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Risk and Market Structure under Tariff Volatility

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Executive Summary

The theory about reducing risk via portfolio diversification is so well-known that it has become financial conventional wisdom. Less well-known is the economic theory about partners along a supply chain and why partnering is more efficient than doing it all on your own. "How do firms choose trade partners?" is not an easy question to answer, but, as it turns out, is related to the theory of portfolio diversification. Understanding both of these theories is important to understanding how trade agreements impact market structure.[1]

Firms interacting with each other along a supply chain–taking advantage of the benefits of specialization–reduces transactions costs. The profitability of value-added products is incentivized in these supply-chain relationships as trust along the chain increases.[2] Contracts, especially those that are long established and with legally enforceable provisions, increase trust. With binding contracts, firms are able to meet the needs of other actors along the supply chain and tailor their products for specific needs thus increasing the value of the good.

What happens when the contracts cannot be relied upon? Two possibilities emerge. When partnerships become unreliable, to mitigate risk firms either 1) go looking for other partners or 2) try to manage more of their supply chain internally.

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[1] The writings of Knight (1921), Coase (1937; 1960), Simon (1951), Debreu (1959), and Arrow (1969; 1974; 1987) demonstrate how economists have long thought about why a supply chain, international or domestic, even exists. Imagine a modern supply chain with different firms located on each of the nodes as one moves from, say, farm to fork. Some supply chains have hundreds of firms at each node, some nodes only have a handful of businesses. Some firms interact by searching for the lowest cost inputs while others negotiate and manage their trades via contracts. A firm could control every facet of research, development, production, processing, transportation, marketing and delivery of a good. Legalities aside, most firms do not do that because most firms are not very good at it. If you are not good at managing every node of a supply chain, your costs will be high somewhere along that chain. Most firms interact with firms who are better at managing some part of the supply chain.

[2] See Foss et al. (1999), Goodhue (2011), and Crespi and Saitone (2022).

Introduction

Increasing the number of investments mitigates the risk of a financial portfolio (to a point) with a tradeoff between increasing investments to reduce risk and achieving higher returns.[3] Increasing the number of business partners in a competitive market, if you can find those partners, mitigates supply risk in the same way. Under portfolio theory, risk consists of systematic risk that might impact all firms and unsystematic risk that impacts one (or a few) firm(s) but not others. Losing a contract with one firm is unsystematic risk and that type of risk is diversifiable if you can find other firms with which to do business. Moving away from long-term contracts with one or two players and towards more one-off, short-term, spot market transactions is a way of mitigating the risk in the absence of contracts. Alternatively, a firm can try to manage those risks by taking on a greater role in its supply chain, but this is costly as well. Without contracts, firms' risk management choices become smaller.

As discussed in Williamson (1971; 1975; 1985; 1991), spot markets work best if transactions costs are low, there are many firms with which to interact, and products are mostly interchangeable. However, as transactions costs go up and, especially, as buyers want firms to supply consistently higher quality products, contracts become more efficient. Later, if value added becomes even more profitable, a firm may need to control the entirety of its supply line—that is when you will see an end of contracting and move toward vertical integration along the supply chain. Williamson's contribution to the understanding of the use of contracts is in his recognition that what is driving the transactions costs (and the demarcation between sourcing supplies either via spot markets or contracts or vertical integration) is the firm's need for better and more specific quality or, as he described it, the need to invest in "specific assets."

The industrial structure of a market concerns how firms interact with each other. Williamson's theory is presented in figure 1.[4] The horizontal axis, *K*, represents levels of specific assets with higher levels of *K* meaning assets used in production are very specific to a buyer's needs. Think of GMO or hybrid seed specific to a buyer or livestock of a specific grade or quality, for example. As discussed in Crespi and Saitone (2018) specific assets can be specialized techniques, genetics, feed, gestation needs, housing, processing, food safety technologies or testing, logistics including specific dates or methods of delivery, traceability, even site specificity. The reason to invest in the specific asset is because it is valuable to the firm with whom you are buying or selling. The reason not to invest in it, is because of the risk a partner will abandon you and a new partner may not need the feature you produce. Asset specificity (*K*) dictates industrial structure by affecting transaction costs.

