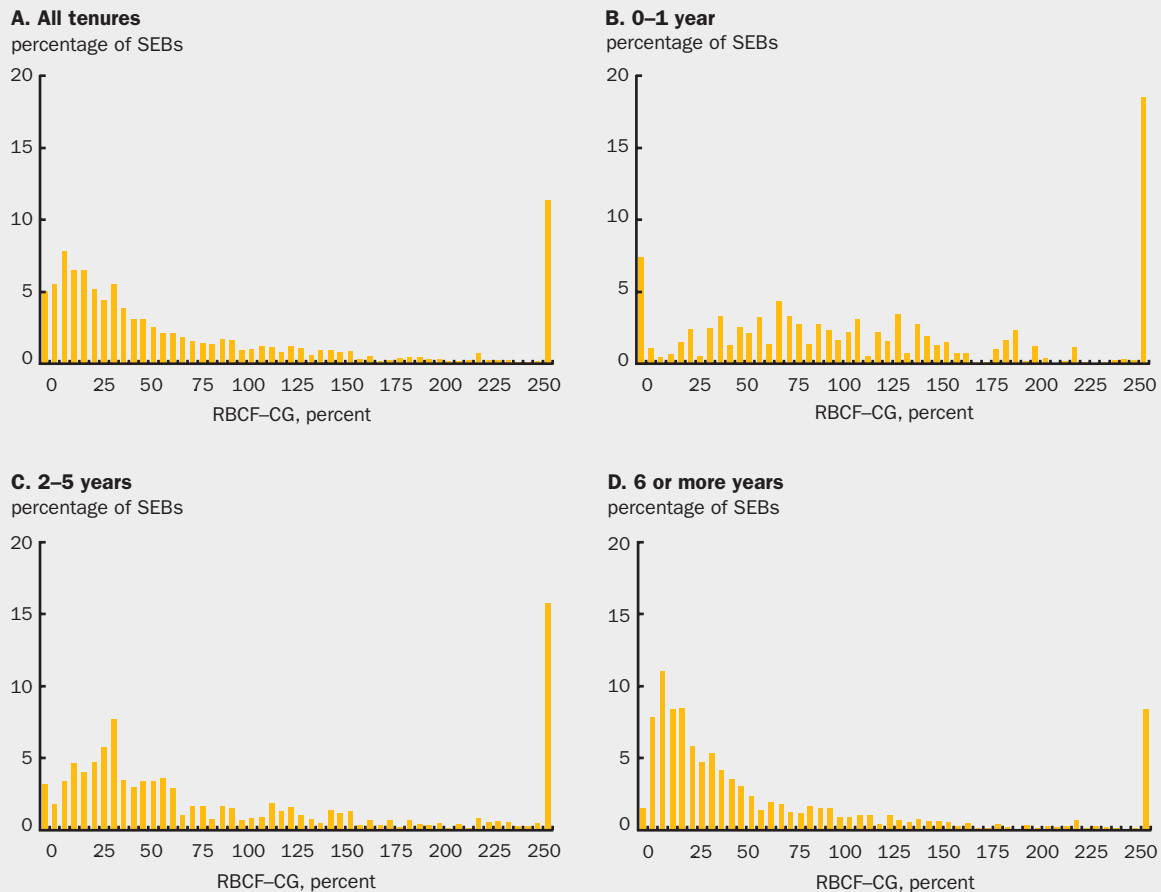
In this section, we discuss some important sources of bias in the rate of return calculations. The first is an upward survivorship bias. We are only measuring the ex post returns of the successful ventures that have survived. We do not have any information on how many firms lost enough money that they had to cease operations. Accounting for such losses would lower our overall rate of return calculations.

The second set of biases relates to buyouts and divestitures. We do not observe the returns of

entrepreneurs who have taken their firms public or have been bought out by other private firms. This would tend to bias down our return measures. However, the results of Moskowitz and Vissing-Jorgensen (2002) suggest that this bias might be small. They compute an aggregate, value-weighted return to a portfolio of private equity that includes an adjustment for realized capital gains in the form of initial public offerings and takeovers. They find the adjustment has a small effect on the rate of return, on the order of 50 basis points. Another potential source of downward bias in our rate of return measures is that they do not account for income resulting from the divestiture of assets that occurs between the time the business was acquired and the SCF year (see the appendix). This underestimate may be more important for older firms.

FIGURE 5

Total rate of return including unrealized capital gains (RBCF-CG), by ownership tenure



Note: SEB means self-employed business owner.

Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

Evidence of entrepreneurial wealth creation

Because we do not have a panel, we cannot make any definitive statements about the process in which successful, young firms evolve into rich, old firms. Still, the results relating rates of return and net equity to the tenure of business ownership provide some insight into what that process looks like.

Many entrepreneurs bring new business ideas to the market. Many of these fail. Those that succeed have the potential to generate some large cash flow returns, even early on in the operating life of the firm. A firm with short ownership tenure can also generate unrealized capital gains, for example, by paying down debt. And such a firm's survival can also signal an increase in the franchise value of the business. As a successful business ages and grows, the rates of return, as measured by the cash flowing from the firm to the

household, fall a good deal. Retained earnings, debt reduction, and entrepreneurial effort are still successful in increasing the equity value of the firm. But even including unrealized capital gains, the typical returns to older firms fall short of those to operations with a shorter tenure. This suggests that as the businesses age and grow, larger rates of return become less common because of diminishing returns to scale and because imitators enter the entrepreneur's niche and erode market share. The successful entrepreneurial venture ends up with more wealth, a larger business, and smaller, but more stable, returns.

In sum, entrepreneurs face substantial risk-return trade-offs. But those who have good ideas, learn, and survive can persistently generate substantial returns for their businesses. In the end, the successful businesses make the entrepreneurs wealthy.

Credit constraints, risk preferences, and precautionary saving

Ideally, the entrepreneur would be able to borrow as needed at a cost that is contingent on the particular state of the world that eventually transpires. Such ideal conditions do not exist because, in reality, certain information is available to the entrepreneur, but not the lender; there is limited enforceability of contracts; and there is a risk that entrepreneurs might reduce their work effort if they do not bear all of the risks and reap all of the rewards from their business ventures. These features generate less-than-perfect risk sharing between lenders and entrepreneurs. And in light of the large variability in returns, the importance of survivorship, and the relevance of unrealized capital gains for entrepreneurs, this lack of risk sharing likely has an important influence on the economic environment faced by entrepreneurs and their creditors.

One potentially important implication is that entrepreneurs can face credit constraints. Such constraints can take many forms—differences between borrowing and lending rates, collateral requirements, or outright denial of credit at any price.¹⁵ Credit constraints can deter entrepreneurs from investing as much as they think is necessary to make their businesses profitable and can expose them to consumption fluctuations due to unforeseen shocks. The more the household is averse to risk, the larger the cost of these consumption fluctuations. And so there is an incentive for entrepreneurs to self-insure against these costs by building wealth for precautionary balances and to finance their business operations. However, the degree to which entrepreneurs will do so also depends on their attitudes toward risk and the severity of the credit constraints they face.

We find qualitative evidence that entrepreneurs face credit constraints, though there are indications that these have eased over time. We also find evidence that SEB households are less risk averse than other wealthy households. This discounts the notion that the wealth of entrepreneurs disproportionately reflects a buildup of precautionary balances.

Credit constraints

The data seem consistent with the proposition that SEBs do face important credit constraints, although there is no way to determine how much of SEB wealth is associated with such constraints. Furthermore, some of our other results suggest that credit constraints have moderated over the 1989–2004 period.

The SCF calculates business net worth by taking the net value the household would receive if the business were sold today plus the net of any lending or collateral provision from the personal accounts of the

household to the business ledger (see the appendix). For example, if an SEB puts up a house as collateral to secure a line of bank credit to be used by the business, this amount is included in the value of business net worth. The greater is the degree of credit constraints on business lending, the greater the need for such lending or collateralization.

As seen in table 8, a substantial share of SEBs make such commitments. In every year we consider, more than 15 percent of SEBs have a loan or a guarantee or they have pledged collateral to their business. Furthermore, the size of these commitments is not trivial. The median value as a share of net equity of the firm varies between 12 percent and 25 percent; in terms of the household's net worth, the commitments vary between 4 percent and 15 percent. In general, there are more cases of lending between households and businesses for the limited liability ventures. This may simply reflect the fact that for such entities there are more legal reasons to distinguish the balance sheet of the owner from that of the business. The size of the commitment, however, does not vary systematically between the various legal forms of business structure.

