European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.7, No.22, 2015

The Impact of Merging the MRP with JIT on the Performance of Industrial Companies- Jordan

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Abstract
This study aimed to detect the possibility of the application of modern methods of production management (JIT, MRP) systems is complementary rather than substitutes. It is made by highlighting their common philosophy and views the differences between them.
According to the results that have been reached by testing the hypothesis that it is possible hybridization regular production planning MRP and MRP system as are suitable for the production of the Jordanian industrial sector companies, where it proved its possibility. And to support of these findings were the results prove the superiority of the application of the hybrid system to production planning in the reality of unity after a productive comparative performance indicators: quantities, costs, quality.
It was put up modern models complementarily between MRP system and JIT system in proportion to the nature of the mode of production and the market.
It adds these methods have several advantages that enable them to monitor the quality and quantity of finished products and materials used while providing important in costs and a reduction in inventory while maintaining quality.
Keywords: MRP Materials Requirement Planning, JIT Just In Time, Industrial Sector, ASE Amman Security Exchange, System, Merging.

1. Introduction

Never goes out the reality of production management, and for a long time, all the restrictions that come from within the organization. It has become imperative for the managers of organizations in the era of multi-dimensional management to realize that these restrictions moved to the customer which means outside organization.

In this connection involving production systems (Materials Requirement Planning, Just in Time) JIT, MRP in complementary relationships and distinct goals in optimal utilization of resources, reduce inventory costs, delivery of products in places and deadlines.But they are varying in proportion achieving these objectives. And the nature of the specificity of each organization in terms of resources and production style and the degree of complexity of their products and their problems may not be similar to the results in spite of the similarity of the objectives of the accredited methods.
And before talking about the MRP & JIT it have to definition each one of them as follow:

1.1. **MRP**:(**Materials Requirement Planning**) one of the first software based integrated information systems designed to improve productivity for businesses. A materials requirement planning (MRP) information system is a sales forecast-based system used to schedule raw material deliveries and quantities, given assumptions of machine and labor units required to fulfill a sales forecast.
MRP was the earliest of the integrated information systems dealing with improvements in productivity for businesses with the use of computers and software technology to provide meaningful data to managers. With the advent of such systems, production efficiency could be greatly improved. As the analysis of data and the technology to capture it became more sophisticated, more comprehensive systems were developed to integrate MRP with other aspects of the manufacturing process.

1.2. **JIT**: (**Just in Time**) an inventory strategy companies employ to increase efficiency and decrease waste by receiving goods only as they are needed in the production process, thereby reducing inventory costs. This method requires that producers are able to accurately forecast demand.

A good example would be a car manufacturer that operates with very low inventory levels, relying on their supply chain to deliver the parts they need to build cars. The parts needed to manufacture the cars do not arrive before nor after they are needed, rather do they arrive just as they are needed. This inventory supply system represents a shift away from the older "just in case" strategy where producers carried large inventories in case higher demand had to be met.

2. The Theoretical Framework for this Study

2.1. The Concept of JIT (JUST-IN-TIME)

2.1.1. Characteristics of JUST-IN-TIME system

Just-in-time systems focus on reducing inefficiency and unproductive time in the production process to improve

continuously the process and the quality of the product or service. Employee involvement and inventory reduction are essential to JIT operations. Just-in-time systems are known by many different names, including zero inventory, synchronous manufacturing, lean production, stockless production (Hewlett-Packard), material as needed (Harley-Davidson), and continuous flow manufacturing (IBM). In this section we discuss the following characteristics of JIT systems: pull method of material mow, consistently high quality, small lot sizes, uniform workstation loads, standardized components and work methods, close supplier ties, flexible work force, line flow strategy, automated production, and preventive maintenance.

