Business Analysis for Engineers

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Lecture-11

Cash Flow Statement 1

Last class I have a very brief introduction on the need for a cash flow statement and why that certain uses of the cash flow statement would be interested in knowing the behaviour of cash. And to understand the behaviour of cash I have told that the activities of a firm gets broadly classified under 3 categories.

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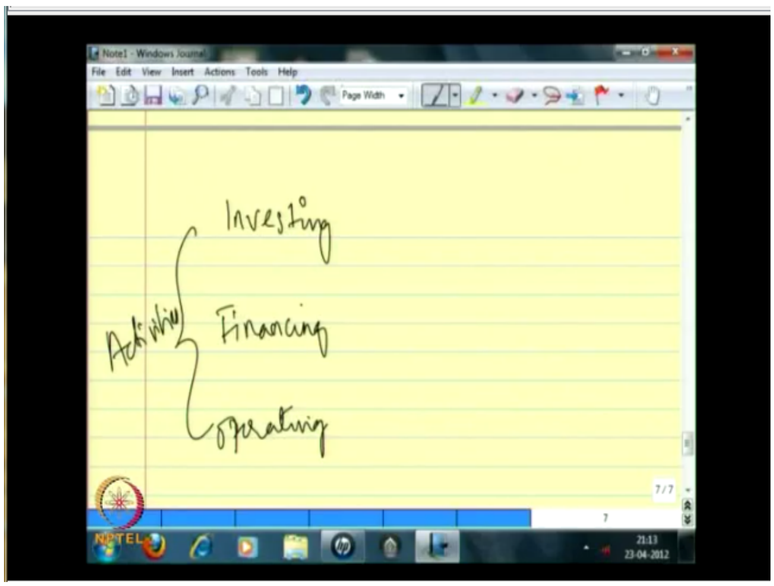

Namely the investing activities, the financing activities and operating activities, broadly these are the type of activities that is having type of activity that have a direct impact on cash and if you are able to analyse the behaviour of cash in these 3 activities. Then we will be able to understand how cash is getting consume and how cash is getting generate. Normally investing activities needs those activities where you fine that the firm is investing is money or it will use money for buying constructing plant purchasing equipment or it can even lend money to entities.

These are all the investing activities of the firm or even if it sells it is asserts and gets money disposal of asserts and it gets money. That is also an investing activities for the firm. The financing activities broadly are those activities that are related to this source for the capital for the firm. It can be from the loans or shares so, this can either can bring in cash or consume cash same thing here consume or generate.

So if I get a loan I get cash for the firm if I repay the loan cash goes outside the firm. But still it is a financing activity if I pay dividend to my share holders it is a financing activities for the purpose of understanding cash flow payment of dividend to share holders is classified as a financing activities. And broadly any activities that do not come under this investing or financing will come under operating activities like here accounts payable.

Your accounts receivable inventory all of these comes under your operating activities. So, these are broadly 3 types of activities which will change the behaviour of cash. And by studying the behaviour of cash under these 3 types of activities we will able to generate a cash flow statement. Now how do we do that, your income statement as I told you this the net income for the entity, the net earning set is available to the firm the free cash.

That is available to the firm. So net income is 1 that would have take care into account all the operating expenses, the interest expenses, the depreciation the income tax everything. And finally is the net income from the income statement we will be able to calculate that. Now let us for examples say that I want to understand the behaviour of cash. And I have already told you that this net income is not cash.

So, by saying that I have 10 million rupees as net income it does not mean that in the balance sheet cashes 10 million. I repeatedly told the class that both are totally different. Then how is that from this net income I can relate with the opening cash and see what as happened to the activities that either have consumed cash or generated cash. And then see whether from the opening cash the net income and understanding these activities.

That have generated or consumed cash can I arrive at the closing cash that I see in the balance sheet. Now let us for an example say the accounting period is the first of April 2011 to 31 April 2012 which means I have a balance sheet I have an income statement, now the net income as on

31/03/2012. And I have balance sheet for 31/03/2012 which has a closing cash both are not same. Now is it possible for me to start with in net income for this year.

And understand what has happened to activities that have either consumed or generated cash during this period first April 2011 for 31/03/2012. And then add that with the opening cash that is cash at the end of 31/03/2011+all these activities that have influence the behaviour of cash+the net income during this accounting period. And when I do this I will fine that this summation of all these is the cash at the end of 31/03/2012.

And if you are able to do that in the process you have a created a cash flow statement. It is not as easy as I explained for you to understand what it is so, let me just give you an example. And take you through that example so, that you will understand this better.