Further insight into credit constraints can be gleaned from a question in the SCF that asks if over the past five years the respondent has been turned down for credit or not been given as much credit as requested. As seen in the bottom portion of table 8, over the first four survey years in our sample, SEBs were slightly more likely than others in the population to have experienced such a constraint. However, the relative share of SEBs experiencing such limits seems large given the disproportionate representation of SEBs in the upper ranges of the wealth and income distributions. When we consider only those households in the top 10 percent of the wealth distribution, SEBs experienced a much higher rate of being turned down for credit than other households. As we document, SEBs have much higher debt-to-income ratios than other households (see table 9). They also may try to borrow more often than non-SEB households in order to finance business operations. Accordingly, SEBs may experience more instances of credit denial by lenders that are concerned about their ability to service debt.

Even though SEBs apparently face credit constraints, such restrictions appear to have relaxed over time. The share of SEBs making loan commitments to their businesses declined from nearly 30 percent in 1989 and 1992 to the 15–20 percent range in the late 1990s and early 2000s.¹⁶ A decline in personal lending to the business is evident for all forms of legal structure. Furthermore, the percentages of all households in the top decile of the wealth distribution that have been

turned down for credit are substantially smaller in the 2001 and 2004 surveys, and the declines are much larger for SEBs than for other wealthy households. Indeed, the gap between the two sets of households is quite small in the last two surveys. Finally, recall that table 6 (p. 24) showed a steady uptrend—from 65 percent in 1989 to 78 percent in 2004—in the share of SEBs that started their own business. The trend could be consistent with the view that reductions in liquidity constraints make it easier for entrepreneurs to finance new business ventures as opposed to purchasing established operations that might be more easily collateralized than a new operation.

Risk aversion and precautionary saving

All else being equal, one might expect SEBs to engage in more precautionary saving to compensate for the extra risk associated with the large variation in returns to their businesses. However, entrepreneurs appear to be less risk averse than other wealthy households, which mitigates the degree of precautionary saving we would expect to observe.

The SCF asks respondents about the amount of financial risk they are willing to take in order to receive financial returns when they save or make investments. The survey asks respondents if they are willing to:

1) Take substantial financial risks expecting to earn substantial returns, 2) Take above average financial risks expecting to earn above average returns, or 3) Take average financial risks expecting to earn average returns, or if they are 4) Not willing to take any financial risks. As seen in table 9, on balance, SEBs respond that their willingness to take risks for high returns is somewhat more than average, while non-SEBs respond that their tolerance for risk is somewhat less than average (also see Moore, 2004, and Herranz, Krassa, and Villamil, 2007).

In addition, entrepreneurs do not seem to diversify very much away from their businesses. The median share of household income SEBs earn from their businesses is well over one-half (see table 9). Furthermore, this share increased steadily over the sample period; from just under 60 percent in 1989 to nearly 85 percent in 2004.¹⁷ By comparison, the median non-SEB household (not shown in table 9) earns no business income, and the *average* share of business income in total income for such households varies between just 2.5 percent and 6.25 percent. Also, SEBs leave a large portion—about one-third—of their wealth in their businesses, meaning that a substantial portion of their ability to consume is unhedged against bad business outcomes. This lack of diversification stands out

TABLE 8

Credit constraints evidence

	1989	1992	1995	1998	2001	2004
Percentage of SEBs with a loan, guarantee, or collateral commitment						
Sole proprietorship	25.2	23.5	18.9	10.1	11.1	17.1
Partnership	33.3	27.0	15.2	18.3	20.0	17.8
LLC, C corporation, other	25.8	39.8	27.7	33.8	22.8	24.6
S corporation	46.3	30.3	36.1	38.9	22.7	26.4
SEB total	29.2	27.2	21.8	19.5	16.4	20.6
Value as percentage of business net worth ^a	12.7	19.8	12.2	22.9	25.0	24.7
Value as percentage of household net worth ^b	4.9	6.8	5.7	8.4	9.3	14.5
Percentage of households ever turned down for credit						
All SEBs	18.2	21.6	20.1	21.1	15.1	13.9
All others	17.3	20.0	18.4	19.1	17.1	17.8
SEBs in the top decile of wealth distribution	16.4	13.8	7.4	12.9	3.7	5.2
Others in the top decile of wealth distribution	3.9	4.7	4.5	3.9	2.1	2.2

^aFor those households reporting a loan, guarantee, or collateral commitment to their businesses, this is the value of that transaction relative to the net equity in the business. Median share.

^bFor those households reporting a loan, guarantee, or collateral commitment to their businesses, this is the value of that transaction relative to household net worth. Median share.

Notes: SEB means self-employed business owner. LLC means limited liability company.

Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

starkly when looking at all the wealthy households (those in the top 10 percent of the wealth distribution). As seen in the bottom portion of table 9, the overall wealth-to-income ratio of wealthy SEBs is about the same as that of other rich households. However, the ratio of wealth (excluding business net equity) to income for SEBs is 30 percent to 50 percent below that of non-SEB households.¹⁸

An interesting, complementary finding by Heaton and Lucas (2000) suggests that entrepreneurs try to limit their risk exposure by holding less wealth in stock, compared with other similarly wealthy households.

Furthermore, SEBs raise both sides of their balance sheets to a much greater degree than other households. Notably, SEBs carry substantially more debt than other households: Their debt-to-income ratios are between one and a half and three times higher than those of wealthy non-SEBs.¹⁹ This means that relative to other households, a much greater percentage of SEBs' income stream is precommitted to servicing debt.

The combination of similar total wealth-to-income ratios, high concentrations of wealth in business equity, and high debt-to-income ratios suggest a greater tolerance for risk by entrepreneurs than by others, and hence, a lower predilection for precautionary saving.

Conclusion

Our findings support the view that entrepreneurs are important sources of saving and wealth creation in the U.S. economy. They start new businesses, introduce new ideas or business concepts, invest large amounts of their net worth in their businesses, and take very large risks for potentially very large returns. Our findings also support the view that "market frictions" prevent the entrepreneurs from completely diversifying away risks and, perhaps, from investing in their firms at an economically efficient level. We also find, however, indicators pointing to some easing of the borrowing constraints faced by entrepreneurs after the early 1990s. Our results on portfolio and income diversification and from direct questions regarding risk attitudes also indicate that entrepreneurs are less risk averse than the U.S. population at large.

TABLE 9						
Risk tolerance of SEBs and others						
	1989	1992	1995	1998	2001	2004
Subjective risk intolerance ^a						
SEBs	3.0	2.9	2.9	2.8	2.9	2.8
Others	3.3	3.4	3.3	3.1	3.1	3.2
Percentage of SEB wealth invested in the business	34.4	33.3	30.6	32.8	33.3	34.3
Percentage of SEB income coming from the business	58.3	65.2	70.9	75.7	78.3	83.5
Wealthy SEBs vs. other wealthy households						
Median ratio of wealth to income						
SEBs	10.49	8.82	10.44	9.86	11.81	13.88
Others	9.51	9.59	9.05	10.82	11.90	12.29
Median ratio of wealth (excluding business net equity) to income						
SEBs	4.98	4.46	5.55	5.42	6.51	7.84
Others	8.38	8.76	8.39	10.28	11.07	11.11
Median ratio of debt to income						
SEBs	0.29	0.64	0.50	0.90	0.61	0.91
Others	0.17	0.15	0.29	0.31	0.20	0.43

^aIndex: 1 corresponds to willing to take substantial risk; 2 to take above average risk; 3 to take average risk; and 4 to take no risk.

Notes: SEB means self-employed business owner. Wealthy SEBs and other wealthy households are those in the top decile of the wealth distribution.

Source: Authors' calculations based on data from the Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

NOTES

¹Although we require that SEBs own at least one business, we do not restrict our analysis to households whose business net worth is above a given threshold. Therefore, we have not necessarily excluded owners of tiny businesses that may enter or exit operation quickly.

²We chose to not use the 1983 and 1986 SCF waves because these surveys appear to be of lower quality, and they did not ask all of the questions regarding the households' business interests found in the six SCF waves that we use.

³The SCF generally takes place in the second half of the calendar year. Flow variables, notably income, refer to the previous calendar year; stock variables and demographic or business ownership identifiers cover current values.

⁴The summary statistics we present in this article are calculated by first multiplying the relevant observations by their SCF weight. These are demographic weights that indicate how representative the observed household is of the U.S. population as a whole.

⁵The SEBs are overrepresented in the other portions of the upper ends of the wealth distribution as well. Nearly 40 percent of SEBs fall in the top wealth decile, and nearly one-quarter are in the top 5 percent of the wealth distribution. The SEBs make up 25–30 percent of the top 10 percent of the wealth distribution and 30–40 percent of the top 5 percent.