2.1.2. Pull Method of Materials Flow:

Just-in-time systems utilize the pull method of materials flow. However, another popular method is the push method. To differentiate between these two systems, let's first consider the production system for a Quarter Pounder at a McDonald's restaurant. There are two workstations. The burger maker is the person responsible for producing this burger: Burger patties must be fried; buns must be toasted and then dressed with ketchup, pickles, mayonnaise lettuce, and cheese; and the patties must be inserted into buns and put on a tray. The final assembler takes the tray, wraps the burgers in paper, and restocks the inventory. Inventories must be kept low because any burgers left unsold after seven minutes must be destroyed.

The flow of materials is from the burger maker to the final assembler to the customer. One way to manage this flow is by using the push method, in which the production of the item begins in advance of customer needs. With this method, management schedules the receipt of all raw materials (e.g., meat, buns, and condiments) and authorizes the start of production, all in advance of Quarter Pounder needs. The burger maker starts production of 24 burgers (the capacity of the griddle) and, when they are completed, pushes them along to the final assembler's station, where they might have to wait until she is ready for them. The packaged burgers then wait on a warming tray until a customer purchases one.

The other way to manage the flow among the burger maker, the final assembler, and the customer is to use the pull method, in which customer demand activates production of the item. With the pull method, as customers purchase burgers, the final assembler checks the inventory level of burgers and, when they are almost depleted, orders six more. The burger maker produces the six burgers and gives the tray to the final assembler, who completes the assembly and places the burgers in the inventory for sale. The pull method is better for the production of burgers: The two workers can coordinate the two workstations to keep inventory low, important because of the seven-minute time limit. The production of burgers is a highly repetitive process, setup times and process times are low, and the flow of materials is well defined. There is no need to produce to anticipated needs more than a few minutes ahead.

Firms that tend to have highly repetitive manufacturing processes and well-defined material flows use just-in-time systems because the pull method allows closer control of inventory and production at the workstations. Other firms, such as those producing a large variety of products in low volumes with low repeatability in the production process, tend to use a push method such as MRP. In this case a customer order is promised for delivery on some future date. Production is started at the first workstation and pushed ahead to the next one. Inventory can accumulate at each workstation because workstations are responsible for producing many other orders and may be busy at any particular time.

2.1.3. Consistently High Quality

Just-in-time systems seek to eliminate scrap and rework in order to achieve a uniform flow of materials. Efficient JIT operations require conformance to product or service specifications and implementation of the behavioral and statistical methods of total quality management (TQM). JIT systems control quality at the source, with workers acting as their own quality inspectors. For example, a soldering operation at the Texas Instruments antenna department had a defect rate that varied from zero to 50 percent on a daily basis, averaging about 20 percent. To compensate, production planners increased the lot sizes, which only increased inventory levels and did nothing to reduce the number of defective items. Engineers discovered through experimentation that gas temperature was a critical variable in producing defect-free items. They devised statistical control charts for the operators to use to monitor gas temperature and adjust it themselves. Process yields immediately improved and stabilized at 95 percent, eventually enabling management to implement a JIT system.

Management must realize the enormous responsibility this method places on the workers and must prepare them properly, as one GM division quickly learned. When Buick City began using JIT in 1985, management authorized its workers to stop the production line by pulling a cord if quality problems arose at their stations-a practice the Japanese call *andon*. GM also eliminated production-line inspectors and cut the number of supervisors by half. Stopping the line, however, is a costly action that brings a problem to everyone's attention. The workers weren't prepared for that responsibility; productivity and quality took a nose-dive. The paint on Le Sabres wasn't shiny enough. The seams weren't straight. The top of the dashboard had an unintended wave. Management, labor, and engineering formed a team to correct the problems. Work methods were changed, and the *Andon* system was modified to include a yellow warning cord so that workers could call for help without stopping the line.