Figure 1 shows three types of industry structures to secure an input: spot markets, contracts, and vertical integration. Figure 1's vertical axis, "Transactions Costs," illustrates that costs increase with *K* for each type of industry, but not at the same rates. Spot costs are only lowest for very low levels of specific assets. Firm costs from vertical integration are only lowest for very high costs of specific assets. Contracting costs are lowest at a region in between the other two industry structures. This is why some markets rely almost entirely on spot transactions, others rely almost entirely on contracts, and a few are integrated.

The lowest cost envelope determines the ideal firm organization:

Low *K*: Transactions occur in competitive spot markets.

High *K*: Parties merge into an integrated firm.

Intermediate *K*: Transactions are managed via contracts.

[3] "The portfolio with maximum expected return is not necessarily the one with minimum variance. There is a rate at which the investor can gain expected return by taking on variance, or reduce variance by giving up expected return," Markowitz (1952).

[4] This image is taken from Williamson's (1991) figure 1, in fact.

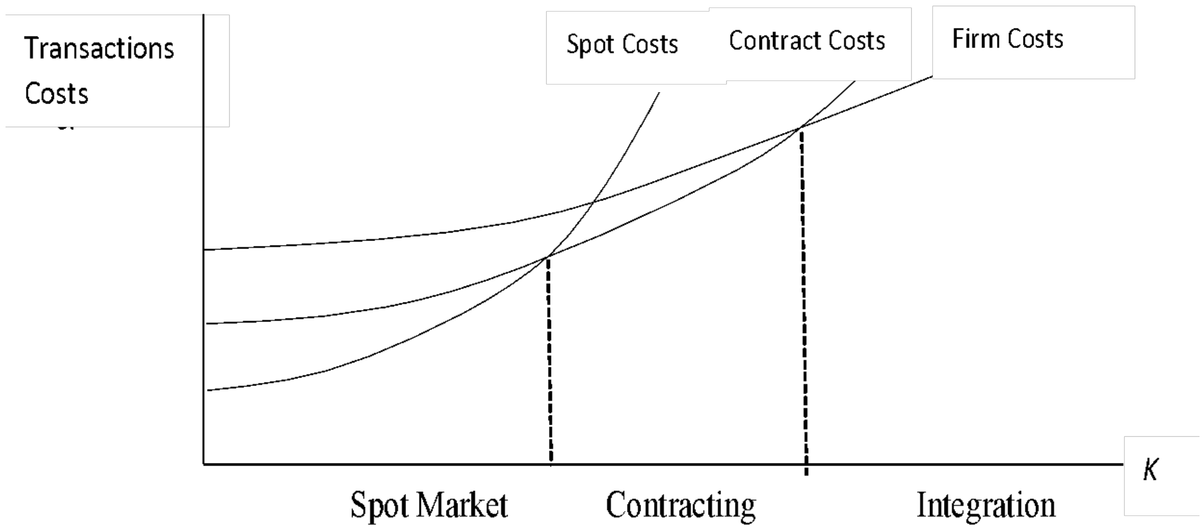

Figure 1. Market transactions and firm organization as a function of asset specificity.
Source: Williamson (1991).

What is important to see in figure 1 is that if contracting is taken away, then firms are left with two choices. The first is to reduce risk by having lower levels of specific assets and, hence, lower levels of quality. A firm does this through the portfolio approach, diversifying its risk via a move into the spot market and searching for more trade partners. The second choice is to integrate business-to-business transactions along the supply chain, to internalize the risk. The second choice may be costlier, but it may be that price premia make the move worth taking say in the case of securing or producing higher quality products. Either way, the reduction of contracting as a riskless choice changes the structure of the market.