⁶There is some evidence of a countercyclical pattern for self-employed workers as a whole in the *Current Population Survey* (CPS), which is conducted by the U.S. Census Bureau for the U.S. Bureau of Labor Statistics. (See Aaronson, Rissman, and Sullivan, 2004, and Rissman, 2006.) The CPS does not allow one to identify who among the self-employed own and manage a business operation. With regard to our results, many of those making cyclical transitions between self-employment and work for pay may not consider themselves as actively managing a business, and so they would not be included in our SEB sample. The movements in and out of self-employment of such individuals may indeed be countercyclical.

⁷The education index is constructed by coding household heads as a 1 if they do not have a high school degree; a 2 if they have a high school degree only; a 3 if they have some college; and a 4 if they have a college degree. The index is the population-weighted average across respondents.

⁸Note that C corporations may or may not be publicly traded, but the SCF questions regarding active business ownership instruct respondents to give only information on corporations that are not publicly traded that they own or share ownership of and in which they have an active management role.

⁹Clearly, measurement error may be an important issue with business net worth. The value of the firm is a self-reported number. So unless the SEB has recently received a credible buyout offer or other external assessment of the firm's valuation, the answer to this question will be subjective. Valuation might be particularly difficult for SEBs running start-ups, since there is little track record available to judge the long-run potential of the firm.

¹⁰A small percentage of firms—0.05 percent—have a net worth less than –\$2,200.

¹¹We differ from Moore (2004) in that we do not include an adjustment for the difference between the unrealized capital gain and the opportunity cost of capital.

¹²This result may seem surprising for firms with short ownership tenure, since they have had little time to reap the gains from capital investments made using retained earnings. However, other factors may be boosting their net equity. First, the SEB may have paid down a substantial amount of debt incurred when acquiring the business. Second, the survival of the SEB's firm may provide a positive signal of the ongoing viability of the business venture, causing the SEB to give a more optimistic assessment of the value of the firm. Note, though, that we likely are underestimating annualized capital gains to the firms with short ownership tenure. This is because we do not know the exact month the firm was acquired; hence, we divided the change in value by one, even if the firm was created less than a year ago.

¹³In addition, to avoid skewing the rates of return because of the earnings of businesses with little or negative net equity, we perform rate of return computations only for businesses with a net worth greater than \$1,000. Even with this adjustment, however, some firms' high rates of return may reflect relatively modest income flows against a base of very little net equity. Unfortunately, the SCF only records net equity in the business and does not separate assets and liabilities. Accordingly, we cannot calculate an alternative rate of return on assets.

¹⁴Some of the higher dispersion among businesses with ownership tenure of one year or less might be affected by sampling error, since the number of SEBs in this category is a good deal smaller than those in the other two tenure classifications.

¹⁵Some researchers, for example, Hurst and Lusardi (2004) question the importance of credit constraints to entrepreneurial activity documented by much other literature on the subject.

¹⁶That said, conditioned on making a loan or pledging collateral, the size of such lending has trended up over time. The median commitment rose from between 12 percent and 20 percent of the net worth of the business in the first three surveys in our sample to about 25 percent in the 2001 and 2004 surveys.

¹⁷The trends in legal structure do not appear to account for the trend in the business income share of total SEB income. All legal forms of business show an uptrend in the share of income derived from their business activity, and the differences in business shares among the legal forms are small.

¹⁸For comparison, among non-SEB households in the top decile of the wealth distribution, the median amount of wealth held in private business equity is zero, and the *average* amount varies between 9 percent and 12 percent. Moskowitz and Vissing-Jorgensen (2002) also document the lack of portfolio diversifications for entrepreneurs.

¹⁹Undoubtedly, this is a natural consequence of borrowing to operate their businesses, although we cannot tell for sure because the SCF provides information on only the net value of the businesses, without separating their assets and liabilities.

APPENDIX

The number of observations in each wave of the *Survey of Consumer Finances* we use in our article appears in table A1.

Business net worth

Business net worth equals the net equity if the business were sold today, plus loans from the household to the business, minus the loans from the business to the household not reported as personal debt by the respondent, plus the value of personal assets used as collateral for business loans not reported as an asset by the household earlier. Net equity is the self-reported answer to the question: “What is the net worth of the business? What could you sell it for today?”

Self-employed business owners’ business income

Isolating the income SEB households earn from their businesses is not straightforward. We do so by combining the SCF questions that directly ask respondents how much salary or wages they earn from their main jobs and, in addition to regular salary, how much of the net earnings or other income they received from their businesses. We include income received by the spouses from the businesses. These data are not without problems, and measurement error is still a concern. For example, they may suffer

from recollection error, and while salary data are for the current year, other business income refers to the calendar year prior to the SCF. See Moore (2004) for a discussion of these and other issues. Still, we feel this approach is superior to using tax data, which the SCF also records. Importantly, partnership and S corporation income are found in form 1040, line 17, but line 17 also includes income from rental real estate, royalties, and trusts that might not be actively managed businesses by SEB households. Furthermore, S corporations and other closely held corporations can pay salaries to their owners. Such salary income is included in the regular wage and salary reporting in form 1040, line 7, but they also include wage earnings of family members from outside of the businesses.

Computing business income net of taxes would be very interesting but requires work that goes beyond the scope of this article. It would be relatively easy to do so for businesses organized as C corporations because they face a flat tax rate on business income. Such firms, however, make up only a small fraction of the SEBs in our sample. For other types of SEBs, business income is included in the households’ total income, and hence, it is tax-based on all of the household financial and demographic characteristics. Computing business income net of taxes does require a complicated and detailed algorithm.

TABLE A1

Number of observations in each SCF wave

	1989	1992	1995	1998	2001	2004
SEBs	566	837	838	856	878	931
Others	2,577	3,068	3,461	3,449	3,564	3,588

Notes: SEB means self-employed business owner. SCF means *Survey of Consumer Finances*.
Source: Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*.

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A bank by any other name ...

Christian Johnson and George G. Kaufman

Introduction and summary

Banks come in a wide variety of forms. These include commercial banks, savings banks, savings and loans, and credit unions. But, all banks are not perceived as equally vital to the economy so as to require the same degree of government regulation to promote their safe and efficient operation. To regulate efficiently, it is necessary to carefully define the entity to be regulated. The issue of what constitutes a bank for regulatory purposes emerged in 2005 from being an arcane subject of interest primarily to a small number of regulatory attorneys to being of interest to a much larger and broader group. This interest was sparked when the large retailer Wal-Mart applied to the Federal Deposit Insurance Corporation (FDIC) to obtain federal deposit insurance for a newly chartered “bank” in Utah that was not subject to the ownership restrictions applicable to most other “banks.” This article examines the definition of “bank” for financial regulatory purposes, traces and explains the evolution of the definition through time, and explores the controversy surrounding the recent attempt by Wal-Mart to establish its own bank. Wal-Mart has since withdrawn its application.

All depository institutions, including commercial and savings banks, need to obtain a special charter from either the federal government or their home state government rather than a general corporate charter. The charter identifies the activities in which the institutions are permitted to engage. Each chartering and regulatory agency specifies a definition of “bank” to which its authority applies. Restrictions on permissible activities may be imposed by the FDIC on insured banks and by the Board of Governors of the Federal Reserve System on holding companies that own bank subsidiaries.

The definition of bank need not be the same across agencies nor for any one agency through time. Differences and changes in definition may occur for a number of reasons, including differences in regulatory objectives

among agencies, changes in legislation, changes in the demand for different types of financial services, changes in the supply of particular financial services, innovations in financial products and institutions, and changes in the operations of financial institutions.

In recent months, controversy about the definition of a bank has been ignited by an attempt, since abandoned, by Wal-Mart to obtain FDIC insurance for an industrial loan company (ILC) to be chartered in Utah.¹ An ILC is a “bank” chartered in a limited number of states that is granted the same or slightly fewer product powers than are commercial banks chartered in that state. Importantly, ILCs are currently explicitly exempted from the definition of “bank” in the Bank Holding Company Act (BHCA) if, among other characteristics, they do not accept demand deposits when their assets exceed \$100 million. As long as the proposed ILC had satisfied these conditions, the parent holding company Wal-Mart would not have been legally classified as a bank holding company—a holding company that owns one or more institutions legally defined as a “bank”—and would have been subject neither to regulation by the Federal Reserve nor to the restrictions of the Bank Holding Company Act. If it had been, the nonfinancial activities of the parent company Wal-Mart would have prohibited its ownership of a bank subsidiary.