2.1.4. Small Lot Sizes

Rather than building up a cushion of inventory, users of JIT systems maintain inventory with lot sizes that are as small as possible. Small lot sizes have three benefits. First, small lot sizes reduce cycle inventory, the inventory in excess of the safety stock carried between orders (see the Inventory Management chapter). The average cycle inventory equals one-half the lot size: As the lot size gets smaller, so does cycle inventory. Reducing cycle inventory reduces the time and space involved in manufacturing and holding inventory

Second, small lot sizes help cut lead times. A decline in lead-time in turn cuts pipeline (WIP) inventory because the total processing time at each workstation is greater for large lots than for small lots. Also, a large lot often has to wait longer to be processed at the next workstation while that workstation finishes working on another large lot. In addition, if any defective items are discovered, large lots cause longer delays because the entire lot must be inspected to find all the items that need rework.

Finally, small lots help achieve a uniform operating system workload. Large lots consume large chunks of processing time on workstations and therefore complicate scheduling. Small lots can be juggled more effectively, enabling schedulers to utilize capacities more efficiently. In addition, small lots allow workstations to accommodate mixed-model production (more than one item) by reducing waiting line times for production. We return to this point when we discuss uniform workstation loads.

2.1.5. Standardized Components and Work Methods

The standardization of components called part commonality or modularity, increases repeatability. For example, a firm producing 10 products from 1000 different components could redesign its products so that they consist of only 100 different components with larger daily requirements. Because the requirements per component increase, so does repeatability; that is, each worker performs a standardized task or work method more often each day. Productivity tends to increase because, with increased repetition, workers learn to do the task more efficiently Standardization of components and work methods aids in achieving the high-productivity, low-inventory objectives of JIT systems.

2.1.6. Close Supplier Ties

Because JIT systems operate with very low levels of inventory, close relationships with suppliers are necessary. Stock shipments must be frequent, have short lead times, arrive on schedule, and be of high quality. A contract might require a supplier to deliver goods to a factory as often as several times per day. Purchasing managers focus on three areas: reducing the number of suppliers, using local suppliers, and improving supplier relations.

Typically, one of the first actions undertaken when a JIT system is implemented is to pare the number of suppliers. Xerox, for example, reduced the number of its suppliers from 5000 to just 300. This approach puts a lot of pressure on these suppliers to deliver high-quality components on time. To compensate, JIT users extend their contracts with these suppliers and give them firm advance-order information. In addition, they include their suppliers in the early phases of product design to avoid problems after production has begun. They also work with their suppliers' vendors, trying to achieve JIT inventory flows throughout the entire supply chain.

Manufacturers using JIT systems generally utilize local suppliers. For instance, when GM located its Saturn complex in Tennessee, many suppliers clustered nearby. Harley-Davidson reduced the number of its suppliers and gave preference to those close to its plants--for example, three-fourths of the suppliers for the Milwaukee engine plant are located within a 175-mile radius. Geographic proximity means that the company can reduce the need for safety stocks. Companies that have no suppliers close by must rely on a finely tuned supplier delivery system. For example, New United Motor Manufacturing, Incorporated (NUMMI), the joint venture between GM and Toyota in California, has suppliers in Indiana, Ohio, and Michigan. Through a carefully coordinated system involving trains and piggyback truck trailers, suppliers deliver enough parts for exactly one day's production each day.

2.2. The Concept of MRP (Materials Requirement Planning)

2.2.1. Material Requirements planning system

Materials Requirements Planning (MRP) also known as MRP I, little MRP or the original MRP is a set of techniques that takes the Master Production Schedule and other information from inventory records and product structure records as inputs todetermine the requirements and schedule of timing for each itemBased on a master production schedule, a Material Requirements Planning system:

- Creates schedules identifying the specific parts and materials required to produce end items
- Determines exact numbers needed
- Determines the dates when orders for those materials should be released, based on lead times

MRP, by its nature, does not need carrying of any inventory ahead of requirement. It starts with the finalization of the production plan in a firm. The production plan then is used by the Materials management professionals to explode the "Bill of material" which is a complete detailing of the materials needed including

their various components. It is exploded for the number of units to be produced, to obtain that product's exact requirement. Since a given common part is used in many items, sub-assemblies etc, total requirement of that part is summed up to draw a consolidated requirement.