What does this have to do with international trade? *Trade deals are contracts.*
If nations cannot rely on other nations via a legally binding, long-term trade deal, expect them to move toward either more deals with more nations (the "spot market" region of figure 1) or to reconfigure their supply chains and provide the products "in house" (the "integration" region of figure 1).

Spot Markets Versus Contracts? *Iowa crops before and after The Trade Expansion Act of 1962.*
Prior to the 1930s, protectionist trade policies around the globe contributed to a worldwide depression,[5] followed by a rise of authoritarianism, and the second world war. After the war, as the nations of the world took sides in what was to become the Cold War, leaders earnestly sought economic ties to bolster their political ones. The General Agreement on Tariffs and Trade (GATT) came into effect three years after the end of World War II, and for decades the world moved toward a more globalized network where tariff averages were much lower than the pre-war years with trade barriers mostly coming down and firms specializing in what they do best. An integrated world with trade negotiations becoming contractualized on longer and longer terms lowered the costs of specific assets by lowering their riskiness setting the stage for businesses to take advantage of comparative advantages–not only in hard-to-find products but in higher qualities of products because manufacturers could rely on their input needs.

You can see this impact in Iowa agriculture. Figure 2 shows acreages of twelve major crops grown in Iowa from 1909 to 2025. The year 1962 was of major importance to US globalization efforts because that is the year Congress allowed the president to enter multilateral tariff negotiations rather than slower bilateral

[5] The well-known United States' Smoot-Hawley Act of 1930, was just one of them.

agreements (the Trade Expansion Act of 1962). The Senate still must ratify an agreement, but the United States, as much of the rest of the world, was moving into an era where multilateral trade agreements were *en vogue*. Look at figure 2 before and after 1962 and you can see Iowa taking advantage of its comparative advantage in corn and soybean production. An argument that expansion of corn and soy had as much to do with farm bill policies favoring those crops misses the connection that the same people in Washington writing trade bills are also writing farm bills: the two polices work together.[6] With the riskiness of the spot markets removed due to trade agreements, world buyers could count on a steady supply of consistent quality agricultural commodities from the United States, and Iowa farmers could replace their portfolio risk management with trade contracts allowing them to invest in specific assets for the cultivation of higher value corn and soy.

