

Inventory Management Review

Charles Atkinson on inventory management topics.

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The Risks of Being Just-In-Time

The following is a guest article written by Nick Koletic, an economics specialist at UCLA. In addition to giving a brief background on Just-In-Time inventory system's benefits, the article's main focus is the risks that JIT systems face.

Just-In-Time inventory (JIT) is part of a production system whereby a firm vastly reduces inventory from its production processes so that utilization of production inputs and delivery of finished products are accomplished without incurring significant holding costs. While JIT inventory systems are quite attractive for this reason, they are a double-edged sword. And though a JIT system might even be a necessity given the inventory demands of certain business types, its many advantages are realized only when some significant risks to healthy inventory management are mitigated.

JIT systems have several cost-cutting advantages. As Charles mentioned in his Dell Computer case study, JIT inventory systems, a "financial imperative" for Dell, can radically reduce holding costs. In the case of Dell Computers, this meant that the fewer finished computers Dell holds in inventory, the less money they lose per computer as they "rot" on a shelf.

In addition to these significant cuts in depreciation costs, which for Dell can be up to 1 percent per computer per week, JIT inventory can also cut storage costs. One can imagine how Toyota, a pioneer of JIT systems, might save on storage costs as their finished computers and cars no longer sit idle in warehouses awaiting customers. And these storage cost savings apply not only to these finished goods, but also to parts that Toyota might use as inputs in production. These inventories are kept at a minimum through JIT systems as parts are ordered as needed. JIT systems also cut delivery costs as finished products are shipped to where they are in demand. Shipping the same quantity of a product to different retail outlets, for example, might not make much sense if the demand for that good is significantly greater at one location relative to another. This approach to delivery cost savings also facilitates decreases in aforementioned holding costs by not overstocking certain locations with a product. The same principle holds for inputs in production; parts are not delivered and held at production centers where they might lay idle.

Some positive externalities may also result from a firm's decision to implement a JIT system. Suppliers of such a firm, for example, might then be able handle larger orders but fulfill them with smaller shipments. That is to say that for any given order size, supplying a customer that utilizes JIT is typically easier to do because individual shipments tend to be smaller for these customers and thus tend to be less demanding of the supplier. So it might be possible for suppliers, merely by the nature of their customers' JIT system, to greatly expand their ability to fill larger orders without having to increase production capacity.

Several factors, however, make JIT systems a risky proposition. A key concern here is the extent to which firms are dependent upon particular suppliers under such an inventory system. For example, if a firm were to commission a highly proprietary product to a single supplier (single suppliers being common in JIT), a JIT inventory system would put such a firm at an even higher risk of rip-off on behalf of the supplier because the firm would have no immediate inventory to buffer an interruption of supply. Such an interruption of supply might be so costly that the firm might just allow the supplier to overcharge the firm up to the cost of this interruption. This rip-off cost might completely cancel out or even exceed the savings that drove a firm to utilize a JIT inventory

system in the first place.

Even more dangerous are internal issues that might lead single suppliers to be unable to fulfill a firm's orders. In this case, the firm has no option but to incur the costs of an interruption of its production input supply. Internal issues might include, say, labor strikes on behalf of the supplier's employees in which labor unions could hold the supplier for ransom up to the amount of its pending orders, again leading to an interruption of the firm's supply of production inputs. But internal issues can mean a host of things (and no, I'm not talking about a [Webhost](#)) that prevent a firm's supplier from supplying. The point is that by facilitating the interconnectedness between businesses, JIT inventory systems increases the risk that problems or failures on one end of the production chain might be felt on another end.

However, these risks associated with JIT inventory systems may be ameliorated to a certain extent. Indeed, the evolution of the organization of firms has already taken many of these risks into account, particularly with respect to rip-offs. For example, firms that might otherwise commission highly proprietary products to a handful of suppliers usually either produce these items themselves or in fact own the suppliers that do so in order to prevent price-gouging from occurring.

If in-house production or a supplier buy-out is not a feasible option, firms still have other common-sense ways of preventing these risks. A firm might have to really scrutinize the integrity of their suppliers not only in terms of their trustworthiness but also in terms of the health of their business; contracting with a supplier at risk of going out of business makes little business sense in general, but firms with JIT systems are and should be even more acutely aware of these scenarios. Taking it a logical step further, a firm might contract with several suppliers in order to lessen the harm done by any one of them failing to supply. Furthermore, for the risk-averse firm, short-term and non-exclusive contracts with suppliers might also be attractive as they provide both insurance and punishment against a supplier's "misbehavior". A supplier would have less incentive to misbehave and the firm would have more recourse under such an arrangement.

Just-In-Time inventory systems provide for an attractive, cost-cutting production system as long as risks are weighed and mitigated. Preventative measures introduced here are by no means meant to be an exhaustive list of how firms should approach these risks, but rather are suggestions to the preliminary considerations firms should make in implementing a successful Just-In-Time inventory system.

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