Since this exercise is done for a great number of materials computers become very useful for the purpose. After the Bill of material is finalized it's taken over by the Materials professionals of the firm who check the availability of any item.

A detailed action plan indicating the materials, quantity to be procured and most importantly the time these are required at is prepared. Accordingly, the orders are placed and the suppliers are asked to match the given delivery period.

In practice, under this system, the production material requirement is calculated on weekly basis. It then generates requisitions for each material to be delivered in the required quantity a given number of days prior to the start of manufacturing operation. Obviously, it puts more pressure on purchasing and production planning rather than on maintenance of inventory. In MRP system master production schedule which is updated periodically is the force that directly initiates and drives subsequent activities of the purchasing and manufacturing functions.

2.2.2. Applicability of the MRP system

It is best suited where production is not done on a continuous basis. It is ideally suited for the job shop operations environment. Where the demand in directly dependent on the production of other specific inventory items or finished products. It is used where the demand of the individual components are dependent on the requirement of the main product. It can be used where the flexibility is possible in placement of orders or delivery releases is to be done on short term basis.

2.2.3. Inputs for MRP

MRP process is triggered by the Master Production Schedule (MPS) which indicates the production volume of finished products on weekly basis. MPS is the primary input. Therefore, for a successful run of the MRP, MSP must have a time schedule that is greater than the total lead time of the finished product.

Bill of Materials (BOM) which is a detailed item wise requirement document is the second input for MPR. It may contain multistage type of products that may require several stages of a number of components to be fitted or converted into leading to the making of the final or finished product.

Inventory record file (IRF) is the third input for MRP. It contains the status of an inventory item. It indicates the current stock position, the past timing and sizes of all orders, including the open orders for the item, the lead time for each item. IRF basically happens to be the past experience and serves as a good reference point for planning for the future MRP.

2.2.4. How does MRP work?

There are two important questions to ask here. How much of an item is needed? When is an item needed to complete a specified number of units, in a specified period of time? The MRP process involves the following steps:

- Determine the gross requirements for a particular item.
- Determine the net requirements and when orders will be released for fabrication or subassembly.

Net Requirements = Total Requirements – Available Inventory

NR = TR – AI ……..…. (1)

Net Requirements = (Gross Requirements + Allocations) – (On Hand) + Scheduled Receipts

NR = (GR + AL) – (OH) + SR…….. (2)

- Develop a master production schedule for the end item (this is the output of the aggregate / production planning).

The MPS is adjusted accordingly, as follows:

- Create schedules identifying the specific parts and materials required to produce the end items. The bill of materials will be useful here.
- Determines the exact numbers needed.
- Determines the dates when orders for those materials should be released, based on lead times.

2.2.5. Outputs of MRP

The basic outputs of the MRP system are the planned orders from the planned order release row of the MRP matrix which details the timing and the quantity of subassemblies, parts and raw materials used to plan purchasing and manufacturing actions.

Specifically, these outputs include:

- Purchase orders - sent to outside suppliers

- Work orders - to be released to the shop floor for in-house production

Action notices or rescheduling notices - issued for items that are no longer needed as soon as planned or for quantities that may have changed.

2.2.6. Benefits of MRP

The MRP is a framework for providing useful information for decision makers. The key to realizing the benefits from any MRP system is the ability of the inventory planner to use the information well. The specific benefits of MRP include the following:

- Increased customer service and satisfaction
- Improved utilization of facilities and personnel
- Better inventory planning and scheduling
- Faster response to market changes and shifts
- Reduced inventory levels without reduced customer service

The MRP is also a very powerful tool since it takes into consideration changes in certain assumptions especially under uncertain conditions, especially when the inputs to the MRP system change because of the following realities in the production area:

- Delays in scheduled receipts
- Changes in planned order sizes because of capacity constraints
- Changes in gross requirements which dictate changes in lot sizes at sub-component levels
- Unavailability of raw materials for one sub-component which negates the need for a fellow subcomponent as both must be ready for the parent production
- Utilization of same parts at different levels indicating the need to restructure the bill of materials and Presence of price discounts or some other features which makes it advisable to purchase more than the anticipated need.