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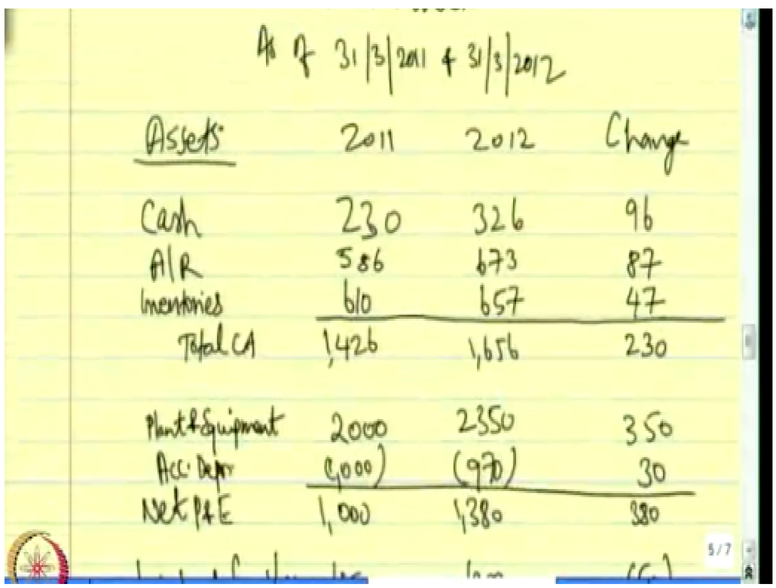

Now look at this you look at the balance sheet it mean two successive periods as I told you before 31/03/2011 and 31/03/2012 look at this figure cash 230, 326, 96 which means the end of accounting period 2011 the cash was 230 the end of 2012 it was 326 so, the change is 96. What am I going to do by creating a cash flow statement it is to understand how to change of 96 as happened and it could have happened in a variety of ways.

As simple as just cash 230 bank gave me a loan of 96 and let us say this is in lakhs of rupees so, 96lakhs o f rupees. And nothing happened to cash during the entire accounting period. So 230+96 326 as simple as that we could explain our cash flow. But reality in a accounting period of 1 year it is not a simple loan that has brought in 96 lakh of rupees that explains this difference of 96 no host of some activities would have happened which would have changed different accounts.

And the resultant of that change is this difference of 96 what accounts should have change. It could have change the accounts this save it could have change the inventories, it could have change the equipment purchase, it could have change in investments

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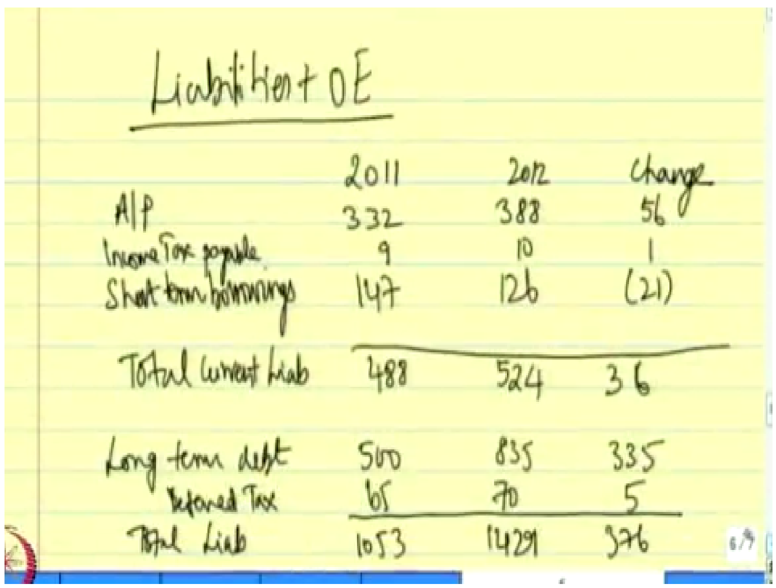

Or even in my liberalities side it could have changed my accounts payable, it could have change my dead profile all this could have change. So, we are going to understand how these are change if at all they have change. And because they have changed, change could be either it could have consumed cash or could have brought in cash. And because of this change we need to understand whether cash as got an inside entity or left the entity.

Now let us for example say plant an equipment end of 2011 it was 2000, end of 2012 it is 2350 the difference is 350. Now the question is very simple how do you explain the difference the explanation can be in a variety of ways again as simple as saying I just purchase equipment where 350000 and that explains the difference. This could be a one explanation acceptable different explanation could be that high purchased equipment worth 800,000.

And it was during this accounting period I also disposed of a other equipment that was worth let us say 450 or 500,000. So, I purchase a new equipment worth 850000 I disposed an existing equipment worth 500000. Now that difference also explains the difference between these two activities explains this difference of 350 or it could be you know I purchase something worth 500000 and disposed of existing equipment worth 150000 that difference also explains this difference 350.

So, how do we know actually what happened then we will go to our account from the ledger we will go to the account title this plant and equipment. And see what has happened during this accounting period and then we will see that an equipment new equipment 500000 was purchase an existing equipment whose cost effect position was 150000 has been disposed off. And it is because of this there is difference of 350 and we are not stopping with that.

We also find at the equipment whose cost of acquisition 150000 was dispose was not disposed it book value of 0. But was dispose for let say value of 20000, that also gets captured somewhere and sit somewhere in this valued sheet in cash. We will have to cloud that an understand what has actually happened. And when we do that curling out we are trying to extract cash transactions in all these balance sheet items between 2011 and 2012.

Or in effect I am trying to understand this change that has happened between 2011 to 2012 how that changes affected the behaviour of cash. So, let us say I start with the opening cash of 230 and see how the behaviour of cashes has been affected. Because of all these transaction and the summation of this opening cash should give me the 326 that is the purpose of today’s class to understand how we do this. And then in the process understand this is actually the cash flow statement that we are create.