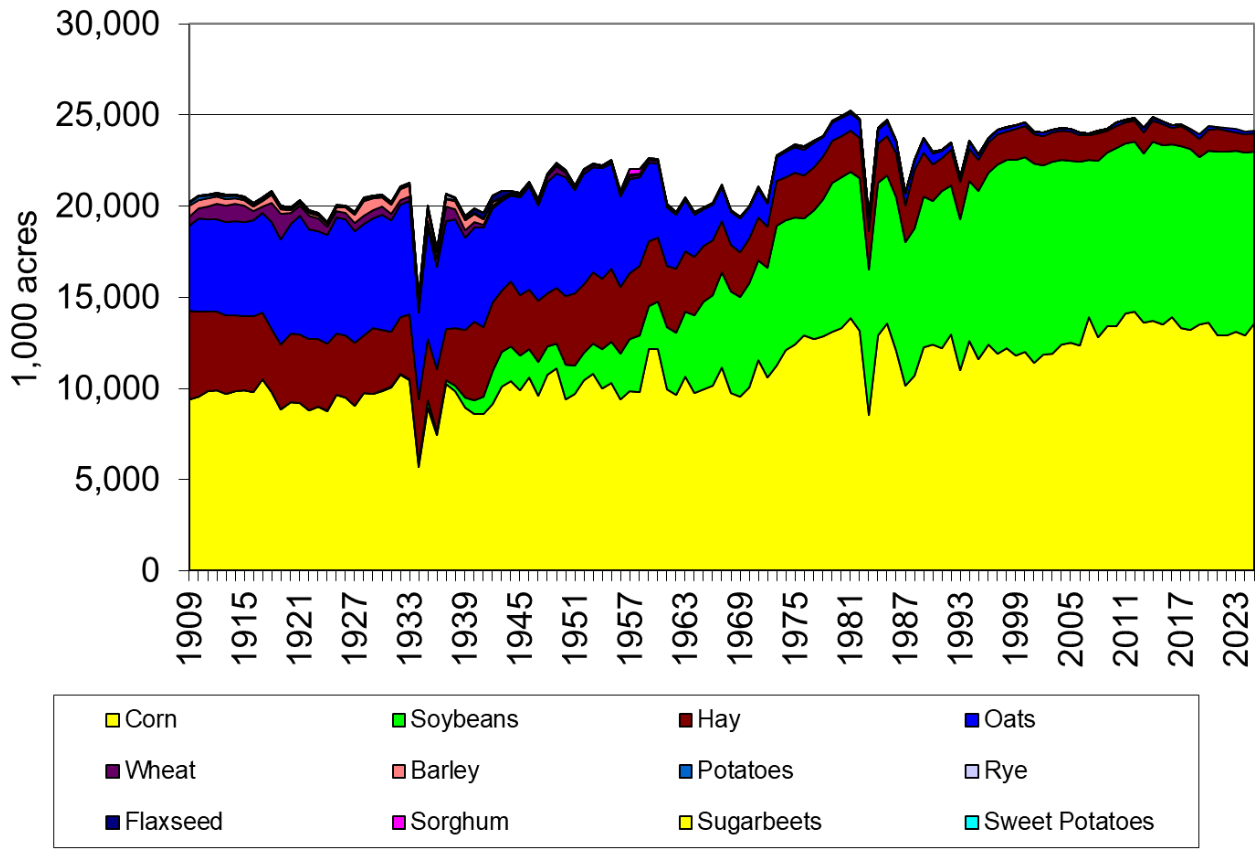

Figure 2. Iowa acreage devoted to specific crops, 1909–2025.
Source: Image created by Chad Hart using USDA-NASS, various years.

[6] Aside: soybeans, do not explicitly enter into the farm bills until the Food Security Act of 1985. Soybean exports precede the 1985 Farm Bill and it was almost immediately on the heels of the Trade Expansion Act of 1962 that the United States became a dominant player on the world soy market.

It is not Just about the Tariffs

Much discussion of the United States' 2025 trade re-negotiations has focused on the impacts of tariffs. Tariffs are important and a recent CARD Policy Brief examined their potential impacts on Iowa producers.[7] The goal of this current policy brief, however, is to explain that nullifying long-held contracts is no less pertinent, though much harder to quantify. Buyers and sellers may now find the transactions costs (not simply from the tariffs but also from the increased riskiness of US contracts) too high for the value of the products produced with specific assets.

Portfolio theory says some nations will seek more deals with other nations. This lowers value in two ways. First, it lowers returns by increasing search costs in order to diminish risk through portfolio diversification and, second, it lowers the value of competing goods because products now need to be more substitutable with other nation's products in the "spot market" region of figure 1. A processor cannot rely on consistent supply of a high grade from the United States, for example, and must adjust manufacturing to accommodate more diverse inputs. The EU's new proposals with Indonesia and the Mercosur nations fit a "need to diversify" story. The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP) show that many other nations find multilateral trade negotiations, without the United States, worth pursuing.

At the same time, buyers seeking high-valued inputs who may not readily find supplies will integrate into their supply chains and try to fill their needs on their own. China is arguably doing both more diversification and more integration—seeking more nations in South America to bolster its agricultural portfolio while investing in the supply chains of South America via capital expenditures and credit for roads, ports, transportation, land, and increased agricultural production (Baptista et al. 2025). Diversifying away from the United States or seeking to integrate along a supply chain are the actions of a "firm" that does not see tariffs as an increased, but necessary, part of its costs, but as a breakdown in the trustworthiness of its contracts.

In short, if contracts (which is what trade deals are) are taken out of the market structure equation, then importers from the United States are put in a position of reducing their risks by moving to the "spot" or to the "integration" regions of figure 1, or both. Either way, US exporters are left with fewer options.

[7] See Crespi et al. (2025).

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