3. A Comparative Between JIT & MRP :

The key difference between the (MRP) system and the (JIT) is that the first attempts to measure the perceived truth or expected, as is trying to reduce inventory levels through demand forecasting, and builds on the basis that there is uncertainty. Accordingly, it must maintain a stock of safety. The production system on time (which uses the entrance to attractions rather than the entrance of payment), the stock holding is something that is a favorite And the to the fact that the system requirements emphasize the reduction of conditions of uncertainty in the factory environment, which helps to reduce the need to keep a stock of safety to a minimum or may be zero.
In an attempt to conclude some of the similarities and differences between the two systems resulted in the following table (1)*:

Table (1) Comparative between JIT & MRP

S.R	Characteristics	MRP	JIT
1	The production load	Resources Capacity are not specific but determined later	Resources Capacity specific in advance
2	The size of batch	Batch size is fixed at one while changing volume between of work orders	Determine the production batches at large and variable size
3	The Raw materials	Dealing with a lot of suppliers	Very limited number of suppliers
4	The Fluctuation of production	There are safety stock	Need control of the production process
5	Flexibility	Reacts with the demand	The most flexible systems
6	The Planning materials	Long term	Short term- daily
7	The Drag&Push systems	Push system	Drag system

*Prepared by the researcher

The U. Karmarker (1989) putmodel by followed the circumstantial approachto choose between systems, and use the standards trade-offs between of modern production systems through to production rating:Drag system flow frequently and the a hybrid system by recurring batch, and the hybrid system installment and the dynamic, and the batch system, This applies to three uses: the calculation the requirements and starting the production and management of the workshop. This resulted in the **table(2)***below:

Table (2) The U.days. Karmarker Model

The type of systems	calculation the requirements	Starting in production	management of the workshop
Drag system	JIT	calculation the pace of production	JIT- MRP
hybrid system by recurring batch	JIT- MRP	JIT- MRP	JIT
hybrid system installment	MRP	MRP	MRP
Push system	MRP	MRP	Scheduling Workshop

* Source: U. Karmarkar "Getting Control of Just In Time", Harvard Business Review (Sep-Oct 1989) P.122

4. Methodology

4.1. The Population of Study:

The researcher selects the Pharmaceutical companies from the Industrial sector between the sectors that listed in the ASE Amman Security Exchange at the end of fiscal year 2013. And the table No (**3**)* shows the Pharmaceutical Firms in Jordan:

Table (3) Pharmaceutical and Medical companies

Pharmaceutical and Medical Industries				
COMPANY'S NAME	COMPANY'S SHORT NAME	SYMBOL	CODE	MARKET
MIDDLE EAST PHARMA. & CHMICAL IND. & MEDICAL APPLIANCES	MID PHARMA IND	MPHA	141073	2
THE JORDANIAN PHARMACEUTICAL MANUFACTURING	JORDAN PHARMA	JPHM	141204	1
HAYAT PHARMACEUTICAL INDUSTRIES CO.	HAYAT PHAR. IND.	HPIC	141210	1
PHILADELPHIA PHARMACEEUTICALS	PHILADELPHIAPHARMA	PHIL	141219	2
DAR AL DAWA DEVELOPMENT & INVESTMENT	DAR ALDAWA DV/IV	DADI	141012	2
ARAB CENTER FOR PHARM.& CHEMICALS	ARAB PHARMA CHEM	APHC	141023	2

*Resource: Amman stock Exchange, Official site: www.ASE.com.jo.