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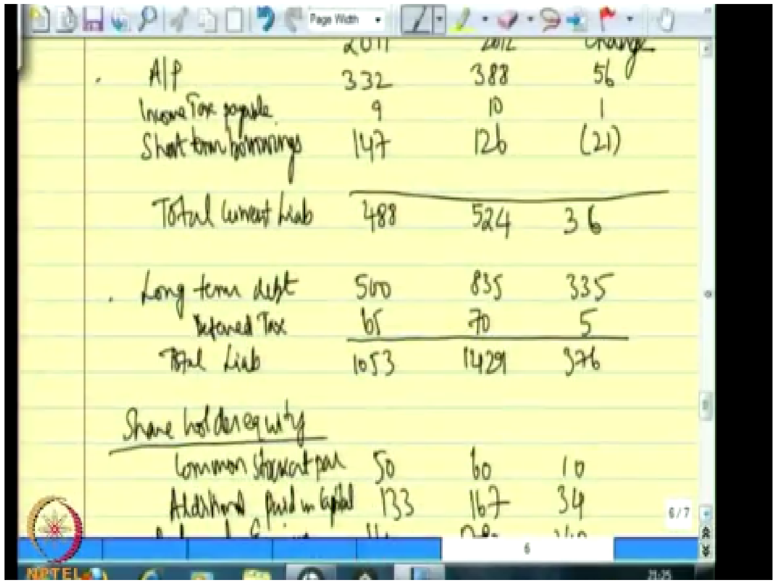

Just as I gave a example for the equipment let say example I see this long term debt 500 end of 2012 it is 835, to an lay man who does not know cash flow statement. I look at the balance sheet this immediate interpretation that I make from the balance sheet is that may long term debt at the end of 2011 was 500000. The long term debt now is 835000. So, the difference is 335 in the absence of any other information.

I would say fully assume that I have barrow 35000 more and that is an acceptable interpretation. But then if I again go deep into the ledger, the account copy of long term depts. I find this 5835 the difference of 335 is not because I brought I got in a fresh loan of 335. It could be because I got a fresh loan of 375000 and that I already repaid to the extent of 40000 of an existing loan. And this difference is this 335000.

So, proceeds from new loan is 375000 payments on existing long term debt to the extent of 40000 explains this difference of 335, likewise every change will have an explanation for it. That explanation will explain the behaviour of cash associated in each of this change. That could have happened and account receivable, inventory, accounts payable, long term debt, short term debt, disposable of assets. So in all this there is some behaviour in cash that gets changed.

And if you are able to track that behaviour and match it with the opening cash to understand the change. Then you will be able to track the entire cash flow information in that accounting period.

And it is that tracking of information related to cash that I am interested in knowing in the form of a cash flow statement. In the absence of which just looking at the balance sheet I cannot know what is happened let us say I wanted to know financing activities.

I look at the balance sheet as I told you before either know the difference as 335000 that is it I do not know how I got this and 35000, suppose I want to know operating activities I just know that the accounts receivable as change this much the accounts payable as change this much I do not know what has happened that has cause this change. And it is that very specific information and what has happened is that I am interested in and that is why create a cash flow statement. So let us begin to understand this by starting to prepare a cash flow statement

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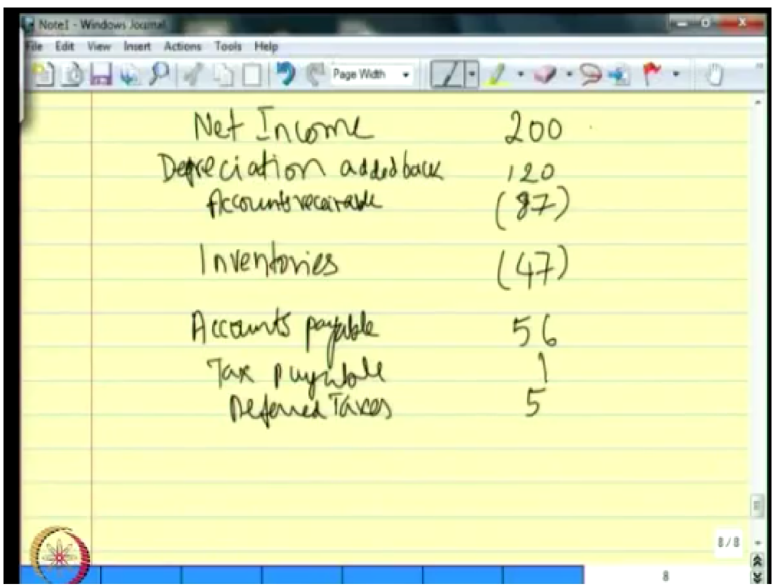

Statement of cash flow for 31\3 let say 2012 right now the net cash flow operating activities I told you there are 3 sets of activities operating activities, financing activities, investing activities. And we are going to see how cash has behaved in all of these 3 activities and let us begin with operating activities. Now I begin by first writing in net income which is not available because I just giving you the balance sheet figures.

Let us say the corresponding net income with end of 31/03/2012 was 200 okay 200 is the net income. Now what I am going to do is from the net income I would be adding or subtracting the cash value for those activities that have either generated or consumed cash, from this net income.

And then after I do this add it with the opening cash as on 31/03/2011 and when I do that, if we have done that correctly.