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To some, this “loophole” in the legal definition of a bank permits the piercing of the separation of banking (financial) and commerce (nonfinancial) that the BHCA was designed to maintain and is perceived as providing holding companies owning an ILC an unfair advantage over holding companies that own legally defined banks, such as commercial banks. This generated opposition to the Wal-Mart application for FDIC insurance, which was necessary for it to be an ILC that is exempt from the restrictions of the BHCA. In response to this opposition, the FDIC imposed a six-month moratorium in July 2006 on this and all other pending applications for federal insurance either for a new ILC or for an existing ILC undergoing a change in control through January 31, 2007. The FDIC then extended the moratorium in January 2007 for another year on new and pending applications from commercial (nonfinancial) firms for the operation of federally insured ILCs. This moratorium is due to expire on January 31, 2008.² In March 2007, Wal-Mart withdrew its application.

Evolution of the definition of “bank” and “bank holding company”

A bank is a type of financial institution. A financial institution is an entity that deals primarily in financial instruments and derives most of its revenues from interest and fees charged on its loans, investments, and deposits, or from trading in these securities. A popular dictionary of banking terms defines a bank as

[an organization,] usually a corporation, that accepts deposits, makes loans, pays checks, and performs related services for the public.³

What differentiates a bank from most other financial institutions is that a bank can accept deposits of funds that the bank may re-lend but that need to be repaid to the depositor at full value at a future specified or unspecified date. As such, banks belong to the broader class of depository institutions, which includes other institutions that are chartered to accept deposits and make loans but traditionally have provided a narrower and more specialized range of services, such as savings and loan associations and credit unions.

As noted, unlike most other business corporations, banks require a special corporate bank charter from a government entity; in the United States this is either from the federal government (national bank) or the home state government (state bank).⁴ Their powers are defined in the charter. For example, national banks chartered by the Comptroller of the Currency may:

exercise ... all such incidental powers as shall be necessary to carry on the business of banking by discounting and negotiating promissory notes, drafts, bills of exchange, and other evidences of debt; by receiving deposits; by buying and selling exchange, coin and bullion; by loaning money on personal security. ...⁵

The National Bank Act, as currently amended, specifies individually the permissible powers in addition to deposit taking and loan making.

The charter imposes both advantages and disadvantages on a bank. The institution can offer various types of deposits, such as demand, time, and savings. These deposits are currently insured up to a maximum amount of \$100,000 per eligible account by the Federal Deposit Insurance Corporation, which is an agency of the federal government. The bank is also provided direct access to the national payments system through the Federal Reserve’s check and electronic clearing facilities. To the extent that bank charters are not granted freely, the chartering agencies may restrict entry and reduce competition.

In return for these advantages, the charter subjects the bank to a number of disadvantages in the form of costly regulation and supervision for reasons of safety, fairness, efficiency, and monetary policy. In the words of former Federal Reserve Chairman Paul Volcker:

Handling other people’s money, which is what banking is all about, connotes a fiduciary responsibility. ... To that end, banking systems in virtually all countries are regulated.⁶

Types of regulation and supervision that have been frequently imposed on chartered banks include:

- Restrictions on types of products and services that may be offered;
- Restrictions on the number and location of offices;
- Minimum capital requirements;
- Restrictions on ownership by holding companies;
- Restrictions on mergers with other banks;
- Restrictions on interest paid on deposits and charged on loans;
- Examination by bank regulatory agencies for financial soundness and compliance with other regulations;
- Frequent reporting of financial condition to the regulatory agencies; and
- Special nondiscrimination lending and reporting requirements.

Until relatively recently, the term bank was often defined only loosely in federal legislation.⁷ For example, the Federal Reserve Act of 1913 defines bank

TABLE 1	
Changes in definition of bank in Bank Holding Company Act	
1956	Any national or state-chartered commercial, savings, or trust bank
1966	Any institution that accepts demand deposits
1970	Any institution that both accepts demand deposits and makes business loans
1987	All banks insured by the FDIC except thrifts, credit card banks, and industrial loan companies and banks

TABLE 2	
Changes in the definition of bank (savings and loan) holding company for purposes of Holding Company Act	
1956	Bank Holding Company Act (BHCA) applied to holding companies (HC) owning two or more chartered banks
1967	Saving and Loan Association Holding Company Act (SLHCA) applies provisions similar to BHCA to S&Ls owning two or more institutions
1970	BHCA expands definition of covered HC to owning only one bank or more
1987	BHCA expands covered HCs to any owning one or more FDIC insured banks but lists specific exemptions
1999	Gramm–Leach–Bliley Act expands definitions of SLHCA to an S&L owning one or more institutions

to include state bank, banking association, and trust company, except where national banks or Federal Reserve banks are specifically referred to.⁸

The important Banking Act of 1933 (Glass–Steagall) refers to the definition used in the Federal Reserve Act. However, the term bank came to be more precisely defined with the Bank Holding Company Act of 1956. The definition of the term bank reflects the primary purpose of the act, which was to prevent both excessive economic concentration in banking and conflicts of interest that could arise if banks and nonbanks were under common ownership, enabling banks to provide preferential treatment to customers of their affiliates.⁹ (The major changes in the legislated definitions of “bank” and “bank holding company” since 1956 are summarized in tables 1 and 2.)

Thus, the act restricted the nonfinancial activities of bank holding companies (BHC), prohibited bank holding companies from owning subsidiaries that engage in nonfinancial activities or in financial activities that were defined by the Federal Reserve as not being so closely related to banking as to be incidental

to it, and restricted the ability of bank holding companies to acquire banks in other states.¹⁰ The Fed developed a “laundry list” of financial activities that it considered sufficiently incidental to banking to be offered by nonbank subsidiaries of BHCs. Although commercial banks were generally prohibited from engaging in nonfinancial (commerce) activities by their charters, there were no previous restrictions on the activities of subsidiaries of holding companies that also owned one or more chartered banks or of the nonfinancial activities of such a holding company.

To achieve its objective, the BHCA needed to define “bank holding company.” Because the major concern with both excessive economic concentration and conflicts of interest was with respect to banking firms, the act defined bank holding company with respect to the type of bank that it owned or controlled. The definition in the 1956 act defined “bank” to include:

any national banking association or any State bank, savings bank, or trust company...¹¹

and “bank holding company” as any corporate firm that owned two or more banks so defined.¹² In addition, bank holding companies had to register with the Federal Reserve and receive permission from the Fed for further acquisitions.

In time, the BHCA’s definition of a bank was viewed as broader than necessary to achieve its objectives, as the definition included many types of financial institutions that were unlikely to produce excessive economic concentration or meaningful conflicts of interest if owned by a holding company that also owned nonbank subsidiaries. Thus, in 1966, the Bank Holding Company Act was amended to define a bank more narrowly as:

Any institution that accepts deposits that the depositor has a legal right to withdraw on demand. ...¹³

This amendment changed the definition of bank from a chartering test to an activities test. Because deposits subject to withdrawal on demand (demand deposits) were at the time generally restricted to commercial banks, this definition effectively defined a bank holding company only as a company that owned two or more commercial banks.

The Senate report that accompanied this and other amendments at the time to the BHCA explained the reason for the change as follows:

Section 2(c) of the [1956 BHCA] defines “bank” to include savings banks and trust companies, as well as commercial banks. The purpose of the [BHCA] was to restrain undue concentration of control of commercial bank credit, and to prevent abuse by a holding company of its control over this type of credit for the benefit of its nonbanking subsidiaries. This objective can be achieved without applying the [BHCA] to savings banks, and there are at least a few instances in which the reference to “savings bank” in the present definition may result in covering companies that control two or more industrial banks. To avoid this result, the bill redefines “bank” as an institution that accepts deposits payable on demand (checking accounts), the commonly accepted test of whether an institution is a commercial bank so as to exclude industrial banks and nondeposit trust companies.¹⁴

Note the express exclusion of industrial banks in the legislative history from the definition of “bank” for purposes of the act.

In 1970, the definition of “bank” for purposes of the act was narrowed further to:

any institution organized under the laws of the United States, any State of the United States ... which 1) accepts deposits that the depositor has a legal right to withdraw on demand, and 2) engages in the business of making commercial loans.¹⁵

This definition excluded a few institutions that accepted demand deposits but did not make business loans. Lending for noncommercial purposes was considered less likely to cause the problems that the act was designed to prevent. In addition, in response to a sharp increase in the number of holding companies owning only one bank and engaging in activities not permitted for holding companies owning two or more banks, the 1970 amendments also broadened the definition of a bank holding company to cover ownership of only one bank so defined.

In the early 1980s, however, an increasing number of bank holding companies organized or purchased banks that either accepted demand deposits but did not make commercial (business) loans or made commercial loans but did not accept demand deposits. Thus, they were not defined as “banks” for purposes of the act at that time. These institutions became known as “nonbank banks.” Holding companies that owned

such nonbank banks were not subject to the restrictions of the act that were imposed on holding companies that owned banks that met the definition of the act, particularly the prohibition against banks being owned by companies that were nonfinancial firms or owned them. Indeed, most but not all of the newly chartered nonbank banks were owned by holding companies that also owned nonfinancial firms.