4.2. The Study Sample

The researcher choose a **Random** sample between the firms that listed in the table (3) to implementation this study on it, so he select four companies that related to the secondary market and the table (4)* below shows the firms that including in the study sample:

Table (4) The study sample

Pharmaceutical and Medical Industries				
COMPANY'S NAME	COMPANY'S SHORT NAME	SYMBOL	CODE	MARKET
MIDDLE EAST PHARMA. & CHMICAL IND. & MEDICAL APPLIANCES	MID PHARMA IND	MPHA	141073	2
PHILADELPHIA PHARMACEEUTICALS	PHILADELPHIAPHARMA	PHIL	141219	2
DAR AL DAWA DEVELOPMENT & INVESTMENT	DAR ALDAWA DV/IV	DADI	141012	2
ARAB CENTER FOR PHARM.& CHEMICALS	ARAB PHARMA CHEM	APHC	141023	2

*Resource: Amman stock Exchange, Official site: www.ASE.com.jo.

4.3. The Study Objective

This study aims to analysis the nature of the relationship between the merging of (MRP & JIT) systems and the performance of the Pharmaceutical Firms in the Industrial sector in Amman Stock Exchange in Jordan. In this study the researcher will try to explain the nature of each production system (MRP & JIT) through the literature review of the previous studies that related to this subject.

And try to conclude the benefits of each one alone, and then he try to make merge between them and test the results that caused by this emerging through implementing this emerging on the study sample.

''Note: the researcher used the ***(U. Karmarker, 1989)***variables model to examine this relationship above. ''

4.4. The study hypotheses

According with the study objective above the researcher put the theses to conform to it as follows:

4.4.1. The 1st hypothesis:

H1: There is a statistically significant impact on the performance of Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT).

4.4.2. The 2nd hypothesis:

H1: There is a statistically significant impact on Cost Accountingin the Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT).

4.5. The Statistical side of study

The table No (5)* below shows the fields those Participants in this study:

Table (5) The Participants in this study

Type of Participants	Numbers of Participants	The percentage
Participants from Firms		
Financial Accountant	**8**	**25%**
Cost Accountant	**8**	**25%**
Managerial Accountant	**8**	**25%**
Manager Department of Computer	**4**	**12.5%**
Manager Department of Data Processing	**4**	**12.5%**
Total	**32**	**100%**
The Participants Firms		
MID PHARMA IND	**1**	**25%**
PHILADELPHIAPHARMA	**1**	**25%**
DAR ALDAWA DV/IV	**1**	**25%**
ARAB PHARMA CHEM	**1**	**25%**
Total	**4**	**100%**

*Resource: Prepared by researcher

4.6. Literature Review

The researcher prepared the Table (**6**)* below, it Contains the most important Literature that related to this study:

Table (6)The Most Important Literature

#	Entitled	The executing party	Place	Date
1	Risk analysis in the management of large enterprises	RAND Corporation	U.S.A	2008
2	Leadership Skills for Project Managers	UNESCO	Latin America and the Caribbean	**2007**
3	The impact of development of projects in Industrial Sector	Organization of the Asian Development Bank	Indonesia	2002
4	The constraints of Administrative performance that faced a non-governmental organizations	Researcher Fae'q Abu Safiya	Jordan	2000
5	Modern Trends in the field of control (performance evaluation in government units)	Researcher Mohammed Saraya	Jordan	1996

*Resource: Prepared by researcher

4.7. The study Tools & Data Collections

4.7.1. Data Collections:

The researcher used in this field two types Method to collect the Data which needed to this study:

4.7.1.1. Primary Method: Questionnaire

Questionnaire: a questionnaire was developed and distributed to the companies surveyed to collect the necessary data for this study were distributed (**32**) questionnaires on (**4**) companies of the study sample.