The answer will be the closing cash that will see you in your balance sheet as of 31/03/2012. And this statement we did to do this is your statement of cash flow. Now when we begin with the net income for that particular year we always start the cash flow by first adding back with the depreciation for that particular year. Now let us say the depreciation for that particular year was 120 again I am not given the balance sheet.

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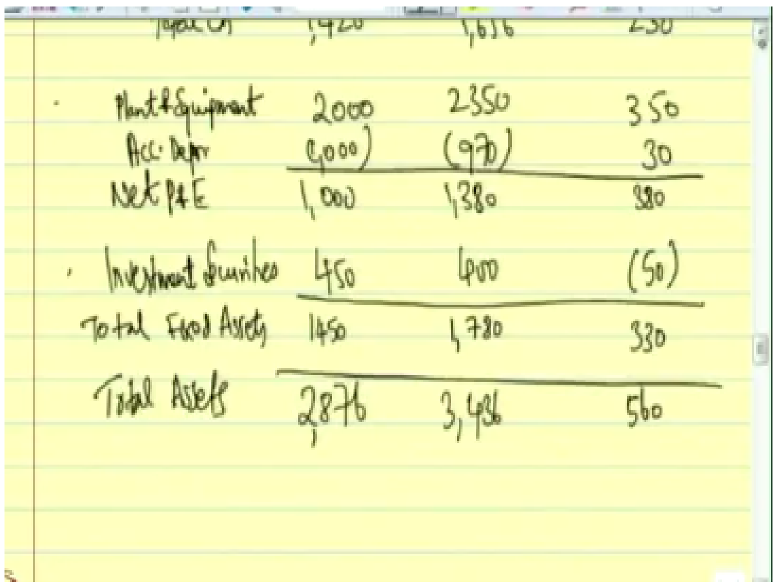

But the example that I have taken is a real example an in that the income statement. I find that the depreciation is 120 depreciation added back. Now this is an important thing that you will understand for the purpose of an income statement. I have recorded depreciation as an expense why because when I record depreciation as an expense in the income statement. It reduces the taxable income to that extent.

I am treating it as an expense contrast that with other expenses let say wage or salary or utility that also reduces the taxable income. Then what is the difference between these two why is the term adding back depreciation for the purpose of cash flow statement. While I am not going to add or back wage or utilities the wage or utilities all this have consumed cash. It has been a real cash going outside the entity and that I have already factored in my income statement.

And it is only from that I started with this net income of 200, that is already been factored and those are real cash outflows. Now this cash flow statement I am interested in understanding only about the real cash outflows and real cash inflows. Because I need to know only those activities that have really consumed or really generated cash, has depreciation expense created a real physical outflow of cash no it has not.

Then is it a cash outflow for the purpose of creating the cash flow statement no it is not. And that is why I am adding it back to the net income because a depreciation expense is a non cash expense. And all non cash expenses which have been treated as expense for the purpose of income statement to reduce taxable income gets added back to the net income when we calculate the cash flow statement. And the first classic example of an non cash expense depreciation.

And that gets immediately added back to the net income when we actually calculate the cash flow statement. So, I add back depreciation. Now come to accounts receivable. So, what is your accounts receivable in your balance sheet 610, 657.

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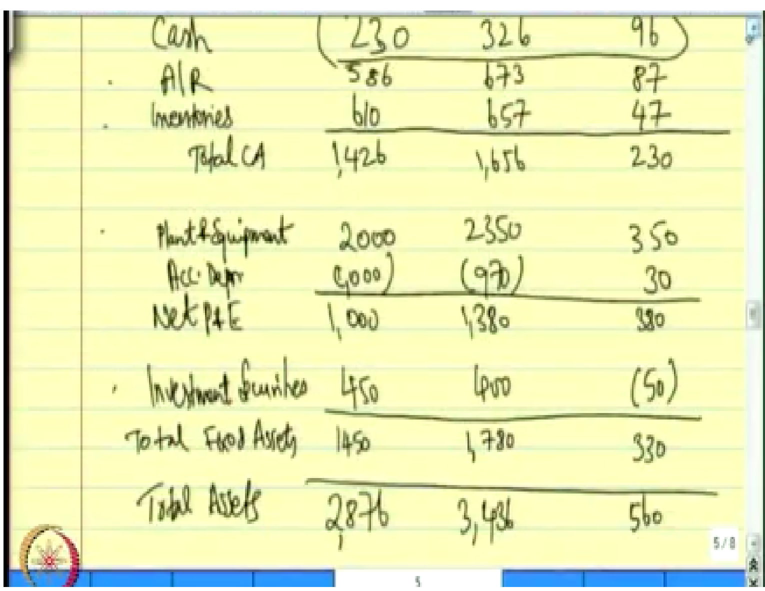

The account receivable is 610, 657 what is the change sorry accounts receivable is 586, 673 inventory is 610, 657 586, 673 changes 87. So, have this in your mind, the change is 87 the question here is accounts receivable is an activity that has changed the behaviour of cash. How has it changed, it has changed by 87, that is very evident from the balance sheet. The previous year closing accounts receivable was 586, now it is 673, 87 is the change.

Now is this change cash inflow or a cash outflow, that is the question for the purpose of cash flow statement. And increase in accounts receivable is it a cash inflow or a cash outflow. Remember accounts receivable is something that the firm has to get. Now if there is an increase in the value of an account, an account of accounts receivable type where I have to get money. Today I have to get 50 tomorrow the changes happens in such a way that I have to 100.