To restrict this type of holding company going forward, the act was amended in 1987 by the Competitive Equality Banking Act (CEBA) to broaden the definition of bank from institutions that both accept demand deposits and make business loans to all banks insured by the FDIC.¹⁶ (Existing nonbank banks were grandfathered, but subject to asset growth restrictions.) However, this definition captured some banks and other financial institutions that were generally considered unlikely to cause either excessive economic concentration or conflicts of interest if they were owned by a nonfinancial holding company or by a holding company that owned financial companies that were not on the Federal Reserve’s permissible list.

To address this problem, the CEBA amendments for the first time specifically excluded from the definition of “bank” foreign banks, federally insured savings and loan associations, credit unions, credit card banks, and most federally insured industrial loan companies. However, as seen earlier, ILCs were already noted as not being a target of the BHCA in the Senate report accompanying the 1966 amendments. What most of these exempted institutions had in common is that, at the time, while they generally accepted deposits and made loans, they did not offer demand deposits and did little, if any, commercial lending. Companies that owned such excluded institutions were not subject to the act’s restrictions. In explaining his support for the new definition, Paul Volcker, Chairman of the Board of Governors of the Federal Reserve System at the time, testified before the Senate Banking Committee:

Essentially, the nonbank bank has become a device for tearing down the separation of commerce and banking by permitting a commercial firm to enter traditional banking business without abiding by the provisions of the Bank Holding Company Act. ... Fundamentally at stake is not a few in-house consumer banking offices of some retail chains. ... We want to protect against instability, excessive concentration of power, and undue conflicts of interest, while preserving the institutional framework for monetary policy. In seeking these goals, the separation of banking and commerce has been a basic part of the American tradition for what seems to me sound reasons.¹⁷

The specific exemption for industrial loan companies and industrial banks in CEBA was introduced in the final drafting of the act by then Senators Alan Cranston of California and Jake Garn of Utah, who served on the Senate Banking Committee and represented the two states with the largest number of such institutions.¹⁸

In 1999, Congress effectively reaffirmed the ILC exemption from the definition of “bank” and thereby also the restrictions of the BHCA, when it included a provision in the Gramm–Leach–Bliley Act (GLBA) that slightly expanded the permissible activities of eligible ILCs but did not otherwise change the exemption.

It is evident from this chronology of the evolution of the definition of both “bank” and “bank holding company” for regulatory purposes that the legal definition at any moment in time reflects the pressing public concerns of the time. As the concerns changed, so frequently did the definitions.

Industrial loan companies

Partially as a result of the broadening of the definition of bank in the BHCA through time, both nonfinancial (commercial) firms that wished to own a bank and were prohibited from doing so by the BHCA and nonbank financial companies that wished to own banks but did not wish to be legally classified as a bank holding company, and therefore be subject to Federal Reserve regulation, became more restricted in their options. ILCs were a remaining available option.¹⁹ CEBA explicitly exempted ILCs from the definition of bank in the BHCA if:

1. In 1987, the state in which they were chartered required them to be insured by the FDIC, and either
2. They have less than \$100 million in assets or, if greater, they do not offer demand deposits,²⁰ or
3. There has been no change in control since 1987.

In addition, in 1999, some firms that could have owned a single (unitary) thrift institution were brought under the restrictions of the Savings and Loan Holding Company Act (SLHCA) by the Gramm–Leach–Bliley Act. However, such firms may have preferred an ILC because, unlike a thrift institution, an ILC is not subject to the qualified lender provision, which effectively requires thrifts to hold a minimum percentage of mortgage loans in their portfolios.²¹

Seven states that charter ILCs satisfy the federal deposit insurance requirement of CEBA. They are California, Colorado, Hawaii, Indiana, Minnesota, Nevada, and Utah. A number of companies that wanted to escape the restrictions of the BHCA or SLHCA chose to purchase or organize ILCs in these states, primarily in Utah, California, and Nevada, or to grow existing ILCs faster than they would have otherwise.

ILCs originated in the early 1900s as small depository institutions, aimed primarily at the financial needs of low- and moderate-income households that were not being well served by existing larger financial institutions. They differed little either in mission or in operation from other consumer-oriented smaller financial institutions of the day, such as Morris Plan banks and credit unions.²² They were chartered only at the state level, but could generally branch across state lines. ILCs remained relatively small until the end of the 1990s when their aggregate asset size jumped dramatically, even though they declined in number. Although the FDIC has insured Morris Plan banks since the FDIC’s establishment in 1934, ILCs became eligible for FDIC insurance only in 1982, after the enactment of the Garn–St Germain Act.

Since the enactment of CEBA in 1987, when the ability of firms to avoid the BHCA restrictions by owning banks that either did not take demand deposits or did not make business loans was terminated, aggregate assets at federally insured ILCs increased from less than \$5 billion to more than \$150 billion by year-end 2006. All but \$15 billion of this increase occurred since 1998, when the ability of additional firms to avoid the restrictions of the SLHCA by owning only one thrift institution (unitary thrift holding companies) was terminated by the Gramm–Leach–Bliley Act of 1999. Despite their rapid growth, ILCs account for less than 2 percent of total assets at FDIC insured institutions.²³

At the same time, the number of federally insured ILCs declined sharply from 105 to 59.²⁴ Only three of the largest 15 ILCs in 1987 remained active in 2006. By far, the largest increase in ILC assets in this period occurred in Utah, which increased its market share of national ILC assets from 11 percent to 82 percent by 2004.²⁵ Both the rapid growth of ILCs in total and the particularly rapid growth in Utah can be explained in part by changes in Utah’s legislation and the state’s supportive regulatory environment for ILCs.²⁶ In 1986, Utah put a moratorium on new ILC charters after a number of ILCs had experienced significant financial difficulties that required some \$45 million of state assistance to meet their depositor claims. The moratorium was lifted in 1997 after the industry regained its financial health, and the number of charters grew from 18 to 33 by June 30, 2006. Total assets also grew from \$18 billion in 1997 to \$133.8 billion in 2006.²⁷ Over the same period, the size of the individual institutions has also changed greatly. In 1987, the largest Utah chartered ILC had \$290 million in assets.²⁸ At year-end 2006, the largest ILC in Utah reported assets of \$67 billion.²⁹

While most ILCs are relatively small, seven had assets in excess of \$10 billion at year-end 2006 and ranked among the largest 125 FDIC insured depository institutions of the nearly 9,000 such institutions in the country. (A listing of the largest 15 ILCs by asset size at year-end 2006 is shown in table 3.) All but three of these were chartered in Utah. The industry is also highly concentrated. In mid-2006, the largest ILC accounted for 40 percent of all assets in the industry and the five largest accounted for about 75 percent of the industry's total assets.³⁰

Contrary to their earlier days, few of today's larger ILCs are independent community-oriented institutions. Although large ILCs are prohibited from taking demand deposits, the current powers of ILCs are not greatly different in most states from those of commercial banks; many ILCs operate as limited service or specialized lending institutions.

ILC parent holding companies represent a wide range of financial and nonfinancial firms, and the activities of their subsidiary ILCs are directed at an equally broad range of economic sectors that may or may not be associated with the primary activities of the parent. The largest four ILCs are owned by major financial firms, including one of the largest commercial banks in the world. The largest ILC, Merrill Lynch Bank USA, is owned by the investment banking firm

of Merrill Lynch. It focuses on securities-based consumer loan products as well as consumer and business loans. The bank also makes first and second mortgage loans, as well as community development loans and investments to satisfy its Community Reinvestment Act (CRA) responsibilities.³¹ The next largest ILC focuses on loans to high wealth households, and the third on loans generated through general credit cards originated by its parent firm.