4.7.1.2. Secondary Method:

Books and periodicals related to the subject and various articles available on the World Wide Web (Internet), as was the use of the various publications issued by the Amman Stock Exchange.

4.7.2. Study Tool

Likert scale:the researcher used the quintet Likert scale to measure the axes of this study, as follows: (1) to a very low degree, and (2) low- degree and (3) the degree of medium and (4) to a high degreeand (5) a very high degree.

Table (7)Likert Scale

Answer	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
weight	1	2	3	4	5

4.7.2.1. Methods of Data Analysis: the researcher selected statistical methods in proportion to the nature of the hypotheses of the study, using a statistical program Statistical Package for Social Sciences (**SPSS**) to analyze the data collected for the purposes of the study, was the use of methods of descriptive statistics such as percentages and frequencies, the arithmetic mean and the standard deviation in order to give a comprehensive description of responses of respondents on the various paragraphs of Questionnaire.

5. Data Analysis & Test Hypotheses'

5.1.1. The 1st hypothesis:

H1: There is a statistically significant impact on the performance of Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT).

In order to examine the hypothesis it had been using regression tested The (F-test) with it, to know that there were significant impact on the performance of Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT), the level of statistical significance (0.05 = Sig) and shown in Table (**8**) results on the analysis of this relationship.

Table (8)

Results Regression test & F Test

R	Adjusted R^2	F	Sig	Result
0.681	**0.557**	**51.87**	**0.00**	**Accept H1**

The test value (F) is equal to (**51.87**) at the significant value (**0.00**) which is less than the specified significant value (**0.05**) which indicates the presence of a statistically significant impact on the performance of Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT), This enhanced the explanatory value of R^2, which amounted to (**55.7%).**

The Result: Accepting - that there were significant impact on the performance of Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT)

5.1.2. The 2nd hypothesis:

H1: There is a statistically significant impact on Cost Accounting in the Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT).

In order to examine the hypothesis it had been using regression tested The (F-test) with it, to know that there were significant impact on the performance of Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT), the level of statistical significance (0.05 = Sig) and shown in Table (**9**) results on the analysis of this relationship.

Table (8)

Results Regression test & F Test

R	Adjusted R^2	F	Sig	Result
0.881	**0.657**	**81.97**	**0.00**	**Accept H1**

The test value (F) is equal to (**81.97**) at the significant value (**0.00**) which is less than the specified significant value (**0.05**) which indicates the presence of a statistically significant impact on the performance of Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT),This enhanced the explanatory value of R^2, which amounted to (**0.657%).**

The Result: Accepting - that there were significant impact on Cost Accounting in the Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT).

6. The Study Results

After the test hypotheses as shown above the researcher conclude many results and recommendations as shown below:

- The pharmaceutical companies in Jordan live in a competitive environment to confirm to face a big problem related to survival in the market, especially that its client will turn into the main competitors' products and the reason for that lack of strategic thinking and marketing in the organization since the previous decades, they also face difficulty in planning production.
- The radical solutions are to search for foreign markets or merging with other companies. These companies suffer from several problems in terms of the inability of the stock of raw materials, production and stocks in half the factory and non-compliance with the delivery deadlines and then quantities. As companies recorded the difficulty in monitoring the quality of their products to the complexity of this process and multidimensionality.
- It was put up modern models the integration of MRP system and JIT system put a successful commensurate with the nature of the mode of production and the market. And can be identified through access to the results of the comparative evaluation of production performance indicators achieved the objectives of competitiveness, which highlights the superiority of modern methods on the results achieved in the companies. It adds these methods have several advantages that enable them to monitor the quality and quantity of finished products and materials used while providing important in costs and a reduction in inventory.
- The Researcher find that there a significant impact on Cost Accounting in the Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT).
- The Researcher find that there a significant impact on the performance of Pharmaceutical Firms in industrial sector due to the application of merging the system of (MRP) with the system of (JIT).

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