There is increase in the amount that I am supposed to get. So that a cash outflow or cash inflow, that is a cash outflow why because I am not got certain amount. And that amount that have yet to receive as increased during this accounting period. It has changed to x+delta x, x I am not receive x+delta x I am not receive. So, delta x is a cash outflow or cash inflow it is a cash outflow because I am not receive that amount.

So, this 87 is a cash outflow, see I am understand what I am trying to do here is take each of this account categories see the difference. And then analysing difference whether it is a cash inflow or cash outflow, if it is a cash inflow positive cash outflow is negative that is all. Accounts receivable as increase and if it is an increase in accounts receivable then it is a cash outflow, why because it is an amount that I am not receive that has increased.

Next is inventories, look at the difference in inventories if you go to your balance sheet that gave you as an example 610, 657, 47. This is a straight forward explanation 610 end of previous accounting period 657 end of this accounting period difference is 47. And the difference is in inventories the value of the inventory has increased no doubt. Now why has it increased because you paid cash it has increased cash is gone out.

That is why you got in work inventory an incremental inventory were 47 or you will have created accounts payable that has resulted in an incremental inventory of 47 that still explains. Then there is either physical outflow of cash or in increase in liability is also treated as an expense, that has cause this change. So, inventory has change by an extent of 47, it has increase which means there has been a cash outflow to that extent 47.

Next is accounts payable. Again go to your balance sheet accounts payable is in your liabilities 332, 388 the difference is 56. What was applicable to accounts receivable is exactly applicable in the opposites sense to accounts payable. In this case we find that the difference is 56, accounts payable has increased y was delta y, delta y is 56. If your accounts payable has increased between two successive accounting periods.

The amount that you have to pay some vendor that you owe to a particular vendor is increased the fact that the amount that you owe or you supposed to a vendor if that has increase. It means there is an internal cash generation the fact that you have not pay and the amount that you have not paid is increase between two successive accounting periods is an internal cash generation. And that is why increase in accounts payable is a cash inflow.

And hence this difference of 56 is recorded as a cash inflow same is case with tax payable. If you look the difference is 1. So, it is a payable accounts increase in tax payable is 1. And deferred taxes also the difference is 5, increasing deferred tax. Now what is the net cash flow from operating activities 320, 376, 377, 382-134 248.

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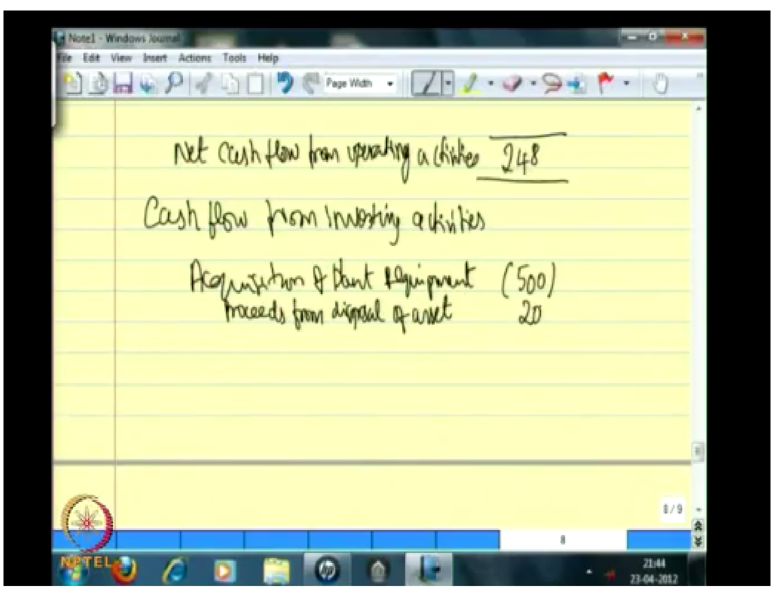

So, this is your net cash flow from operating activities 248 means you operating activities have generated cash worth 248000. Now let us come to investing activities, cash flow from investing activities, let us begin with the first example. I gave you that you know buying plant equipment disposing plant equipment this in investing activities. So go to your balance sheet and see the difference.

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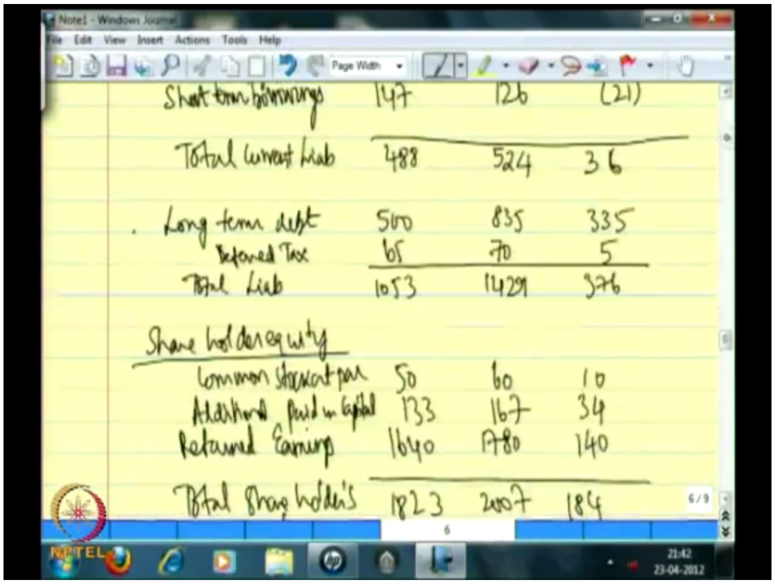