Some ILCs are owned by financial firms or by firms that are not otherwise generally prohibited from owning a bank. Other ILCs are owned by nonfinancial firms that use their ILCs to finance the sales of goods they either manufacture or sell or to finance unrelated activities. These firms could not own commercial banks under the current provisions of the BHCA. According to their websites and Community Reinvestment Act reports, Volkswagen owns an ILC that finances primarily indirect automotive, home equity, and credit card loans. Until recently General Motors (GM) owned General Motors Acceptance Corporation (GMAC), which in turn owned two Utah ILCs, one of which focuses on commercial mortgage loans and the other on automotive loans. The GMAC Automotive Bank was the fifth largest ILC in 2006. In November 2006, in an exception to its moratorium, the FDIC permitted a change in ownership of the larger of the two ILCs

TABLE 3
Fifteen largest industrial loan companies, by asset size, 2006

Rank	ILC	Parent holding company	State chartered	Year		Total assets 2006 (\$ billion)
				Chartered	Federally insured	
1.	Merrill Lynch Bank USA	Merrill Lynch	Utah	1988	1988	67.2
2.	UBS Bank USA	UBS	Utah	2003	2003	22.0
3.	American Express Centurion Bank	American Express	Utah	1989	1989	21.1
4.	Morgan Stanley Bank	Morgan Stanley	Utah	1990	1990	21.0
5.	GMAC Automotive Bank	General Motors	Utah	2004	2004	19.9
6.	Fremont Investment and Loan	Fremont General Corp.	California	1937 ^a	1984	12.9
7.	Goldman Sachs Bank	Goldman Sachs	Utah	2004	2004	12.6
8.	USAA Saving Bank	USAA Life Co.	Nevada	1996	1996	5.8
9.	Capmark Bank (formerly GMAC Commercial Mortgage Bank)	Cerberus Capital Management Consortium	Utah	2003	2003	3.8
10.	Lehman Brothers Commercial Bank	Lehman Brothers	Utah	2005	2005	3.2
11.	CIT Bank	CITGroup	Utah	2000	2000	2.8
12.	BMW Bank of North America	BMW Group	Utah	1999	1999	2.2
13.	GE Capital Financial Inc.	General Electric	Utah	1993	1993	2.0
14.	Advanta Bank Corp.	Advanta	Utah	1991	1991	2.0
15.	Beal Saving Bank	Beal Financial Group	Nevada	2004	2004	1.9

^aOriginally chartered ILC was purchased by Fremont General in 1990.
Sources: iBanknet and Federal Deposit Insurance Corporation.

owned by GM, which was undergoing major restructuring, to a consortium of four financial institutions. BMW uses its Utah ILC to finance sales of BMW automobiles and motorcycles, and the retailer Target uses its Utah ILC to finance its in-house credit card sales for small business customers.

The wide variety of both ownership and business lines of ILCs is reflected in the eight types of business models into which the two principal ILC trade groups divide the industry: 1) ILCs owned by securities companies, 2) ILCs owned by commercial finance companies, 3) ILCs owned by consumer finance companies, 4) ILCs owned by a commercial company conducting an independent core financial services business, 5) commercially owned ILCs offering financial services to customers of the corporate group that are not affiliate transactions, 6) ILCs owned by a commercial company that finance transactions with affiliates subject to the restrictions in Sections 23A and 23B of the

Federal Reserve Act and the anti-tying provisions of the Bank Holding Company Act, 7) ILCs owned by title insurance holding companies, and 8) independently owned ILCs.³² A brief description of each business model and an ILC example are shown in table 4.

Primarily because of the rapid growth of ILCs in recent years and the ongoing controversy surrounding Wal-Mart itself, its application for required FDIC insurance for its proposed ILC in Utah attracted immediate attention and widespread opposition from many bankers, retailers, and policymakers, including members of Congress. The opposition arose despite Wal-Mart's stated intentions in the application of not engaging in full-service banking, but only in credit and debit card and fund transfer (payments system) operations. At its filing, the application raised at least two important public policy issues:

1. Should a decision to increase the mix between banking and commerce be made administratively

TABLE 4

ILC business models

Business model	Description	ILC example
Banks owned by securities companies	Provide commercial and consumer credit to customers of securities companies	Merrill Lynch Bank USA
Banks owned by commercial finance companies	Provide commercial loans to customers that are not customers of an affiliate	Advanta Bank
Banks owned by consumer finance companies	Provide credit cards and other forms of consumer credit and services to customers that are not customers of affiliates	American Express Centurion Bank
Banks owned by a commercial company conducting an independent core financial services business	Provide traditional banking services to customers that are not customers of affiliates	GE Capital Financial
Commercially owned banks offering financial services to customers of the corporate group that are not affiliate transactions	Provide credit and financial services to customers of owner	BMW Bank of North America
Banks owned by a commercial company that finances transactions with affiliates subject to the restrictions in Sections 23A and 23B of the Federal Reserve Act and the anti-tying provisions of the Bank Holding Company Act	Provide credit to customers of affiliates (credit and services are subject to the covered transaction rules)	Target Bank
Banks owned by title insurance holding companies	Provide financial services	First Security Thrift
Independently owned banks	Provide financial services (owners not engaging in commercial activities prohibited by bank holding company rules)	Celtic Bank

Source: Utah Association of Financial Services and California Association of Industrial Banks (2006).

by a regulatory agency within the authority Congress granted it, or should it be made legislatively by Congress in the light of the changed circumstances described earlier?, and

2. Are the current regulatory prudential powers of the FDIC sufficient for consolidated supervision of ILC holding companies relative to the prudential powers of the Federal Reserve for bank (financial) holding companies under the BHCA?

Because Wal-Mart was not the first large nonbank firm to have received or applied for FDIC insurance for an ILC or even the first large commercial firm—only the most controversial—these two issues were not necessarily muted by the withdrawal of the application. As discussed earlier, large firms, such as Merrill Lynch, General Motors (until recently), BMW, and Target all own ILCs. Home Depot has an insurance application pending, but action on it has been delayed by the moratorium.

Public policy issues

The mixing of banking and commerce

The mixing of banking and commerce in “universal” banks, as exists in many countries, has long been controversial in U.S. banking history. Most state charters for banks and the federal charter for national banks limit the activities of banks to accepting deposits and making loans, but permit other services viewed as incidental to banking. This was generally interpreted by regulators as prohibiting the banks from engaging in some financial activities, such as insurance underwriting and real estate brokerage, and all nonfinancial activities. Until the enactment of the BHCA in 1956, these limitations were not generally applied to bank holding companies, so that commercial firms could own banks. Thus, Ford Motors and Sears, among other large nonfinancial firms, operated banks. But, as discussed earlier, growing fears in the 1950s that such combinations could lead both to excessive economic and social power and to potential conflicts of interest favoring sellers resulted in the enactment of the BHCA in 1956 and its expansion in 1970. Since then, the thrust of legislation, which often is preceded by changes in the marketplace, has reversed. The financial powers of BHCs have been expanded significantly, most recently in the Gramm–Leach–Bliley (Bank Modernization) Act of 1999, and the nonfinancial powers have been expanded moderately. However, unlike ILCs, commercial banks may still not be owned by commercial firms.

Two questions appear to arise going forward. First, the ILC industry has changed dramatically since 1987, when ILCs were first specifically exempted from the restrictions of the BHCA primarily because they were

small and insignificant on a national scale. Thus, it may reasonably be asked whether this issue has now become sufficiently important that further piercing of the separation of banking and commerce is too important to leave to the regulatory agencies by default.³³ Rather, does it now deserve a review by Congress?³⁴ Indeed, in her explanation for the one-year extension of the moratorium on granting insurance to additional ILCs owned by commercial firms in January 2007, the FDIC Chairman, Sheila Bair, noted that “The moratorium will provide Congress with an opportunity to address the issue legislatively.”^{35,36}

In particular, it may be asked if Congress would have specifically exempted ILCs from the BHCA in earlier years had some of the institutions been as large then as they are today? For example, the largest ILC in 1987 had total assets of only some \$400 million. Indeed, only one of the current largest 15 ILCs was chartered and federally insured before 1987. It is effectively a new industry. In testimony at the FDIC’s open hearing on the Wal-Mart application, former Senator Garn, who sponsored the exemption in 1987, stated that he had not intended for ILCs to move into the retail banking business and now opposes such expansion.³⁷ Moreover, if after review, Congress determined that increased mixing of banking and commerce is desirable, should this be limited to ILCs, or should it be extended to all bank and financial holding companies to level the playing field?³⁸

Second, by 1999, when Congress last retained the ILC exemption by broadening it slightly, the ILC industry had already begun a rapid expansion. The largest ILC, owned by American Express, had assets in excess of \$15 billion, and four other ILCs had assets in excess of \$2 billion each; one of these was owned by a commercial firm. Thus, if Congress was not sufficiently concerned at the time, and has taken no action since, some may question whether it is appropriate for a regulatory agency to delay approval of applications that are not in conflict with existing law until Congress acts. Indeed, some have suggested that, in this instance, the issue goes beyond whether the mixing of banking and commerce is appropriate and may be an issue with Wal-Mart per se.³⁹ Wal-Mart is the world’s largest retailer with an extensive distribution network and a perception as utilizing aggressive marketing and labor practices.⁴⁰

Indeed, an application for a Utah chartered ILC by large retailer Target in 2004 was viewed as sufficiently routine by the FDIC to be approved at the staff level rather than by the FDIC’s board of directors.⁴¹ Nor did the approval of the application ignite much public opposition. In contrast, Wal-Mart’s application

to the FDIC attracted nearly 14,000 written letters, including 150 from members of Congress, almost all opposed to the application, and caused the FDIC to schedule three days of open hearings that attracted some 70 witnesses, again almost all opposed.⁴²

Although Wal-Mart has withdrawn its application, there is some concern that, in the absence of congressional action, it may reapply in the future, after the expiration of the moratorium. Wal-Mart has recently established a full-service bank in Mexico and has announced its intentions to offer a wide range of non-bank financial services at its U.S. stores.