And the plant and equipment that we have during this accounting period so, it is in your assert 2000, 2350, 350 is the difference. So, 2000, 2350, so acquisition of plant an equipment can I write 350 here as cash outflow no why because I qualified the difference when I went back to my account ledger pick this account plant an equipment. I found, but during this accounting period 150000 worth of existing asserts was disposed for 2000 rupees.

And new asserts worth 500000 was purchase and it is that difference is 350 that I came to know only when I solve the accounts. Now for the purpose of cash flow that particular account category plant and equipment. Now explain s that I have purchase new equipment worth 500000 and proceeds from disposal of existing assert that is your 150000 wroth asset gave me 20000 worth cash inflow of 20000.

Next investment acquisition let us say I also invested some money outside investment security. So, investment securities you go to your balance sheet, you find that the investment securities difference is 50. Now what is this mean the difference is 50, it means that the value of the investment securities that I hold today 450, is 400, the value that I held one year back was 450 which means I have sold some of the securities that I have to generate cash of 50.

Do not get confused by this negative 50. This explains this 50 is a reduction in the value of the investment security that does not mean. The cash was actually gone out in fact in this case it means the opposite, reduction in value of investment securities means suppose you had a deposit. And then you the deposits get retired and you do not renew it, you surrender the deposit. You get cash. So, in your balance sheet the neat year.

The value of the deposit gets reduced to that extent that but you have got cash. So, it is a cash inflow. Now but what was happened when I went into the account from the ledger you see what has happened in investment securities. I found that the explanation for this difference of 50 is not because I retired 50000 worth investment securities. And what 50000 because of that it is because I purchase new investments.

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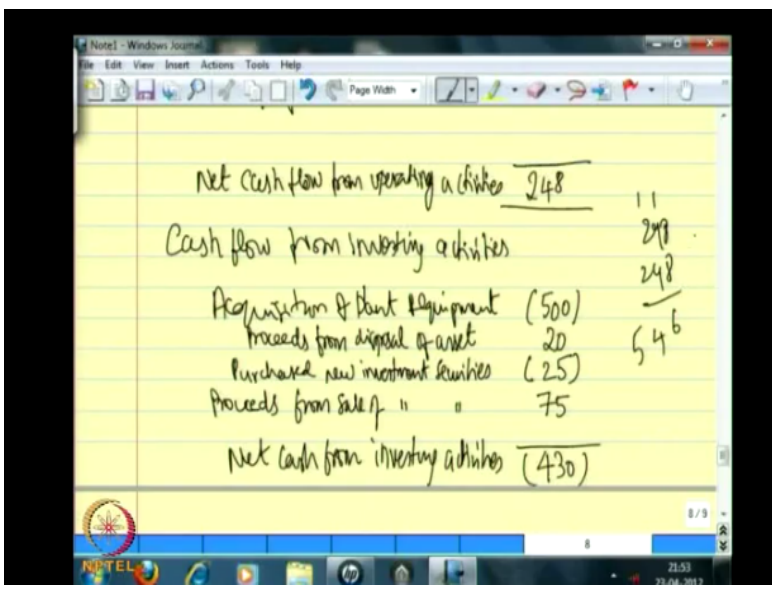

I purchase new investment securities worth 25000. So I purchase new investment securities cash outflow and proceeds from sale of investment securities was 75. Now you see that explains the difference 75-25 50 in your balance sheet. So, net cash inflow of 50. So what is in net cash from investing activities, net cash from investing activities is 525 and 95, 430, what is this mean that when I the quick analysis of all investing activities during this period.

I find that the investing activities or consumed cash the net consumption of cash because of investing activities is 430000. You have this in mind again that in your operating activities generated 248 and investing it is consumed 430.

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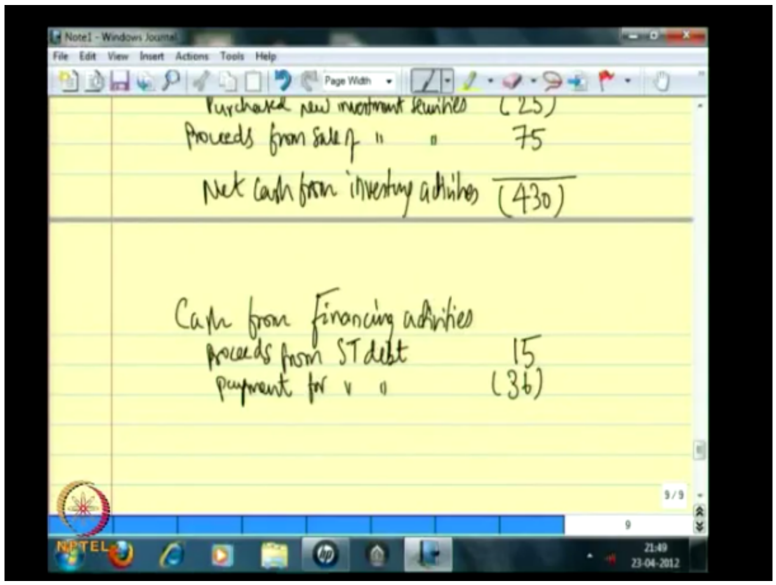

The next thing cash from financing activities again I go to your my balance sheet what are my financing activities could be short term debt, long term debt for I issue stocks paid dividend. These are all financing activities so, let us say I go to short term debt. So, what is my short term borrowings the changes 21 now if the change is 21 does not mean that I have repaid 21000 worth existing short term burrowing.

Because you see this it is 147 and it is 126 which means my short term borrowings I have reduced which means I repaid. In the absence of any extra information it is correct to assume that I have repaid 210000 worth existing short term debt. But I say no you go into your ledger and pull out the account short term debt. And see whether something more than this 21000 it is not just that 210000 something more has happened.

And the resultant of all that has happened this 21000 go to that account and I find that I actually burrowed new short term loans proceeds from short term debt. I burrowed 15000 and then payment for existing short term debt I paid 36000 worth existing short term debt and it is this difference 36-15 is that 21 that we saw just a few minutes back in the balance sheet. That is the difference of 21. So short term debt.

In this you find that there is a cash generating activity there is a cash consumption activity both related to short term debt. And the resultant of that is a cash consumption of 21000 likewise long term debt.

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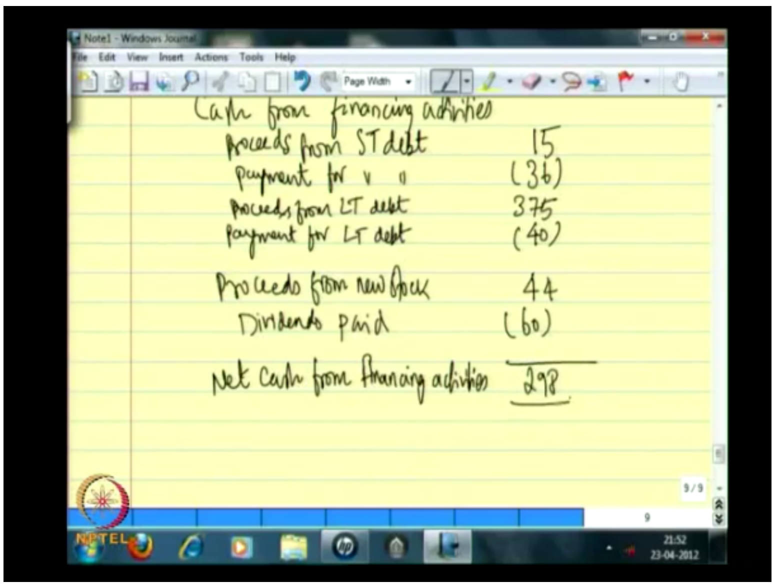

I purchase proceeds from new long term debt is 375 payment for existing long term debt is 40. So, 375-40 is what 335 now this 335 should be in your balance sheet let us see whether it is correct 500, 835, 335 is in your balance sheet. Now without looking at the balance sheet itself I went to the account category long term debt. I found that there were lot of activities in this case two activities one that actually brought in fresh loan worth 375.

And other long term activity where an existing long term debt worth 440000 paid 375-40 is 335 and this these 375 where appears as a difference in your balance sheet. Now let us say also raised capital through stocks this how did I know I went to the accounts stocks and form that proceeds from new stock issuing new stock is 44 which means I raised capital by selling shares 44. And when I go the account statement I mean balance sheet.

I will find in the share holder equity there is difference 44 I issued new stocks worth 44000 10000 of which was apart 34000 was the additional paid in capital that brought in 44000 ot the firm is a cash inflow did I pay dividends yes in a income statement from the 200 net income that was available let us assume that dividends worth 60000 was paid. So, dividends paid is cash outflow. So 60 is the dividend that is paid.

This information is availability so, what will be the net cash from financing activities 15, 36, 375, 40, 44, 60 298.

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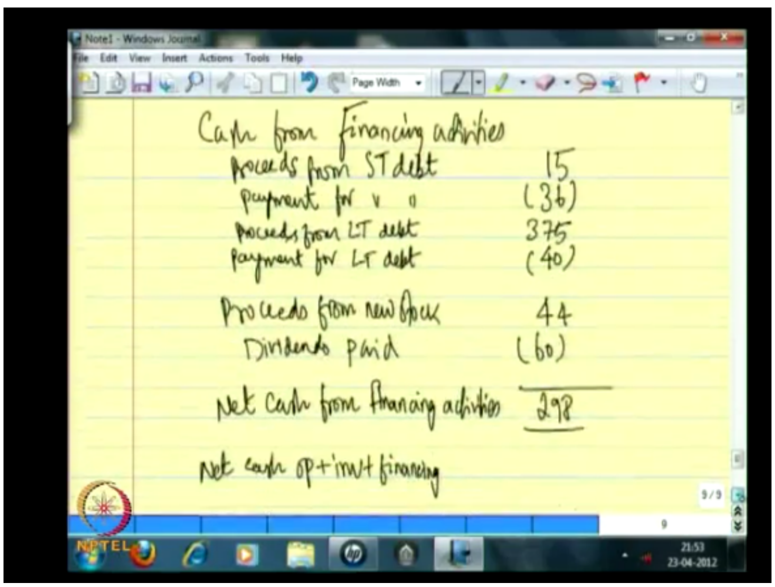