The FDIC's prudential authority over ILCs

Because ILCs are state-chartered FDIC insured institutions and none have chosen to be members of the Federal Reserve System, their primary federal regulator is the FDIC. In addition, they are regulated by the banking agency in the state in which they are chartered. All three federal regulators of commercial banks—the Comptroller of the Currency, the Federal Reserve, and the FDIC—have effectively the same statutory prudential authority for the banks they supervise. But this is not necessarily true for their authority over parent holding companies of these banks. The Federal Reserve has clear authority under the BHCA to supervise and examine bank holding companies, as defined in the act, on a consolidated basis.⁴³ This would include the operation of the parent holding company, subsidiary banks, and any subsidiary nonbank firms. The underlying justification for such consolidated supervision is that these entities are usually managed in terms of risk exposures on a centralized or consolidated basis, so that full understanding of the risk exposure of any one component of the entity requires knowledge of all components combined.

Consolidated top-down supervision is widely viewed as necessary despite the fact that Federal Reserve regulations 23 A and B limit the amount of transactions between the bank and the other affiliates of the holding company and require that permissible transactions be priced on an “arm’s length” basis. These regulations attempt to isolate the bank subsidiary from the other components of the holding company, so that the bank more closely resembles an independent, free-standing institution. A recent study (table 5) by the federal government’s Government Accountability Office (GAO) compared the current statutory consolidated supervision powers of the FDIC and Federal Reserve (as well as the Office of Thrift Supervision for parent holding companies of savings and loan associations) and found the FDIC’s weaker.⁴⁴

For example, with limited exceptions, the FDIC focuses on the ILC itself rather than the parent on a

consolidated basis—a bottom-up approach. The FDIC generally examines or imposes sanctions and enforcement actions on the parent company or its non-ILC affiliates only if it is concerned about the financial condition of the insured ILC. Thus, for example, the FDIC recently issued a cease and desist order against the Fremont Investment and Loan (an ILC) in California and its parent holding companies for problems at the ILC related to its underwriting of subprime mortgage loans without noting either the large losses simultaneously experienced for the same reason by the parents or requiring similar changes to be made by them as at the subsidiary ILC.⁴⁵ Major differences in the explicit supervisory powers of the federal agencies over parent holding companies of insured depository institutions according to the GAO are shown in table 5.

To some, the more limiting powers over parent holding companies may hamper the FDIC’s ability to evaluate and protect the safety and soundness of ILCs. Partially in recognition of this concern, the FDIC announced in its extension of the moratorium that it had proposed a regulation that would provide for enhanced supervision of ILC parent holding companies that engage only in financial activities to ensure their ability to provide financial support to their institutions and require them to maintain the capital of the ILC at a specified minimum level.⁴⁶ This proposal is still pending. The proposal did not include parent holding companies that engage in nonfinancial activities, pending additional study by both the FDIC and Congress.

Recent developments

In May 2007, the House of Representatives passed the Industrial Bank Holding Company Act of 2007 that would prohibit any firm that receives more than 15 percent of its annual gross revenues on a consolidated basis from nonfinancial activities from owning or controlling an ILC. On October 4, 2007, the Senate Banking Committee held hearings on Senate Bill 1356, which is identical to the House bill. Firms that owned an ILC before January 28, 2007, were generally grandfathered. But, an ILC subsidiary of a commercial firm that did not own the subsidiary before 2003 cannot engage in activities in which it did not engage in on January 28, 2007, or operate branches in states in which it did not operate branches on that date. The act would also broaden the FDIC’s authority to examine and require reports from the ILC parent holding company and affiliates and to enforce sanctions and capital standards on the ILC parent holding company and affiliates. This change would bring the regulatory environment for ILC holding companies into greater conformity with that for

TABLE 5

Comparison of explicit supervisory powers of the FDIC, Federal Reserve Board, and OTS

Description of explicit supervisory authority	FDIC ^a	Board	OTS
Examine the relationships, including specific transactions, if any, between the insured institution and its parent or affiliates.	● ^b	● ^b	● ^b
Examine beyond specific transactions when necessary to disclose the nature and effect of relationship between the insured institution and the parent or affiliate.	● ^b	● ^b	● ^b
Examine the parent or any affiliate of an insured institution, including a parent or affiliate that does not have any relationships with the insured institution or concerning matters that go beyond the scope of any such relationships and their effect on depository institution.	○	● ^b	● ^b
Take enforcement actions against the parent of an insured institution.	⊙ ^{b,c}	● ^b	● ^b
Take enforcement actions against affiliates of the insured institution that participate in the conduct of affairs of, or act as agents for, the insured institution.	⊙ ^b	● ^b	● ^b
Take enforcement actions against any affiliate of the insured institution, even if the affiliate does not act as agent for, or participate in the conduct of, the affairs of the insured institution.	○	● ^b	● ^b
Compel the parent and affiliates to provide various reports such as reports of operations, financial condition, and systems for monitoring risk.	⊙ ^{b,d}	● ^b	● ^b
Impose consolidated or parent-only capital requirements on the parent and require that it serve as source of strength to the insured depository institution.	⊙ ^d	● ^b	● ^b
Compel the parent to divest of an affiliate posing a serious risk to the safety and soundness of the insured institution.	⊙ ^e	● ^b	● ^b

● Explicit authority.

⊙ Less extensive authority.

○ No authority.

^aFDIC may examine an insured institution for interaffiliate transactions at any time and can examine the affiliate when necessary to disclose the transaction and its effect on the insured institution.

^bThe authority that each agency may have regarding functionally regulated affiliates of an insured depository institution is limited in some respects. For example, each agency, to the extent it has the authority to examine or obtain from a functionally regulated affiliate, is generally required to accept examinations and reports by the affiliates' primary supervisors unless the affiliate poses a material risk to the depository institution or the examination or report is necessary to assess the affiliate's compliance with a law the agency has specific jurisdiction for enforcing with respect to the affiliate (for example, the Bank Holding Company Act in the case of the Board). These limits do not apply to the Board with respect to a company that is itself a bank holding company. These restrictions also do not limit the FDIC's authority to examine the relationships between an institution and an affiliate if the FDIC determines that the examination is necessary to determine the condition of the insured institution for insurance purposes.

^cFDIC may take enforcement actions against institution-affiliated parties of an ILC. A typical ILC holding company qualifies as an institution-affiliated party. FDIC's ability to require an ILC holding company to provide a capital infusion to the ILC is limited. In addition FDIC may take enforcement action against the holding company of an ILC to address unsafe or unsound practices only if the holding company engages in an unsafe and unsound practice in conducting the affairs of the depository institution.

^dFDIC maintains that it can achieve this result by imposing an obligation on an ILC holding company as a condition of insuring the ILC. FDIC also maintains it can achieve this result as an alternative to terminating insurance. FDIC officials also stated that the prospect of terminating insurance may compel the holding company to take affirmative action to correct violations in order to protect the insured institution. According to FDIC officials, there are no examples where FDIC has imposed this condition on a holding company as a condition of insurance.

^eIn addition to an enforcement action against the holding company of an ILC in certain circumstances (see note b), as part of prompt corrective action the FDIC may require any company having control over the ILC to 1) divest itself of the ILC if divestiture would improve the institution's financial condition and future prospects, or 2) divest a nonbank affiliate if the affiliate is in danger of becoming insolvent and poses a significant risk to the institution or is likely to cause a significant dissipation of the institution's assets or earnings. However, the FDIC generally may take such actions only if the ILC is already significantly undercapitalized.

Notes: FDIC is the Federal Deposit Insurance Corporation. OTS is the Office of Thrift Supervision.

Source: Hillman (2006), pp. 15–16.

BHCs and give the FDIC powers over ILC holding companies more similar to those the Federal Reserve has over BHCs.

Wal-Mart withdrew its application to operate an ILC, but not its intention to engage in a wide range of bank-like activities for which a bank charter is not

required. It has announced its intention to open “money centers” in its stores that will offer, among other financial products, low-cost prepaid stored-value cards as well as check cashing and money transfer (remittance) services. In addition, it will offer a Wal-Mart branded Visa debit card through a third party bank vendor.

Payroll and social security checks could be directly transmitted by customers to Wal-Mart to be added to the stored-value card or to support the debit card. This is intended to increase both safety and convenience over currency transfers. Through time,

Wal-Mart has expressed intentions to add additional financial services directed largely at low-income “unbanked” customers.⁴⁷

NOTES

¹In some states, Utah, for example, industrial loan companies are referred to as industrial banks. The Wal-Mart application was initially filed in Utah for a charter in July 2005 and simultaneously with the FDIC for insurance. The FDIC application was withdrawn in March 2007. See Wal-Mart Stores, Inc. (2005).

²FDIC (2007b).

³Fitch (2000), p. 40.

⁴Depository institutions are one of the few types of corporations that may be chartered by either the federal government or the home state.

⁵National Bank Act, Chapter 106, Section 8, June 3, 1864, 13 Stat. 99, codified at 12 USC §24.

⁶Volcker (1987), p. 200.

⁷This section draws on Di Clemente (1983).

⁸Federal Reserve Act, 63rd Cong. Chapter 6, Section 1, December 23, 1913, 38 Stat. 251.

⁹Bank Holding Company Act of 1956, Senate report, No. 84-1095, July 25, 1955, pp. 1–4.

¹⁰The separation of banking and commerce was not complete. BHCs were permitted limited investment in nonfinancial firms. A review of the permissible nonfinancial activities of banks appears in Haubrich and Santos (2003).

¹¹Bank Holding Company Act of 1956, Ch. 240, 70 Stat 133, Section 2(c). May 9, 1956.

¹²Ibid. Companies that owned or controlled savings and loan associations and other thrift institutions insured first by the Federal Savings and Loan Insurance Corporation (FSLIC) (and then the FDIC) were not defined as bank holding companies and were initially not subject to any restrictions. After the enactment of the Savings and Loan Holding Company Act (SLHCA) in 1967, those companies, for a time, were subject to lesser restrictions until 1999, when the BHCA and SLHCA became more comparable.

¹³Public Law 89-485, Section 3(c), July 1, 1966, 80 Stat. 236.

¹⁴S. Rep. No. 1179, 89th Cong., 2d Sess. 2391 (1966).

¹⁵Bank Holding Company Act of 1970 (Public Law 91-607), Sect. 2(c), December 31, 1970, 84 Stat. 1760.

¹⁶Competitive Equality Banking Act of 1987, PL100-86, Sect. 101, August 10, 1987, 101 Stat 552.

¹⁷Volcker (1987), p. 200.

¹⁸Comment submitted by Wal-Mart to the FDIC, October 10, 2006, Appendix 1, p. 40, available at www.fdic.gov. Wilmarth (2007, p. 1572), however, argues that Senator Garn’s cosponsor was Senator William Proxmire of Wisconsin rather than Senator Cranston.

¹⁹If the parent holding company also owns a thrift institution, the company is subject to regulation by the Office of Thrift Supervision as a savings and loan holding company.

²⁰This may not be overly restrictive since large ILCs may offer consumer NOW accounts, which resemble demand deposits.

²¹12 USC § 1467(a)(m)(1).

²²For additional information about and the history of Morris Plan banks, see http://eh.net/encyclopedia/article/philips.banking.morris_plan.

²³Hillman (2006), pp. 5–7. Jones (2006).

²⁴There are apparently many more small ILCs that are not federally insured, not included in the federal statistics, and not exempt from the restrictions of the BHCA. Weiss (2007).

²⁵Government Accountability Office (2005), p. 20.

²⁶Sutton (2002).

²⁷State of Utah, Commissioner of Financial Institutions (2006).

²⁸State of Utah, Commissioner of Financial Institutions (2006). State of Utah, Commissioner of Financial Institutions (1987).

²⁹See www.ibanknet.com (financial reports of industrial loan companies).

³⁰Hillman (2006).

³¹Public Disclosure, January 10, 2006, Community Reinvestment Act Performance Evaluation, Merrill Lynch Bank USA, available at www.FDIC2.gov/crapes.

³²Utah Association of Financial Services and the California Association of Industrial Banks (2006), pp. 11–13. See also Weiss (2007).

³³For a summary of the public policy issues in mixing banking and commerce see Haubrich and Santos (2003), Blair (2004, 2007), and Ergungor and Thomson (2006).

³⁴An analogous situation may be the demise of the controversial restrictions on underwriting and trading in private securities by banks and bank holding companies introduced in the Banking (Glass–Steagall) Act of 1933. In response to changing economic conditions and in the absence of congressional action, the Board of Governors and the other bank regulatory agencies slowly started to permit bank holding companies into these activities in 1982 through administratively liberalizing the interpretation of the restrictive language in the act for subsidiaries authorized in Section 20 of the Federal Reserve Act. Congress ultimately enacted liberalizing legislation in the Gramm–Leach–Bliley Act of 1999. For a history of these issues see Kaufman and Mote (1989, 1990).

³⁵FDIC (2007c).

³⁶The FDIC has approved a number of applications for insurance since the adoption of the moratorium from firms that it considers as financial or that propose activities by ILCs that are complementary to financial activities and thus are not covered by the moratorium. The extension of the moratorium applies only to ILCs to be owned by commercial firms and not by nonbank financial firms, which do not involve a mixing of banking and commerce.

³⁷Wilmarth (2007), p. 1572

³⁸Since the initial adoption by the FDIC in July 2006 of the moratorium on new and pending applications for federal deposit insurance for both new and existing ILCs undergoing a proposed change in control, assets at ILCs as a whole have increased sharply. In the six months before the moratorium, assets at the 25 largest ILCs at year-end 2006 increased by some \$12 billion from \$145 billion at year-end 2005 to \$157 billion at midyear 2006, or 8 percent. In the six months following the moratorium, assets at these ILCs jumped by \$51 billion, or fully 32 percent.

Most of this unusual spurt in asset size can be attributed to three ILCs—two are owned by nonbank financial firms and the third received special permission from the FDIC for a change in control from GMAC to a consortium of four financial firms in anticipation of a major restructuring of General Motors. The asset jump at these ILCs may have been precautionary, in case Congress limited the ILC exemption to the ownership restrictions of the BHCA. If so, these ILCs may have anticipated that, as frequently is the case, existing ILCs would be grandfathered but their future growth would be restricted.

³⁹Featherstone (2005).

⁴⁰Jorde (2003, 2006). This was not Wal-Mart's first attempt to establish and operate a bank or thrift institution. It had previously attempted to obtain a thrift institution in Oklahoma in 1998 and an ILC charter in California in 2002, but was denied first by the enactment of the

Gramm–Leach–Bliley Act in 1999, which ended the unitary thrift exemption, and then by enactment of restrictions on commercial firm ownership of California chartered ILCs by the California state legislature. It currently leases space to branch offices of some 300 independent banks in more than 1,000 of its stores. But an earlier attempt in 2001 to have its own employees man such branch offices and share in the proceeds with a chartered thrift institution was denied by the Office of Thrift Supervision (Nolan, 2006).

⁴¹Adler (2007a).

⁴²Wilmarth (2007), pp. 1545–1546. In addition, as of January 2007, five states had enacted legislation since the Wal-Mart application in Utah to prevent Utah chartered ILCs from branching further into their states, and another five were considering such legislation. (Adler, 2007b).

⁴³The Office of Thrift Supervision (OTS) has similar consolidated supervisory authority for savings and loan holding companies. As of year-end 2006, eight of the 15 largest ILCs holding 71 percent of the assets of these ILCs were owned by parent companies that also owned a thrift institution and thus were classified as savings and loan holding companies and subject to OTS consolidated supervision (Reich, 2007).

⁴⁴Hillman (2006). This has also been argued by Federal Reserve officials (Kohn, 2007).

⁴⁵FDIC (2007a).

⁴⁶FDIC (2007c). However, this still leaves them with weaker consolidated supervisory powers relative to the Federal Reserve. Equating the two would require congressional action.

⁴⁷McWilliams (2007) and Barbaro and Dash (2007).

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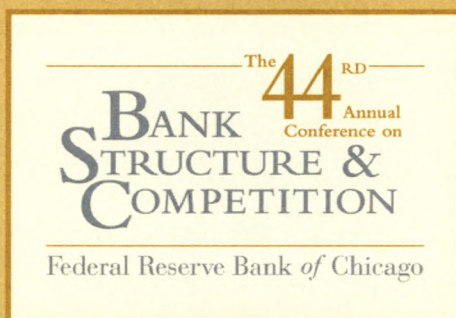
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