So, what is the net cash from all these 3 activities that is net cash from operating + investing + financing so, it will be 298 it was 248, 298 +248 546 – 430 that is your investing activities as consumed cash so, 116

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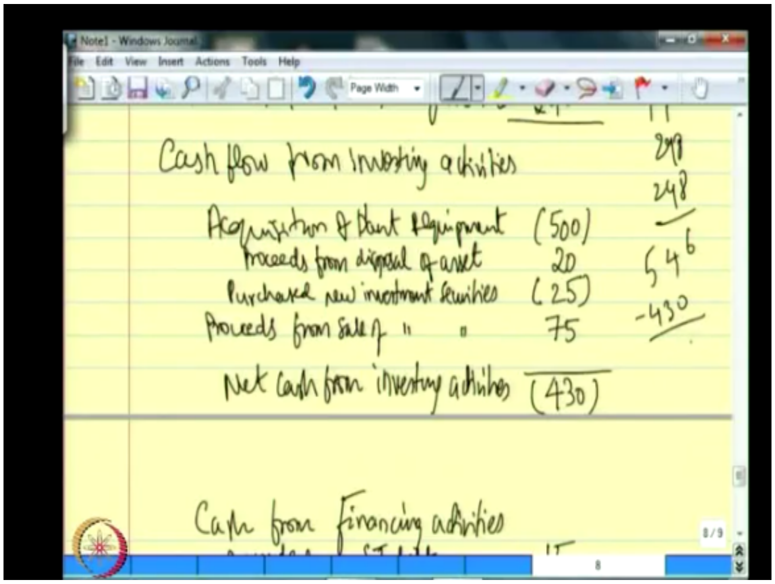

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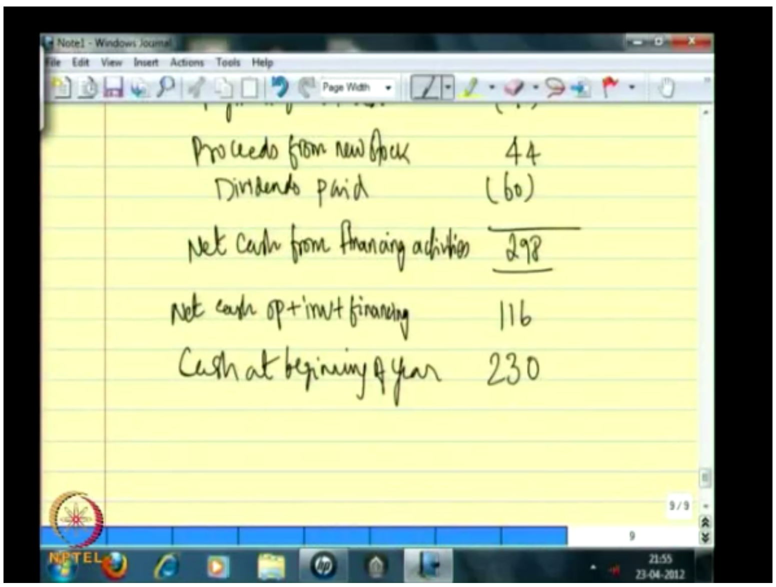

So, the net cash is 116 so, what is this mean it means that in this period between first April 2011 and 31/03/2012 a lot of things have happened to various accounts. And because of that cash has mood out or cash has come in and we are captured all those activities. And understood how much cash left or how much cash got into the entity and the summation of all that is your 116 which tells that the net increase in cash and cash equivalence.

Because of all these activities during this accounting period is 116 now let us moment assume that I did not give you the balance sheet for 31/03 ending 31/03/2012. I gave you a balance sheet for 31/03/2011 and I told you that during the period first April 2011 to 31/03/2012 and lot of things have happened. And finally the cash available end of 31/03/2102 is 116 can you tell me the total cash balance end of 31/03/2012.

The answer is very simple I just add the opening balance which is the closing balance of 31/03/2011 in this case it is cash at beginning of year is how much. If you are go to your balance sheet it is 230 right your cash of the beginning of the year is 230 add it with the cash that has been generated during this year alone. It is 346 technically it should be equal to the closing balance or the cash that you see in the balance sheet end of 2012 it is 326.

But what do we get here 346 how do we account for this 20000 is the question. I will leave this with this question in your minds go back and revisit this exercise. And tell me, how do we account for this 20,000 that is the assignment for you for this class. Because strictly in a cash flow statement when we calculate the net effect of cash whether it is cash consumption or cash generation during an accounting period.

That net result+the opening cash at the beginning of this accounting period must be equal to the cash ending that accounting period. It must and I am not done anything wrong in whatever we have done now there is absolutely no mistake. We have done everything meticulously but then our summation here shows that the closing cash must be 346 well the balance sheet shows it is 326. And I am telling at the balance sheet is correct.

Now how do we account for this difference of 20,000 is a question that I would like to leave the class the answer for which you will get then we meet next Thank you.